Preserving Our Natural Heritage

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Volume III
PRIVATE, ACADEMIC, AND LOCAL GOVERNMENT ACTIVITIES

Prepared for the
United States Department of the Interior
by
The Nature Conservancy
1982

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interests of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U. S. administration.

Preface

This study is the third and last of a series of studies, entitled *Preserving Our Natural Heritage*. They have been prepared by The Nature Conservancy as part of Project V-3.1 of the U. S. - U. S. S. R. agreement on cooperation in the Field of Environmental Protection of 1972 and UNESCO's Man and the Biosphere Programme. The ultimate goal of the studies is to provide a comprehensive overview of federal, state, and local government and private sector activities involving the preservation of natural areas.

Volumes I and II of *Preserving Our Natural Heritage* discussed federal and state activities respectively. The present volume covers the remaining actors, who fall into 3 broad categories: (1) the private sector, including private individuals and private conservation organizations; (2) universities and other academic institutions; and (3) local governments.

Research for this volume was conducted between November 1976 and April 1977, with minor updates made in the winter of 1981. A great many organizations are involved with natural area protection, many in a variety of ways. It was not possible to contact every organization.

The importance of the hundreds of individuals and local efforts which were not referenced in this book cannot be discounted, however. It is due in part to the concern, time, and energy of these thousands of other individuals and organizations that natural area programs exist at all.

A great many people have given generously of their time to make this volume possible--too many, in fact, to name them all. The Nature Conservancy wishes to express its gratitude to everyone who gave it advice, sent materials, discussed his programs, and read drafts of chapters for this volume and, too, to thank all those who are exploring and experimenting with new ways to protect our heritage and the rights of all living things.

Acknowledgments

Project Staff

Jacqueline Lansing, *Director-Writer*

Hardy Weiting, Jr., *Principal Advisor*
Legal Advisor, Government and State Heritage Programs

Rose Ann Allison, *Assistant to the Director and Senior Researcher*

Research Assistants and Writers

L. Bradley Hittle

Richard Keister

Suzanne B. Lepple

Typists

Joan Cookingham

Janet Davies

Cheryl Ferrari

Priscilla M. (Sam) Franke

Mary Pulling

Karen Scruby

Grace Wiedeman

Special Acknowledgments

The director and staff of this study wish to thank Lyndon Woodall for his expert assistance and patience in programming site and organizational information; Marianne Guiffra for her work in transcribing information, contacting individuals for further information, ensuring the accuracy of computer-generated products, and producing statistical summaries; Steve Hartstack for producing up-to-date listings of Nature Conservancy and California Land and Water Reserve System preserves; Ken Wright for his updates to the university listings and generation of computer products; Jacqui Russell for assistance in tracking down information sources; Carol Hall and Sheila Gault, director and assistant director of administration, respectively, for facilitating daily operations; Paul Verduin for editing portions of the manuscript; the Associates for Renewal in Education, Inc., (ARE) and especially Whitney Watross for their careful editing of the manuscript; Susan Lukowski for her thoroughness and determination in ensuring consistency with Volumes I and II of this series; Daniel E. Pike, Lawrence Stein, Glenn Tiedt, Steve Hartstack, Mike Dennis, Dorothy Behlen, and Robert E. Jenkins for 1981 updates to the manuscript; Sam Franke for untiringly burning the midnight oil to compose and layout the final manuscript; and Karen Scruby for meticulously producing the final camera-ready copy.

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Chapter Sixty-six

Introduction to Private, Academic, and Local Government Natural Area Activities

66.1 Overview

With the introduction of technology, America's natural heritage has greatly diminished. The principal cause of this loss is unplanned alteration of the landscape. The Council on Environmental Quality estimated that annually 1.25 million acres of natural and agricultural land are converted to more intensive use: urban expansion consumes 740,000 acres; transportation projects, 130,000; and reservoirs, 300,000.

Even remote areas once thought to be in no danger of disturbance or development are now being used for recreational purposes or vacation homes. Unplanned land alteration has resulted in the irretrievable loss of large ecological systems and hundreds of plant and animal species. The vast American prairies once covered a third of this continent. Now only a few pockets of native tall grass prairie remain. Roughly half the nation's wetlands have been dredged and filled, even though wetlands are critical to America's fish resources. Very few stands of virgin timber exist anymore in the United States except in the northwest, and the bottomland hardwood forests of the southwest have been nearly eliminated. At least 145 mammal species and subspecies have become extinct since 1600, including 30 birds, 15 mammals, and 17 fish. An additional 180 animals are threatened with extinction. It is estimated that perhaps 10 percent of the biota on earth is already in jeopardy.

Similarly, individual states have suffered extensive losses of their natural heritage. For example, the State of Tennessee has spent two years attempting to locate high quality examples of the 132 known plant communities which once existed there, but has only found 72 percent of these. The State of Illinois, which is now identifying the 1,000 best tracts of land where native vegetation remains relatively undisturbed, estimates that these sites are being destroyed at a rate of 15 percent annually. Two hundred years ago, the State of Hawaii probably had the most unique and varied animal and plant life of any island system in the world. Today 23 of its 67 species of birds are extinct, and another 29 are threatened with extinction. Approximately half its 1,729 species of plants are thought to be endangered or extinct.

These losses have prompted a large number of private organizations, academic institutions, and local governments to supplement and further encourage federal and state protection of America's natural heritage. However, the task is so immense that many groups have, for practical reasons, limited their activities to portions of the overall heritage preservation goal. The call today is for coordination of these activities: identifying what has been done already and by whom, and what still needs to be done.

66.2 Structure of this volume

This volume deals with both the programs and mechanisms available for compiling information on natural diversity, as well as with the tools that can be used to protect identified features and phenomena of value as permanent examples of the nation's natural heritage. It is intended to serve as a handbook for people interested in natural area preservation. It evaluates a range of options for protecting natural diversity, indicates their relative costs, suggests alternative levels of effort, and estimates the degree of success that can be expected.

In order to present in a useful manner the information provided by the large number of private organizations, academic institutions, and local governments contacted for this study, this volume is structured as follows:

Section 66.4 of this chapter gives an overview and comparison, at a general level, of a variety of protection tools: notification; registration/designation; less-than-fee acquisition; fee acquisition; dedication; trust dedication; environmental impact analysis; consciousness-raising; legislative, legal, and administrative fighting; tax incentives; and watchdogging. The remainder of the volume is divided into three parts. Part Ten deals with private organizations (including individuals); Part Eleven with academic institutions; and Part Twelve with local governments.

Within each part, separate chapters address the various tools as they are applied by each group. The chapters begin with a brief review of the tool, its application and costs, followed by a

summary of ways the tool has been used by one or more representative organizations. A specific example or case study which best exemplifies a typical operation of the organization appears under the heading "Illustrative Example."

While some of the organizations surveyed use many or all of the tools, others limit themselves to a single one. The Nature Conservancy is known primarily for acquisition of lands, but in fact uses a number of other techniques. The Maine Coast Heritage Trust, on the other hand, restricts its activities to easement work, while the Desert Pupfish Council monitors the status of the rare pupfish. In recognition of the range of activities of many of the organizations discussed here, their overall goals and objectives are included, in addition to their application of a protection technique. For example, Chapter 72 discusses not only the National Audubon Society's use of fee acquisition, but also its other activities.

At the end of each chapter is an informational and bibliographic section. It contains

A contact(s) at each organization discussed;

A bibliography;

A technical appendix with information on how various documents and other material can be obtained; and

Computer-generated lists of other organizations using a particular tool and/or of areas protected by the tool. The listings of other organizations are not all-inclusive.

66.3 Rationale for the preservation of natural diversity

> "In its land and its history the nation finds the things which give it continuity. By preserving places that have special natural, historical, cultural, and scientific value, we can insure that our children and grandchildren have a chance to know something of the America that we . . . simply took for granted."[1]

The challenge of preserving our natural heritage has always been a matter of ensuring the protection of the maximum number of species and ecological systems in viable numbers on the least number of reserves. This goal has necessitated tradeoffs in which nothing is maximized, but in which an optimal level of the various discrete ecological entities (elements of natural diversity) do receive protection.

Scientists have, for a long time, appreciated the fact that the high quality of life in America, both economic and esthetic, has been and will be tied to the availability of natural resources. Storehouses of genetic diversity have been the bases for agricultural and industrial development, improvement, and, in many cases, survival. Existing organisms contain diverse chemicals and capabilities which have evolved over the eons to meet specific needs or conditions. These adaptive characteristics can be studied to meet man's adaptive needs. The agents mankind needs to combat disease, pests, and other harmful elements may be better found through a study of the variety of substances and mechanisms that make up the complex machinery of natural species and ecosystems, rather than through random attempts to create such agents in laboratories. In fact, of 76 major compounds obtained from higher plants, only about 7 can be produced commercially at competitive prices through synthesis.[2]

The protection of natural ecosystems is the best way to maintain gene pools of many species of unknown value until time and dollars become available to study them. Ecosystems are highly evolved, mutually interactive associations of species and inorganic components of the landscape, which are uniquely adapted to specific areas of the earth. They undoubtedly contain much of which man is still totally ignorant. Natural ecosystems cannot be accurately duplicated in artificial settings. Because the effects of the loss of species and habitats are not fully known, an argu-

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[1]President Jimmy Carter, Environmental message, 1977.

[2]Michael Frome. *Battle for the Wilderness* (New York: Praeger, 1974).

ment for preserving diversity is often our ignorance of what would ensue if we neglect to do so.[3]

More detailed reasons better explain the persistence of concern over preservation of natural diversity.

(a) Baseline monitoring and research

The well-known example of the miner's canary is a case in point. The canary experiences distress due to poisonous gases before a miner does, giving the latter time to escape. Less well known is the fact that some lichens will wither if exposed to low concentrations of nitrous oxides.[4] A cave-dwelling creature, the cave scud, can help monitor groundwater pollution. At the rate at which new chemicals are introduced into the environment, it is inevitable that other species will become important in assessing its quality.

Similarly, it makes sense to look at systems which have been surviving successfully for thousands of years for the traits that lead to survival, some of which may be applicable to man. Nature preserves serve as islands where monitoring of undisturbed ambient environmental quality can take place, where the differences between altered and natural systems can be studied, and where the functioning of ecosystems can be analyzed.

(b) Ecosystem stability and reconstruction

Nature also involves the healing of wounds. Deliberate environmental modification of the environment has frequently had disastrous side effects, but ecological succession has often been able to repair the damage. It can be seen in the gradual recovery of overused mid-Atlantic tobacco lands.

In the past the process generally occurred naturally. At present, landscape alteration is much more extensive and permanent; more and more species become endangered as their habitats shrink. Agricultural areas now tend to become tomorrow's suburbs rather than tomorrow's forests. Natural processes may not suffice.

(c) Education

Only by preserving ecosystems, communities, species, geologic features, minerals, and other natural features can present and future generations know and understand their natural heritage.

(d) Medical research

Each extant biological species, no matter how rare, is a potential resource. Even a few individuals of a species may have an important use that could be generated in greater abundance. The number of instances in which the unique attributes of a species have instantly increased in value from "useless" to "priceless" is legion:

> The armadillo is used in leprosy research because of its high tolerance to that disease.[5]
>
> Blood of the horseshoe crab is used in the diagnosis of spinal meningitis in children.[6]
>
> A substance which holds barnacles to rocks is being studied as a dental adhesive.[7]
>
> A strain of platies (Central American freshwater fish) is being investigated for its usefulness as a rapid indicator of the presence of carcinogens in water.[8]
>
> The nearly extinct desert pupfish may prove beneficial to human kidney

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[3]Committee on Germplasm Resources: Division of Biological Sciences, "Conservation of Germplasm Resources: An Imperative," National Academy of Sciences, 1978.

[4]Natural Resources Defense Council, Inc., *NRDC Newsletter*, Volume 6, Issue 1, Jan./Feb. 1977, p. 11.

[5]K. F. Kirscheimer and E. E. Storrs, *International Journal of Leprosy*, Volume 39, pp. 693-702, and Vol. 40, pp. 229-42.

[6]Peggy Thompson, "Value Is Extracted from a Nuisance," *Smithsonian*, April 1975.

[7]"Lowly Barnacle Held Source for Much Good," The New York Times, Feb. 11, 1968.

[8]"A Fish for Cancer Research," *The Washington Post*, Oct. 7, 1977, p. A-12.

disease research because of its tolerance to extremes in temperature and salinity.[9]

Drugs derived from higher plants are estimated to have a market value of $1 billion. Foxglove, the source of digitalis, a medicine for heart disease, is but one example. In 1975, the medicinal plant business was estimated to be worth $300 million annually.[10] In 1967 an analysis of over 1 billion prescriptions in the U. S. revealed that 50 percent derived their active ingredient from a plant species. It has been estimated that 95 percent of over 350,000 plant species worldwide have never been studied for their medicinal value.[11]

(e) Agricultural benefits

One of the principal sources of new crop strains resistant to diseases and pests has been the genetic pool of a species or, beyond that, the pool of its wild relatives. By selecting and interbreeding different varieties, it has been possible to continue to generate new recombinations with the needed characteristics.

The elimination of wild grain habitats and the constant narrowing of the genetic base has raised grave questions about the future. Agricultural scientists have been expressing increasing concern about the loss of genetic diversity in nearly every major crop species.[12]

As recently as 1970, almost one-fifth of the U. S. corn crop was eliminated by a corn blight.[13] Only a change in the genetic makeup of the hybrid corn, achieved by breeding with wild relatives, allowed a new and stronger hybrid to develop. There are numerous other examples of the agricultural benefits of wild species.

Wheat provides a good example of the value of genetic diversity *within* a species. In 1974, the total world wheat crop was valued at $30 billion. As with other plant species, it is most efficiently grown as a monoculture, but monocultures are highly susceptible to the transmission of disease and infestation by pests. Manipulation of strains and agricultural practices can, however, minimize losses due to diseases and pests; especially effective are new varieties developed with resistant properties.

Unfortunately, diseases and pests are well-adapted to this sort of struggle and can overcome the resistance of new varieties almost as fast as they can be developed. This frightening situation has been referred to as the "race between agricultural research stations and catastrophe."[14]

One solution has been the use of pesticides, but as their dangers, both in the field and in the manufacturing plant, are becoming better understood, integrated pest control strategies are being developed. They use previously unrecognized natural predators or parasites to control agricultural pests or disruptive exotics. California's fruit and wine stocks have been helped by biological controls.

A dramatic example of the hidden value of an individual species involves the American prickly pear cactus. When introduced in Australia, it rapidly spread over thousands of acres of pasture and rangeland. Attempts to eradicate it were unsuccessful until a natural predator, a moth, was also introduced. The role of the moth in controlling the cactus had not been recognized until the "Australian Experiment." The usefulness of the insect in its native habitat is now realized.[15] Biological control mechanisms such as this are becoming more and more important as a safe means of controlling pests.

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[9] Source unknown.

[10] John V. Krutilla and Anthony C. Fisher, *The Economics of Natural Environment: Studies in the Valuation of Commodity and Amenity Resources,* Resources for the Future Series (Baltimore: Johns Hopkins, 1975).

[11] *Op. cit.*, Michael Frome.

[12] "Genetic Erosion: Crop Plants Threatened by Government Neglect," *Science,* Vol. 182, December 21, 1973.

[13] W. Garrison, "Breeding Crisis for Our Crops: Is the Gene Pool Drying Up?" *Horticulture,* April 1977. See also National Academy of Sciences, *Genetic Vulnerability of Major Crops,* 1972.

[14] The Nature Conservancy, *The Preservation of Natural Diversity* (1975).

[15] R. E. Ricklefs, Ecology (Chiron Press, 1973), p. 534.

(f) Industrial uses

While the number of industrial applications of natural diversity may not equal those of agricultural uses, numerous examples exist:

> In 1910, 50 percent of the U. S. natural rubber production came from the wild guayule, a species of sunflower. As worldwide rubber reservoirs are depleted and the price of petrochemicals escalates, this plant could again become commercially important.[16]
>
> The bean of the jojoba plant produces an oil which can replace the oil of the sperm whale (a threatened species) for industrial use.[17]
>
> The giant sea kelp is the basis of a multimillion dollar industry. Algin, a chemical substance extracted from the kelp, is used as a thickening, stabilizing, and emulsifying agent in numerous products including ice cream, paints, toothpaste, and pharmaceuticals.[18]

In conclusion, by setting aside selected areas of the natural landscape, representing the full range of communities with their component species, a resource bank of incalculable value can be created. It is sure to yield critical, irreplaceable, and therefore priceless resources to meet unanticipated future needs.

66.4 Some tools for the protection of natural diversity

A. Introduction

There is no single way to protect the nation's elements of natural diversity which includes the full range of ecological resources necessary to understand the origin and evolution of species and to preserve the unique genetic structure that each species represents. Each mechanism has limitations. Acquisition in fee simple, a tool for purchasing land, was once widely considered to be a protective mechanism without substantial drawbacks, but it in fact has considerable limitations. Acquisition may be by a public agency which has no special preservation mandate and which may convert the property to uses inconsistent with preservation. Even if the agency has a preservation mandate, it may be forced to yield to an agency with another mandate, to the governor, or to the legislature. In addition, acquisition suffers from the disadvantage, and this is true for private conservation organizations as well as public agencies, that it is expensive. Indeed, the expense is twofold: the initial acquisition cost and the long-run cost of stewardship, if adequate stewardship is provided.

Other tools, including notification and certain forms of registration and designation, are weak forms of protection. Certain types of tax incentives provide, over the long-run, only temporary protection and regulation of land use may not be politically feasible. While many techniques are relatively weak, when used in conjunction with other weak tools they can have a fairly strong cumulative effect.

Employing a mix of tools is important because not all elements of diversity which should be protected are necessarily subject to a single type of threat. Protection, therefore, must be flexible; different problems will require different solutions. Federal and state governments tend to rely very heavily on fee acquisition in protection efforts. However, the other protection tools which can be used are not any more difficult to employ than acquisition, and their introduction can help inculcate an environmental ethic and promote greater involvement and awareness by the public of the need for ecological integrity.

Each preservation goal should be pursued by the most appropriate and cost-effective tools available. The following example illustrates a diversified approach to the problem: an inventory of priorities for protection shows that a fine sphagnum bog should be protected. If the bog is in a Forest Service area, acquisition and dedication are ruled out, but this should not end

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[16] National Academy of Sciences, "Economic Promise in a Desert Shrub: Natural Rubber from Guayule," *News Report*, 1977.

[17] "Guayule and Jojoba: Agriculture in Semiarid Regions," *Science*, Vol. 196, June 10, 1977, p. 1189.

[18] T. G. Branning, "Giant Kelp: Its Comeback Against Urchins," *Smithsonian*, September 1976.

the matter. The Forest Service has certain resource management policies and procedures which it can employ to protect the bog. Pointing out the importance of the bog to the regional or district forester and citing relevant Forest Service directives[19] and preservation precedents may be useful.

Entering into a formal agreement with the state's natural resource agency may also be appropriate. If the bog is not located on a Forest Service area, but is in the ownership of an individual who does not wish to sell or dedicate the property, a wide variety of approaches could be considered; it is not necessary to give up and leave the property unprotected. Alternatives can include a range of options from the weaker protection afforded by voluntary registration of the property to the stronger protection of conservation easements or dedications. Even when it is determined that acquisition is impossible, the failure is only with one strategy; others may still be pursued to protect the property in question.

The next section is an analysis of a few tools now available for achieving the maximum protection of natural diversity. The coordinated use of these tools can make for cost-effective, rational, and defensible preservation of the nation's natural heritage. It is followed by a discussion of possible ways of generating revenue for natural area protection.

B. Analysis of Protection Tools

(1) Identifying priorities for protection

The use of each of the different protection tools discussed in this study is made substantially more effective by the development of a data base from which priorities can be identified objectively.

First, it is necessary to determine what is and is not worth protecting. However, ascertaining which landscapes in what configurations and what quantities must be protected to perpetuate the country's ecological heritage and diversity is a difficult problem. The complexity of ecosystems, the number of extant species, the genetic variability of populations, the differing adaptations to local circumstances, etc., are all inextricably involved.

Until recently, most conservation action has been accomplished through random and unplanned land preservation. Parkland, wildlife refuges, private preserves, and as-yet-undeveloped parcels have been chosen, protected, or left in their natural condition for reasons other than deliberate perpetuation of ecological diversity. Nevertheless, for the time being it is these areas that have secured the preservation of a remarkably large fraction of this nation's total original diversity. Using invertebrate animals and higher plant species as indicators, it is really rather surprising that no more species have become extinct. However, it is obvious that the nation is now reaching a point at which continuation of random preservation and unplanned development is incompatible with the objectives of perpetuating the maximum diversity of the nation's ecological fabric. A strategy of careful and deliberate planning to determine which lands to protect and which to develop is now essential.

The task of identifying which types of lands, if protected, would best represent the nation's natural heritage is not a simple one. Until the computer age, this task was either attacked piecemeal or at a very general level. Volumes I and II of this study clearly show the bases (or lack thereof) on which areas have been identified and protected. As a report by the Council on Environmental Quality and the Federal Committee on Science and Technology[20] suggests, these efforts have been largely uncoordinated and without a philosophy or direction to guide them. Chapter 68, "Identifying Priorities for Protection," summarizes some of the major activities undertaken to date by the private sector either to coordinate and keep track of heritage activity and the status of protected heritage resources or to accomplish portions of the overall goal.

The identification process has three aspects: (1) the creation of a classi-

[19] As a beginning, see The Nature Conservancy, *Preserving Our Natural Heritage*, Volume I: Federal Activities (1975), Chapter 5.

[20] *The Role of Ecology in the Federal Government*, December 1974, p. 3.

fication or preliminary list of ecological and biological features (often referred to as elements) to be tracked or inventoried; (2) the creation of a data management (bookkeeping) process to record and keep track of the location, relative rarity, and status (protected or unprotected) of the elements listed in the classification; and (3) the inventory or taking stock of the occurrences (places on the landscape) where each of the ecological and biological features in the classification can be found.

These three points are discussed further:

(a) Classification

Classification is a means of defining the targets of the inventory. The scope of classifications has varied tremendously depending on the objectives, purposes, mandates, and time available to the inventory group. These factors, combined with the paucity of scientific information in many areas, have limited organizations from tackling the larger problem of defining those discrete types of ecological and biological units which, if protected, would capture the "total diversity of species" in the United States. In the United States alone there are approximately 3,700 vertebrate species of fish and wildlife (birds, mammals, fishes, reptiles, and amphibians, not to mention invertebrate species. Plants account for approximately another 18,000 species. Because of the large number of species, certain simplifying or classificatory assumptions are necessary to make inventory tasks possible. For instance, a classification might focus on both communities and critical species: the first allows for the preservation of ecosystems and the more common species while the latter also aims the inventory on the rarer or more uncommon taxa.

For the most part, the natural resource classifications and data management systems which have been used to date have been directed at facilitating predictions of economic productivity. While these classifications have been employed by preservationists, they have often been inadequate for the goal of natural area preservation.

Classifications specifically tailored to the conservation of the country's natural heritage, defined as the "total diversity of species necessary for understanding the origin and evolution of species" and for preserving the unique genetic structure that each species represents, are only within the last decade becoming a reality. These are based on a number of simplifying assumptions. For example, it is known that Arizona is very different from Maine. Therefore, saving land in both states makes obvious sense. Arizona is also different from Texas, but less different. Systems under water are different from systems on dry ground, plants are different from animals. Identifying these differences allows us to increase the chances for protecting ecological diversity. Refinement of this pattern of thought generally continues only as far as resources and philosophy permit. Too fine a system of classification can produce an exponential growth problem and result in more entities than can ever be defined, described, researched, or dealt with.

Therefore, the decision as to how finely to cut the heritage pie is both a matter of philosophy and resources. Evolutionary biologists and geneticists might argue the importance of saving all species in their natural habitat. At the other extreme, there are those who argue that life-boating a little bit of Maine and a little of Arizona will capture all the diversity needed to support the nation. Existing classifications reflect these divergent philosophies.

The point in this volume will not be to advocate a particular ecological classification, philosophy, or definition of the levels which should be protected but rather to provide a few mechanisms or tools which can be used to protect whatever priorities are identified.

(b) Data management

Data management is a systematic process by which inventory data can be stored, retrieved, and analyzed. Many past efforts have been ineffective because they have not included a practical means for making the information available to those who can use it. They have often used publication formats without incorporating a means for updating, supplementing, or otherwise improving the data. Consequently, the

information becomes lost or outdated and is not likely to be used in the decision-making process.

(c) Inventory

The inventory process locates sites where ecological and/or biological elements or features listed in the classification are found and helps identify who owns or is responsible for them.

Each location is known as an occurrence. Where recorded occurrences are few, rarity or lack of information may be indicated.

Such an inventory process can also serve to focus or direct research on the biology and ecology of the rarer elements and thus facilitate the identification of critical habitat and future management needs. A data base which shows that certain elements of the nation's natural heritage are rare can often be considered a form of protection. Few people will maliciously destroy something they know to be rare.

While it might be argued that the availability of data itself has intrinsic power to protect natural diversity, this is an extreme position since an area's significance must be communicated. All the protection tools discussed in subsequent sections are either ways of disseminating information in the data base and hence of using this intrinsic power, or ways of complementing and supplementing it.

(2) Notification

The notification process is the process of disseminating information about the occurrences and relative significance of the elements of natural diversity. Those notified are all those who have an interest in or who may affect the land where the ecological value occurs. The process of notification about occurrences may or may not result in the long-term protection of an element.

One problem for some elements, however, is determining responsibility for their protection. Technically, all occurrences of elements of natural diversity have an owner, but ownership and responsibility are not always the same. The owner is usually the responsible party in the case of stationary elements such as tall-grass prairies or stands of *Betula uber*

But adjacent landowners and even non-adjacent landowners may also have responsibility for protection or threats upon stationary element occurrences. For example:

1. In the West one might control the land surface, but not the water. Therefore a significant stretch of stream harboring threatened fish could be altered by water diversion practices that reduce stream flow. Such practices may be the result of the surface owner or another second party.

In eastern Colorado, sprinkler irrigation from wells is lowering the water table. Theoretically, this could reduce growing suitability for indigenous plant species. The source of the problem can be widespread and not necessarily initiated or controlled by the surface landowner of the plant habitat.

2. Similarly, sources of toxic pollution from many miles away might threaten a species (*i.e.*, acid rain, impact of mine tailings on water pH., etc.).

3. Proximity of human encroachment (subdivision for example) on adjacent land might force bird and animal species to abandon breeding, roosting, or feeding areas even though the specific sites themselves are not altered. Prairie chickens, raptors, and big horn sheep among others have all been affected. Such practices are for the most part beyond the control of the primary landowner.

Responsibility for the protection of mobile species is even more difficult to pin down for a number of reasons, namely ownership is less obvious and species habitat requirements are often too large to be taken out of production. As a result, these pose greater problems for protection; for example, the sighting of an endangered animal species is sometimes recorded as an occurrence of an element of diversity, but the landowner where the species was sited does not necessarily own the species. If not, is he nonetheless responsible for protecting a habitat which the species frequents, but where the species does not nest or feed? Ownership and species requirements are important considerations in the method or tool selected for protection.

Notification of the owner, caretaker, or steward of an ecological feature of value is a useful tool for protecting occurrences of important natural features for three reasons. One, it can afford temporary protection by the owner until such time as needed critical habitat determinations are made; two, it is relatively inexpensive; and three, it is easily reversible if subsequent ecological data show the property is not as significant as originally thought. In most cases, use of this tool is the first step in implementing most other tools.

Notification means the act of communicating to the appropriate party at least 2 things: (1) the fact that the property has been identified through an inventory as having an occurrence of an element of natural diversity; and (2) the nature of the element and its particular value. Additional information about the concept of natural diversity, the significance of the feature in preserving the nation's natural heritage, the element's life history, and methods to protect it may also be included.

There are many ways in which notification might take place. Those familiar with this tool are convinced that the manner of notification is vital to its success as a protection device, though other factors—judging the receptivity of the party notified, the time at which notification occurs—are also extremely important. It is generally believed that the more bureaucratic or impersonal the method of notification, the less effective it will be. While the National Natural Landmarks Program[21] has had some success in notifying by letter owners of areas identified as landmarks, staff believe that notification in person (and preferably by a peer of the owner) is more effective. Many owners of significant ecological features are unaware of their public interest value and seem to enjoy learning of the special characteristics of their land.

Notification and how it is handled is often the single most important step in the protection of specific sites, and usually determines whether further protection efforts will be friendly or adverse. Careful thought should go into the notification process, and adapting the approach to the given situation is essential. This same principle applies to approaching a landowner regarding registration. Inadequate or inappropriate notification can result in

1. Allowing a landowner to indirectly hear of an organization's (particularly government's) interest in his or her property. This hearsay frequently generates fear, resentment, and misunderstanding on the landowner's part.

2. Indirect rumors of interest in a property which can increase speculation about its dollar value.

The effectiveness of notification is likely to vary in inverse proportion to the degree of threat to the land, particularly where the value of the land would be affected. For example, notification a month before the owner is about to reap a huge profit by selling his land to a developer is likely to be much less effective than notification where no threat is in the offing. Similarly, funding and notifying of an endangered species locality in a multimillion dollar project that has already been completed, witness the Tellico Dam Project, has little chance of stopping the project.

There are success stories of individuals who, when informed of some special characteristic of their land, took extraordinary precautionary measures to protect the area, and horror stories of others who callously bulldozed very important areas in order to eliminate any marketing problems which might have followed from possessing some rare natural element. It is critical for the environmentalist to use good judgment, with attention to the unique features of the area in question.

Notification is inexpensive when compared with other available tools. The most expensive form of notification would probably be the personal visit where informative materials are prepared and supplied to the owner.

The strength and effectiveness of notification, insofar as it can be meaningfully determined, is not considerable. Preservation of an element occurrence depends entirely on the strength of the owner's determination to protect it. Over a wide range of cases, it is not as strong as acquisition by a conservation organization or regulation by law or government policy.

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[21]See Chapter 70, Registration/Designation.

(3) Registration or designation[22]

A registry is basically a recognized or formal list, in the case of outstanding natural areas which contain one or more elements of natural diversity in need of protection. Authenticated by a reliable inventory, a registry recognizes areas whose significance is well established. Listing is a form of certification as to the site's value.

What constitutes formality and the degree of formality varies from state to state and agency to agency. A registry may be mandated by statute, with prescribed procedures for making entries, or it may be an administrative tool established by administrators or a program with a broad mandate and used according to the unpublished procedures they developed.

A well-known example of an official registry is the National Register of Historic Places, housed in and maintained by the Office of Archeology and Historic Preservation of the National Park Service in the Department of the Interior. Its natural history counterpart, which was created by administrative action rather than statute, is the national Register of National Natural Landmarks.[23] A site may be considered for landmark designation whether it is in private or public ownership; nominations may come from any source. The listing of a feature or area on the National Natural Landmark Register results from the following process. After an initial weeding-out based on natural history surveys, known as "theme and regional studies,"[24] promising sites are investigated by qualified individuals. Reports based on the investigation are reviewed by landmark program staff, and selected sites are proposed to the Advisory Board on National Parks, Historic Sites, Buildings, and Monuments. If the Board recommends to the Secretary of the Interior that a site qualifies for Natural Landmark designation, the Secretary may accept the recommendation and publicly announce the area's eligibility for designation.[25] This amounts to official natural landmark status and the site is then listed on the Register. At the same time, a letter is sent inviting the owner of the site to sign an agreement to preserve its natural values. When the signed letter is received by the Landmark Office in Washington, D. C., the site becomes officially *registered* as a National Natural Landmark. A certificate and plaque are sent to the owner.

The agreement between the owner and the Secretary may be terminated by either party informing the other. Termination by the Secretary removes the site from the Register, and the owner has to return the certificate and remove the plaque from display. Termination by the owner only requires the return of the certificate and plaque, but does not automatically remove the site from the Register.

The State of Wisconsin has a somewhat different form of registration or designation. The Wisconsin Scientific Areas Preservation Council prepares a list under its authority to make recommendations to the Department of Natural Resources. The council is specifically authorized by statute 23.27 of 1965 to:

> (d) Prepare and publish an official State list of scientific areas

[22] The term "designation" is the most ambiguous of the terms used in planning protection of natural areas. In some statutes and literature, it is used to mean a form of notification; in others, it means dedication. Here it is used to mean placing an element on a registry or list.

[23] The responsibility for the National Register of Historic Places as well as the Register of National Natural Landmarks was temporarily transferred from the National Park Service to the Heritage Conservation and Recreation Service, USDI, by Secretarial Order #3017, dated January 25, 1978. These responsibilities were later returned to the National Park Service by Secretarial Order #3060, relative to Consolidation of Heritage Conservation and Recreation Service Functions into the National Park Service, dated February 19, 1981.

[24] See The Nature Conservancy, Volume I, *Preserving Our Natural Heritage*, Chapter Twelve, National Natural Landmarks Program.

[25] This advisory board review procedure was modified as a result of the transfer of National Natural Landmark responsibility to the Heritage Conservation and Recreation Service.

available for research and the teaching of conservation and natural history, and recommend publication of studies made in connection with these areas.[26]

The Council does not officially list areas which are privately owned unless the owner is a conservation organization or university. (Much of the Council's activity involves working out non-binding preservation agreements with state and local agencies.) However, the Council does keep an unofficial list of potential areas, which includes some in private ownership.

Given an ongoing inventory, the cost of preparing and publishing an official registry is, like that of notification, quite low. The legal protection afforded by a registry, like that for National Natural Landmarks, is substantially less than the strong protection afforded by systems of dedication discussed later. The protection consists primarily of the incentive to protect instilled by official recognition that the site's primary public interest value is in its natural ecological character; and, secondarily, in indirect protection made available through A-95 review processes and NEPA requirements which demand that natural diversity values, including landmarks, be taken into account in weighing conflicting interests and land uses.

The protection provided by a registry must not be underestimated, however. By publicly recognizing an otherwise unnoticed area, a jurisdiction can instill pride in the owner and bring the sanction of social opinion against proposals to destroy the area. The act of recognition may also affect the owner more directly. Here recognition overlaps with the notification tool—an owner may be reluctant to convert the site to a use which would deprive it of official recognition.

One final characteristic of the registration tool must be mentioned. The National Natural Landmarks Program provides for an agreement letter, and this has probably helped further the purposes of the program by involving the property owner. In spite of the provision, registration need not require that the owner voluntarily accept designation.

Registries requiring joint agreements often provoke many questions from landowners. The major ones are

1. Can I sell my land?
2. What practices am I prohibited from undertaking (*i.e.*, agricultural use, timber cutting, pesticides, and herbicides, etc.)?
3. Will there be public access and use?

These types of questions must be addressed by the creators of a registry.

The National Register of Historic Places has the most experience in this type of situation. Listing certain historic buildings and sites on the register has in a few cases resulted in litigation, with the property owner claiming, among other things, that registration amounts to an unconstitutional taking of his property on the theory that it makes the property more difficult to sell for development purposes. This claim is generally without merit.[27]

The registries discussed above are, on the whole, simply lists. There are alternative forms a registry can take, all involving some addition of features. To some degree, the National Register of National Natural Landmarks is an alternative form because it involves an attempt to obtain a non-binding agreement from the owner. The Landmarks Program, however, is perhaps not the best illustration of this alternative because the attempt to obtain the agreement has been perfunctory due to manpower and time constraints. Another approach is to emphasize rather than deemphasize the agreement in the hope that it will instill a certain moral force which will prove to be protective of the element occurrence in question. This entails more work—personal contact with the owner, for example—and a more carefully drafted agreement

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[26] The recently passed Wild Resources Policy (see *e.g.*, Wisconsin statutes 153 *et seq.*) has expanded Wisconsin's concern to include wilderness areas, wild areas, natural areas, wild rivers, scenic rivers, recreation rivers, wilderness lakes, and wild lakes as well as scientific areas.

[27] But see Lutheran Church *vs.* City of New York, 359 N.Y.W. 2d (Ct. of Appeals, 1974). For a general discussion, see *The Taking Issue*, Council on Environmental Quality (1973).

A third alternative, in addition to a simple list and a list plus a non-binding agreement, involves a binding agreement with the owner. The agreement would take the form of an option to purchase the property at a price equivalent to any acceptable *bona fide* offer a third party makes to the owner. This form of agreement, often referred to as a right of first refusal, is supported by consideration and is generally enforceable. Neither party has anything to lose from such an agreement. The owner is interested in selling at a good price, generally whatever price the owner deems to be the highest offer, and so long as this price is paid, cares little who the actual purchaser is. An agency, on the other hand, if it cannot come up with the amount offered by a third party, loses nothing in refusing to exercise its option. However, if the agency can come up with the purchase price, it acquires a significant area. For the agency, this option has the advantage of ensuring notice in case the property is to change hands. Even if it cannot buy, it can put that notice to good use by possibly employing other protection devices. Indeed, it may be possible for the agency to secure another right of first refusal from the new owner.

There are many possible modifications to these basic forms. In Maine, landowners who agree to allow their land to be registered under the Maine Critical Areas Program must notify the Critical Areas Advisory Board 60 days in advance of altering the registered land significantly. In Tennessee, the Natural Areas program is currently considering granting property tax relief to landowners of registered areas under the Tennessee Agricultural, Forest, and Open Space Act of 1976. Landowners who develop registered land would have to pay a "rollback" tax equal to the cumulative value of the relief they obtained for up to 5 years.

(4) Less-than-fee acquisition

Property is often said to consist of a bundle of rights. It is possible to purchase (or otherwise acquire) some of these rights rather than all of them, and it is less expensive to do so. It is frequently possible to protect an element of natural diversity simply by acquiring those rights which would be inconsistent with preservation (*e.g.*, the right to develop the property, the right to mine or drill for minerals).

Although a variety of legal devices may be used to achieve less-than-fee acquisition, the primary one is the conservation easement.[28] In certain jurisdictions, conservation easements are called conservation or scenic restrictions, covenants, futures, or agreements.

In essence, conservation easements are restrictions landowners place on their property voluntarily or for monetary considerations which are legally binding on present and future owners. When an owner places a conservation easement on his or her land, he gives up certain rights which are specified in the easement document. As a matter of form, the rights are transferred to a recipient (such as a conservation organization or government body) in a legal document. When the document is properly drawn, signed, and recorded, present and future owners can no longer exercise those rights transferred.

The holder of the easement has the right to ensure that the restrictions are observed. An easement does not allow the public access to the land unless specifically provided for in the document. Generally, the easement holder does not have the right to do any of the things which the landowner is prohibited from doing.

The owner of the property retains all other rights which are involved in ownership. Unless otherwise provided, the owner can, for example, sell the property, live on it, or bequeath it. He must also pay taxes on it.

A conservation easement is flexible and can be written to preclude almost any use which the owner and easement holder agree to. It can provide that the land be left completely in its natural state, or it can allow various activities such as hunting and fishing.

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[28] Some others: reversionary interests, restrictive covenants, and options. Purchase of a percent of the fee, often useful in stopping private developers (they generally want complete possession of all interests in an area before they can go ahead), is for the present analysis considered a form of fee acquisition.

It may apply to the entire property or only a portion of it, for example a wooded or swampy area or shoreline.

There are several advantages in using conservation easements as a protective tool. The first is its often lower cost as compared with full fee acquisition. It possesses many of the protective strengths of full fee acquisition, but may involve only a portion of the cost. However, easements have been known to cost as much as 90 percent of fee simple costs. In this case, the purchaser of the conservation easement may be paying nearly fair market value yet still not have the right to use the property. One alternative is to include in the purchase of the easement a future right of first refusal at a price determined by multiplying the percentage of the fair market value allocated to the fee at the time of sale of the conservation easement times the fair market value of the property at the time the right of first refusal is exercised.

A second major advantage of conservation easements is that the property remains essentially in private hands. Keeping land on the tax rolls often neutralizes opposition. Third, having a private steward on the property usually reduces management costs to the agency holding the easement.

Despite this, easements are infrequently used because of confusion surrounding their legal status, a general lack of familiarity with them, and a number of practical problems. In many cases, state laws are uncertain, and it is technically easier to buy land outright than to acquire only those rights which would ensure that the land remains undisturbed. Most private landowners need to be educated about conservation easements in order to understand how they affect their rights and the future use of the land. Although tax incentives exist which encourage the donation of conservation easements, and although property taxes may be lowered when certain rights are conveyed by easement, appraisal methods for establishing the exact value of these rights must be made available. Indeed, some question exists as to the adequacy of present appraisal methods as they are applied to conservation easements. Establishing the value of an easement requires special procedures, and care should be given to obtaining a competent and thorough appraisal.

When a conservation easement is granted, the holder of the easement must assume a watchdog role in cooperation with the landowner. With management responsibilties diffused, monitoring problems peculiar to such easements arise. For example, although specific conservation restrictions are formulated at the time the easement document is executed, conflicts and confusion may occur in interpreting the restrictions. Furthermore, since most easements have been granted recently, the most troublesome monitoring problems may not yet have surfaced. For example, at the time an easement is granted the holder may enjoy a satisfactory relationship with the landowner. Ownership of the land may pass to successors and the relationship may deteriorate. Because the land is permanently encumbered, easement restrictions must be reviewed with each successive landowner to ensure continued compliance.

At least 25 states have statutes validating conservation easements as interests in land. Conservation easements created under the common law, in the absence of a statute, tend to be very vulnerable and easy to extinguish. The National Conference of Commissioners on Uniform State Laws is developing a Uniform Conservation and Preservation Easements Act to overcome the common law problems. When completed, if it is adopted by all the states, this act will eliminate most technical problems with conservation easements.

(5) Fee-simple acquisition

An obvious protection device is to buy the property outright in fee simple—to purchase the entire bundle of rights that comes with the maximum degree of ownership permitted in the jurisdiction in which a property is located.

Of all protection tools, fee simple acquisition is potentially the most effective. Its effectiveness lies in the nearly complete control over a property given by the fee title. In cases of unique natural areas, pristine sites, and fragile ecosystems, fee simple is often the best protection technique to use.

Many, if not most, rare element occurrences will show up in little niches that man has overlooked or left alone (if not previously protected). Because they have had little human impact, there is a good chance they are fragile. In many instances any human impact will injure or eliminate the site.

In virtually every case, non-fee ownership allows some form of owner use, and in fragile areas this is detrimental. When a site is delicate enough that it should not have human encorachment, only fee ownership will protect it. Easements are good for scenic areas, open space, buffer zones, species with fairly large ranges, and sites with limited element occurrences. Dedication affords good protection, and in conjunction with fee ownership is probably the best available. But when it comes to protecting a two-acre cave, a peregrine roosting site, or a prairie remnant, only fee ownership will do it in perpetuity. Use of other techniques on these areas may be a waste of time and resources, and may build a false sense of confidence.

However, two shortcomings should be pointed out. The first is that the amount of protection which acquisition affords a site depends on the goals, management capabilities, and political status of the party making the acquisition. While public acquisition usually eliminates the threat of private exploitation or development, it benefits a natural area most when the agency involved is willing and able to manage the property. Unless the agency's highest priorities include natural area protection, these areas may be inadvertently sacrificed to other objectives such as public recreation or access, game management, flood control, or improved highway safety. Even agencies with a clear mandate to protect natural areas may neglect them because of budget or manpower constraints. This can be equally true of private land conservation agencies.

A second weakness of fee simple acquisition is that the land is still vulnerable to condemnation by other state or federal agencies (or licensees) for incompatible uses such as highway or utility line rights-of-way or dam sites. Although these preemptions may sometimes be challenged through official channels environmental impact reviews, A-95 clearinghouse reviews, and courts), the defense can be both expensive and uncertain.

The overall cost of owning and maintaining land is probably the greatest obstacle to wider application of acquisition. The short-term cost of acquiring title, though substantial, is minor compared to the long-term costs of taxes, management, administration, and defense. Some agencies which gladly accepted "free" gifts of property in the past are now so wary of the costs of management that most gifts are turned down. Sometimes state agencies fail to take advantage of federal grants because the federal monies are applicable only to acquisition, not maintenance. Although private conservation organizations rely heavily on gifts of land, they now routinely seek endowments from the givers. These endowments are used to defray management costs which might otherwise overtax an organization's resources. Due to the overall high cost of acquisition, this tool probably cannot be applied to all of the natural areas that should be protected.

Title in fee simple to an important natural area may be obtained in a variety of ways, depending on the persons and circumstances involved. Acquisition may be via gift, donation by devise, donation with a reserved life estate, donation in installments, sale at fair market value, bargain sale, installment sale, or sale with a reserved life estate. Donations of all or part of the interest in a parcel of land is attractive to the recipient state, regional, or local agency because of the ability to leverage federal matching funds for acquisition and development.

Many individuals and local governments have a philosophical distaste for state and federal land acquisition, based upon the assumption that it robs municipal government of tax revenues and hurts the local economy by diminishing private sector development opportunities. Local political opposition may also complicate or stop public land acquisitions.

(6) Dedication

Dedication refers to the statutory process of setting apart certain lands

for certain specified uses, *i.e.*, national forests, state forests, state natural areas, and the like.

Dedication programs for natural area purposes are in effect in about a dozen, principally midwestern states. They can greatly increase the degree of protection afforded by ownership in fee simple. The idea behind dedicating an interest in land is similar in concept to an easement, but the standards against condemning a dedicated nature preserve for another purpose are much higher. It is much harder to "undedicate" an official nature preserve than it is for the state to condemn an area burdened by a conservation easement.

The protection afforded by dedication relies on 2 factors: (1) the landowner must abide by the terms of the dedication, and (2) a high standard is raised against the condemnation of dedicated lands by state or federal agencies or licensees. For example, Ohio specifies that dedicated areas

> . . . shall not be taken for any other use except another public use after a finding by the department of the existence of an imperative and unavoidable public necessity for such other public use and with the approval of the governor. Except as may otherwise be provided in the articles of dedication, the department may grant, upon such terms and conditions as it may determine, an estate, interest or right in, or may dispose of, a nature preserve, but only after a finding by the department of the existence of an imperative and unavoidable public necessity for such grant or disposition and with the approval of the governor.

The description of this particular standard is taken directly from section 1517.06 of the Ohio statute on dedicated natural areas (Ohio Rev. Code, ch. 1517). Other states often add to this standard the declaration that a dedicated area is at its "highest and best use." In all cases, a public hearing must be held before the required finding may be made.

Dedication is purely voluntary. The landowner retains fee title to dedicated lands, but grants to the state certain specific rights relating to the ability to injure or destroy the elements of natural diversity which are targeted for protection. The future of the dedicated area is determined by a dedication agreement (articles of dedication and by the dedication statute). Under most such statutes, articles of dedication are executed by the owner of the land in the same manner and with the same effect as a conveyance of an interest in the land. They are irrevocable except as provided for in the statute. The county recorder may not accept articles of dedication unless they contain terms restricting the use of the land which adequately provide for its preservation and protection. Uses which could be ineligible are occupation, development, or other activities which would destroy its natural condition. Articles of dedication may also contain provisions for the management, custody, and transfer of the land provisions defining the respective rights of the owner or operating agency and recipient, and such other provisions as may be necessary for carrying out the uses and purposes for which the land is dedicated. They may also contain conditions under which the owner and recipient agency may rescind the articles

Because the taxable value of dedicated property is diminished, the owner can claim federal tax deductions as if a gift of an easement has been made. Some states, such as Ohio, mandate a property tax exemption for dedicated lands. Other states provide that tax assessors will consider reductions in taxable value.

Because dedication involves no transfer of property rights, (excluding stewardship, the main responsibility for which is often retained by the owner of the fee) the cost is relatively low in most cases. Unless something is paid out to induce the dedication, the expenses are primarily those of preparing the articles of dedication and having them recorded. (This is distinct from the cost of passing a dedication statute or making findings under it.)

The agency administering the dedication program, too, must assume the responsibility of monitoring the properties involved to determine whether or not the terms of the dedication agreement are being met.

The protection afforded by dedication is quite high. It greatly exceeds that of fee ownership where that ownership is by a public agency which does not have the benefit of the standard of "impera-

tive and unavoidable public necessity." It also exceeds the protection of fee ownership by a private conservation organization because, unless the organization dedicates the property, it also will not have the benefit of the standard on "imperative and unavoidable public necessity."

One of the greatest potentials of the dedication process is in ensuring responsible management of natural areas already in public ownership. State agencies can dedicate nature preserves in the same way as a private landowner can, and once done, the lands involved have an elevated status which transcends inevitable changes in administration, personnel, and land management fashions. Unfortunately, depending on the state, dedicated properties may still be vulnerable to condemnation.

(7) Trust dedication

"Trust dedication" is used here to mean the same tool as that previously described, with one important difference. In this case, a statutory trust is created and is to be administered by a designated agency. While the standard for permitting a change in the use of the property—from a preserved area to, say, a reservoir or a dam—is the same ("imperative and unavoidable public necessity"), that decision is made by a court of equity and not by the agency with the concurrence of the governor.

The statute creating the trust may be fashioned in a number of ways. It may require a public hearing and the consent of the agency and the governor, but the final decision will still rest with a court. The statute may also provide that in order for property to be placed in the trust, the title must be transferred to a trustee agency. If so, then this would constitute a second way in which ordinary dedication diverges from trust dedication.

The statute in all cases creates a broad but specific group of beneficiaries. To quote the language used in the South Carolina statute,

> The beneficiaries of this trust are and shall be the present and future generations of citizens of the State, more particularly those present and future citizens residing within a close proximity to any area or feature which itself, or an interest therein, becomes, constitutes, or comprises a part of the corpus of such trust and who actually enjoy use of such area or feature; and further and more particularly, those present and future students, teachers, and persons residing in the State who are concerned with conservation or with research in any facet of ecology, history or archeology and who actually utilize any such area or features for the promotion of such interest.[29]

The assumption contained in the South Carolina statute, one which could be made explicit in future statutes which intend to incorporate the trust dedication tool, is that the beneficiaries would be the plaintiffs before the court in a case where a court must decide what will happen to the property, *i.e.*, whether it is to remain protected or not.

The cost of trust dedication, assuming that title to the property need not be transferred, is very similar to that of dedication proper. The protection afforded is presumably greater, but the device is so new there have been no cases testing its strength.

One important point must be made about both dedication and trust dedication. Because the protection they afford is so strong, in some cases people may be reluctant to accept it, as it forecloses options permanently. They may believe, falsely, that halfway measures will be sufficient.

(8) Environmental impact analysis

The National Environmental Policy Act (NEPA) requires that environmental statements be prepared and taken into account for all major federal actions. A number of states have similar requirements for major state actions. The following is a list[30] of those states with NEPA-like requirements. It is divided into those with "little NEPAs" of general applica-

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[29] South Carolina Heritage Program (Act) R686, H3038 (1976), Section 9.

[30] Council on Environmental Quality, *Annual Report* (1979).

tion; those with administrative regulations of similar effect; and those which have limited environmental impact analysis requirements.

General Application
1. California
2. Connecticut
3. Hawaii
4. Indiana
5. Maryland
6. Massachusetts
7. Minnesota
8. Montana
9. New York
10. North Carolina
11. South Dakota
12. Virginia
13. Washington
14. Wisconsin
15. Puerto Rico

Administrative Requirements
1. Michigan: Executive Directive 1974-4, issued by the Governor, May 3, 1974.
2. New Jersey: New Jersey Executive Order No. 53 (October 15, 1973) and Administrative Order No. 33 (August 1, 1973).
3. Texas: Policy for the Environment (a voluntary Memorandum of Understanding signed by all state agencies and adopted January 1, 1973), subsequently updated by "The Environment Policy—Guidelines and Prodedures for Processing EIS's," November 1975.
4. Utah: Executive Order of the Governor (August 27, 1974).

Limited Application
1. Arizona—game and fish
2. Delaware—coastal zone; wetlands
3. Georgia—highways
4. Kentucky—power plants
5. Mississippi—coastal wetlands
6. Nebraska—highways
7. Nevada—powerplant siting
8. New Jersey—coastal areas, wetlands, waterfronts
9. Rhode Island

A number of cities also have environmental impact statement requirements, namely:

Bowie, Maryland: Environmental Policy and Impact Statement
Ordinance (May 3, 1971),
Ordinance 0-2-73 (July 16, 1973),
Ordinance 0-14-76 (September 8, 1976)

New York City, New York: Executive Order No. 91 (June 1, 1977)

In addition, through the A-95 review process all states have implemented review procedures for public projects assisted by federal funds. Although the A-95 review process is not as well known as NEPA, it involves more states more directly in formal environmental impact assessment.

The Federal Office of Management and Budget Circular No. A-95 established procedures under which state applicants for federal assistance must give other agencies (through a state clearinghouse) an opportunity to review their proposals in order to eliminate duplication or conflict. The circular also requires applicants to affirm that all relevant environmental requirements have been met. To be able to do so meaningfully, the state clearinghouse must have a procedure whereby descriptions of projects with an impact on the environment are reviewed by all agencies within the state that have relevant knowledge.

Although the actual practice which has evolved since the passage of NEPA and the creation of the A-95 review process belies their purpose somewhat, the purpose of impact analysis is to protect the environment—including the elements of natural diversity—and not simply to shuffle paper. In fact, despite some grave reservations, most observers of the process believe it has achieved positive results and that conditions would be far worse today were it not for impact analysis.

Few, if any, meaningful general propositions can be advanced about the cost of environmental impact analysis. It obviously costs little to pass a statute or distribute a circular requiring an analysis, but the expense of preparing individual analyses varies enormously from project to project.

The most important aspect of both NEPA impact statements and A-95 reviews is that they allow proponents of natural area protection to comment upon poorly conceived plans before projects are finalized. They also provide a forum where tradeoffs or alternatives can be discussed and evaluated.

Best use can be made of these review processes if detailed information on rare and endangered species and natural areas exists prior to the design and review of projects. In that way, it may be able to bring about modifications in proposed projects at an earlier time when plans are more flexible. State Natural Heritage Programs, designed by The Nature Conservancy, are ideally suited to act as a focal point for EIS and A-95 review processes because they gather and centralize many of the kinds of ecological information needed to make determinations of value and significance. One member of the Tennessee Natural Heritage Program, working half-time, processed over 3,000 A-95 review forms in one year. Because Heritage data is mapped on a complete set of State USGS 7.5-minute quadrangle maps, all the reviewer has to do is match the coordinates of a proposed project, as indicated on an A-95 or EIS form, with the coordinates on a particular map. If element occurrences exist on or near the path of the proposed project, the reviewer can indicate, for instance, that "one of four known statewide occurrences of a given element of natural diversity has been reported at a point which would appear to be in the path of the proposed expansion of Highway 101." This information alone is sufficient to provoke field surveys and/or divert the project. The main point is that this information be available *before* funds are irrevocably committed to a project.

(9) Consciousness-raising

This tool consists of efforts to raise public consciousness. It can be accomplished by generally increasing society's awareness of the need to protect elements of natural diversity or it can be done by educating students in the ecological foundations of the preservation of diversity. This tool can be, and has, of course, been used by government agencies such as the National Park Service and Fish and Wildlife Service, as well as by private groups, the most well known of which are the Audubon Society and the National Wildlife Federation. Its cost is probably directly related to how ambitious the program is. Its protective value is difficult to determine.

Probably the most effective conciousness-raising and educational results are achieved on an individual basis through technical assistance programs. Technical assistance can range from help in identifying or locating a particular kind of feature to assistance in managing it through relocating trails; timber thinning; pest, disease, predator, or people control; and site or substrate preparation. The easier the availability of such assistance, the more likely that natural areas will be responsibly managed.

Since the technical knowledge necessary to manage a variety of biological, botanical, geological, scenic, and cultural features is normally interspersed among a number of government agencies, a strong technical assistance program is most likely to be successful if underlaid by strong interagency cooperation. Sometimes such a program could serve as a rallying point for cooperation in other areas.

At least one federal agency, the Soil Conservation Service (SCS), is specifically mandated to provide technical assistance to owners of natural areas. Section 650.23 of SCS's administrative regulations provide that:

> SCS technical assistance will be furnished to representatives of administering agencies, foundations, groups, and individuals when requested through conservation districts. Conservation district officers will be encouraged to recommend appropriate natural areas concepts and programs and to participate in them.

SCS personnel have helped prepare and implement management plans for preserves.

If a state were to fully implement a coordinated system of protection, there would be a real need for technical assistance. A pilot program involving a natural areas identification program or heritage program, as well as the SCS and other appropriate state agencies, might accomplish several purposes:

(1) The many landowners who voluntarily agree to preserve their land would have someone to consult when problems arose or advice was needed.

(2) SCS extension agents trained to protect natural areas could work with federal and state agencies on designated natural areas in public ownership.

(3) An important dialogue could occur between the inventory program staff and a technical assistance bureau.

(4) Private landowners whose land is not important to protect at a particular moment, but who wished to leave it in a natural condition, would have someone to consult should problems arise.

Citizen participation is also a form of consciousness-raising. Individuals have been extremely successful in letting elected officials know that they feel strongly about the protection of natural diversity, whether generally to effect policy or specifically to effect protection of a particular site or feature. Elected officials respond to letters, telephone calls, and testimony at hearings. Expressions of opinion need not be adversary proceedings.

Citizen participation was certainly one element which led to President Carter's reconstitution in 1977 of the Bureau of Outdoor Recreation into an agency, the Heritage Conservation and Recreation Service, which would coordinate, highlight, and improve efforts at protecting natural diversity.

(10) "Fighting" techniques

This tool consists of such legislative and legal "fighting" techniques as lobbying and environmental lawsuits. Fighting for natural areas has been basically the preserve of private conservation groups, such as the Wilderness Society and the Sierra Club, but it would be possible to institutionalize such "fighting" to some degree through a staff of publicly supported ombudsmen. The protective value of these tools is probably high, although it varies substantially from case to case. The cost is also high.

(11) Regulation

This tool consists of legal controls, ranging from zoning, which accommodates a host of interests (many non-ecological) and which operates primarily at the local level, to absolute prohibitions by the federal government, such as those contained in the Endangered Species Act.

Legal controls are fairly controversial. Most controls are in fact nothing more than procedural requirements, with the substantive planning left to state and local groups. The procedural requirements are set at the federal or state level and are purposely vague—*e.g.*, a plan is often required, without real specificity as to what the goal of the plan is to be. Federal or state oversight is confined to seeing whether the procedural requirements are met; the substance is left for determination at a lower level.

The Endangered Species Act is exceptional in the strength of its controls. However, some have argued that this strength is its greatest weakness. The act is bound to come into conflict with even stronger forces in society and be amended as a result. Others are worried that the strength of the act is distorting the information-gathering process. Information on species likely to stand in the way of large public development projects is not being collected.

Most states have passed and enforce a variety of statutes regulating the siting of commercial developments, subdivisions, landfills, dams, and dredge and fill operations. Depending on the jurisdiction and the particular program involved, the permit review process may consider the proposed action's impact on rare and endangered species, rare and irreplaceable natural areas, or wildlife habitats.

In addition, state water quality and anti-pollution regulations may have a positive influence in preserving pristine aquatic ecosystems. Some states have specific development regulations with respect to wetlands or high elevation lands. Although few statutes of this kind are specifically meant to protect natural areas, they do, nevertheless, provide a hearing for such concerns.

At the local level, many regional planning commissions, town planning boards, and town conservation commissions take natural areas and wildlife habitat into account when devising land use plans for zoning ordinances for their jurisdictions. Although planning boards may often like to incorporate such concerns into the planning process, they are sometimes too wary of the taking problem or other local political questions to give this area its share of attention. Nevertheless, planning boards usually possess the tools necessary to guide growth away from important

natural areas toward more desirable areas.

(12) Tax incentives

This tool has traditionally been used for many social purposes. The establishment of real property taxes based on current use value rather than on fair market value is one use of the tool which is pertinent here. Sometimes, if the property is held by a charitable land-saving organization, no property tax is levied at all. Providing an income tax deduction for charitable contributions of less-than-fee interests or of fee interests is another incentive which deserves mention.

It may be helpful here to discuss the broader tax incentives that can influence land use decisions that affect elements of natural diversity.

(a) Preferential Assessment. This involves the taxation of land at some lesser rate than its full fair market value. It is well recognized that property taxation of rural land on the basis of its fair market value stimulates conversion and intensive development of property. More than 40 states have preferential tax laws designed to ease the tax burden for owners of rural land. The rationale behind these laws is that by reducing tax burdens on particular types of land, the rate at which the land will be converted and developed is reduced. Most states use a type of preferential assessment which recovers back taxes (a rollback penalty) if a change in land use occurs for the property that has been taxed at reduced rates.

The most recent authoritative analysis, the Council on Environmental Quality's *Untaxing Open Space, an Evaluation of the Effectiveness of Differential Assessment of Farms and Open Space* (Washington, D. C., 1976), concludes that preferential tax laws have not significantly deterred conversion of farmland. Preferential tax assessments provide only a weak holding action, lasting until speculative desires are satisfied. This study represents the opinion of most careful observers and analysts when it says that differential assessments laws, acting alone

> . . . are not very effective in preserving current uses. It is only when such laws are combined with other effective land use mechanisms in rural areas that they contribute to successful long-term preservation of open lands.

The existing statute will do very little for the protection of natural diversity. More attractive alternatives exist, and this tool should perhaps only be considered in conjunction with other protection techniques. While relatively ineffective as an isolated tool, preferential assessment probably has benefits when overlapped.

(b) Speculative Tax. Vermont's successful experiment of protecting its land by a tax deterring speculation offers food for thought. The tax applies to gains realized from the sale or exchange of land held by the seller less than 6 years.[31] It does not apply to buildings or primary residential homesites (up to five acres and, in certain restricted circumstances, ten). Gains are taxed on a sliding scale, the rate increasing directly with percentage of profit and inversely with the length of the holding period. The maximum rate of 60 percent is applied to a gain of 200 percent or more on land held less than a year. The minimum rate, 5 percent, applies to gains of 0 to 99 percent on land held between 5 and 6 years. When no gain is realized on the sale of land, or land is held 6 years or more, no tax is imposed. The table on the opposite page shows the rate structure.

The tax will work to restrain speculation (and hence conversion of undeveloped land, including natural areas), provided tax rates on gains are set at a sufficiently high level. Of course, unless the tax takes away 100 percent of the gain, it will never discourage all speculators. However, it is a fact that most land speculation is done on a large scale and with the prospect of substantial gains; insofar as the tax reduces the gains which can be made, it serves to discourage speculation. Another advantage of the tax is that, unlike some forms of land use regulation, it is immune to claims of a "taking" of property.

The constitutionality of the Vermont

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[31] Vermont, *Statutes Annotated* (1973), Title 32, sections 10001-10.

Years Land Held by Transferor	Gain, as a Percentage of Basis		
	0 to 99%	100 to 199%	200% to more
Less than 1 year	30	45	60
1 year, but less than 2	25	37.5	50
2 years, but less than 3	20	30	40
3 years, but less than 4	15	22.5	30
4 years, but less than 5	10	15	20
5 years, but less than 6	5	7.5	10

tax has been upheld under both state and federal law (see Andrews *v.* Lathrop, 315 A. 2d 860 [Vermont Supreme Court 1974]). Still another advantage is the administrative ease in enforcing this form of taxation. The value and date of each property transfer is already recorded; the tax is paid on the difference between the purchase price and the sale price. At the state level, the recording of title can be withheld until the tax is paid.

The tax on speculation is also a source of revenue which could be used to supplement funds for acquiring heritage sites or for property tax relief (*e.g.*, for low-income persons) in places where land values and property taxes have increased due to heritage designations. To the extent that the tax succeeds as a deterrent, of course, less revenue will be generated.

This idea clearly has merit and can be recommended either as an across-the-board measure or in some form more specifically tailored to protect elements of natural diversity. In either form, property should be exempted which no longer may be legally developed and hence no longer poses a potential threat to heritage trust protection. Property which no longer may be legally developed is property in which the development rights have been transferred, either by gift or acquisition—for example, by dedication or easement. There should also be an exemption for all transfers which preserve existing use—for example, if a natural area is to remain a natural area or farmland as farmland, instead of a shopping center—the transfer would not be subject to the speculation tax. Such transfers of existing use could yield substantial profits—to the natural area owner or to the farmer who sells—given not only the traditional increase in value of land, but also the special rise in value of lands next to parklands and areas of natural and cultural importance.[32] Finally, it is recommended that, as in Vermont, only sales made after the new law's effective date be taxed, and then taxed only on the increment of profit that accrues.

(13) Watchdogging

Often groups are formed for the explicit purpose of monitoring a specific portion of the landscape. Barrier Islands, for example, are beginning to be monitored on a semi-systematic basis. Wetland and wilderness are other categories which such groups have chosen to report on regularly.

Monitoring or watchdogging can take a number of forms and be organized in a number of ways, depending on the type or magnitude of the problem and public concern. Some natural areas may be subject to specific forms of air pollution which must be monitored daily with elaborate scientific equipment and gauges; others may need monitoring against poachers, trespassers, developers, and other destructive users.

Barrier islands have been drawing increasing attention, first from universities, then private conservation groups who have sought to acquire them (The Nature Conservancy) and/or observe and document their changing status (The Barrier Islands Workshop). In 1979 the federal government, through the Heritage Conservation and Recreation Service, made these islands a national issue.

Wetlands have had a similar history of local involvement and national concern—principally on the part of the National Oceanic and Atmospheric Administration. Wilderness interests and potential areas have been largely monitored and advocated by The Wilderness Society, with the federal government having become receptive to these concerns. Coordinated and systematic natural areas and diversity watchdogging

[32] Council on Environmental Quality, *Fifth Annual Report*, p. 69.

continues to remain a local issue which has for the most part not drawn national attention,[33] primarily because its concerns are articulated by a scientific minority, as opposed to the general public. The Nature Conservancy, to the extent it can, has mobilized volunteers to watch over the natural areas it sets aside. The Society of American Foresters routinely surveys the status of areas it has designated as natural areas.

C. Some Revenue Sources for a Protection Program

There is some cost associated with even the most economical of protection measures. Registration, for example, involves no transfer of title, but it still costs money to pay someone to notify and negotiate with the owner, draft an agreement, and finance a plaque or certificate.

State acquisition programs have too frequently been narrow in focus, centered on acquisition of game habitat while ignoring animals and plants that cannot be harvested. In most states, there is every reason to investigate new sources for financing broad natural area protection programs.

Many states are now considering, or have considered, innovative funding sources. These ideas, too numerous to catalogue entirely, break down into several broad categories.

(1) Excise Taxes. These are levied on specific items associated with the use and enjoyment of the outdoors, such as camping equipment, recreational vehicles, or bird seed. A study conducted by the University of Missouri-Columbia[34] identified seven products—including camping equipment, snowskiing equipment, skindiving equipment, recreational vehicles, photographic merchandise, binoculars, and wild bird foods—which could generate national revenues of $149.6 million annually at 1972 prices, if taxed at rates between 1 and 10 percent.

(2) License Fees. These are collected for the enjoyment of a privilege associated with the consumptive or nonconsumptive use of fish and wildlife species and their habitats. Examples abound. All of the revenues of the North Carolina Wildlife Resources Commission come from license fees.

The Federal Aid in Wildlife Restoration (Pittman-Robertson) Act of 1937 and the Federal Aid in Fisheries Restoration (Dingall-Johnson) Act of 1950 requires hunters and fishermen to support state and federal wildlife programs through taxes on their guns, ammunition, and fishing gear. These funds have provided over $600 million since the program's inception.

(3) Real Estate Transfer Taxes. Many states have enacted legislation providing for a real estate transfer tax. Generally, the state levies a tax on the selling price of real estate. The rates often run between one-half and 1 percent.

The State of Maryland is a good example. As of 1974, a tax of .5 percent was imposed on all real estate transfers in the state. The tax is computed as a percentage of actual consideration paid for the conveyance of title. The money raised pays for the interest and principal on outstanding bonds and for the acquisition of open land after bond obligations have been met.

As of 1974, 22 states had real estate conveyance taxes of some kind, but only Maryland's tax was earmarked for a particular purpose.

Real estate transfer taxes have also been imposed on a county and municipal level. Aspen, Colorado, uses it for the

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[33] The Nature Conservancy's proposed Natural Diversity Legislation of 1978 and the Heritage Conservation and Recreation Service's proposed National Heritage Policy initiative of 1979 attempted to draw attention to the need for setting aside areas solely for the sake of preserving the resource values they contain, rather than for accommodating human use.

[34] Wildlife Management Institute, *Current Investments, Projected Needs of Potential New Sources of Income for Nongame Fish and Wildlife programs in the United States* (1975).

arts. Crested Butte, Colorado, has a graduated real estate transfer tax (attempts to punish short-term speculation) that supports open space acquisitions among other things.

There are many variations on the transfer tax theme. Oregon taxes timber cutting. Funds in Kentucky finance water pollution projects by imposing service charges on government agencies which contract with the Pollution Abatement Authority.

(4) General Obligation Bonds. General obligation bonds are issued by the state and sold to finance general state programs. The full faith and credit of the state ensures the repayment of principal and interest. Proceeds from the sale of these bonds are appropriated by the state legislature to pay for construction or repair of buildings, acquisition of land, or refinancing of prior bond issues. Because no single state agency can issue obligation bonds, conservation departments must compete with other programs for proceeds. In other words, department chiefs must include their agency needs in the overall capital budget and persuade the legislature to appropriate the budgeted amount.

Generally, the people of the state must vote in a referendum to allow the state to sell general obligation bonds. For example, 1972 the citizens of New York voted to allow a $1.15 billion environmental bond issue. Of this, $175 million was used to acquire and protect land.

(5) Revenue Bonds. These can be issued by states, municipalities, or individual state agencies. Revenues from certain specific taxes, earnings, or other income from agency enterprises can be used to pay off these bonds. In order to issue revenue bonds

(a) there must be enabling legislation permitting the agency to act;

(b) the agency must have sources of revenue to pay off the principal and interest, thus making the interest payable.

(6) Soft Drink, Beer, and Cigarette Taxes. These do not differ conceptually from the excise tax on recreational items. In 1971, five states imposed taxes on these goods, with revenues generally contributing to the general revenue fund. In West Virginia, however, the tax is earmarked for the medical school. A similar tax could presumably be earmarked for land protection.

In Missouri in 1971 the soft drink tax administered by the Department of Health was 3 cents per gallon, with a maximum of 4 cents per month on each case of 24 bottles. An additional tax of 3 cents per pound was levied against the gas used to prepare the drink. Several states tax the manufacturer, others charge the retailer, and still others impose a sales tax on the consumer. Beer taxes often amount to an inspection and gauging fee levied against the brewer and based on the number of gallons produced.

(7) User Fees. These can be charged to persons who visit state parks or hunting areas, possibly as a means to produce income to pay off revenue bonds.

(8) Severance Taxes. These are levied against the extraction of specific natural resources. For example, the Virginia Department of Economic Resources is now proposing permit fees of $12 per acre mined against the mining of slate, limestone, granite, and vermiculite. This would double existing fees, revenues from which are used to provide funds for reclamation.

(9) Lotteries. These games of chance have occasionally been used to raise funds for land protection. As a result of the November 4, 1980, referendum, Colorado instituted a state lottery. The beneficiary of the lottery income after expenses is a conservation trust fund. Proceeds from the fund go to local municipalities for conservation activities, conceivably including natural diversity preservation.

Part Ten

The Role of the Private Sector

Chapter Sixty-seven

Introduction to the Private Sector Role

The private sector has traditionally played the role of filling in where government leaves off. In general, this gap-filling has taken two forms: if the effort can be accomplished and money can be raised to do it, the private sector will attempt to see the effort to completion. If the effort is too great and money is limited, the private sector will attempt to encourage government to assume responsibility.

Certainly, too, regional differences in character, background, and tradition play a part in the extent to which the private sector will become involved in an issue. Ownership patterns are influential in the kind of activity undertaken and technique used by the private sector to accomplish its objectives.

Volumes I and II give an overview of where governments have the mandated responsibility for heritage concerns. It is obvious by inspection of Volumes I and II that there are a large number of governmental programs which seek to preserve pieces of our natural heritage—rivers, wilderness, islands, endangered species, natural areas, biomes, special interest areas, and the like. Analysis of private sector activities reveals a number of continuing concerns:

1. That there is no national definition and classification of the elements of natural heritage concern.
2. That there is no national policy for protection of heritage resources other than that expressed in the National Environmental Policy Act.
3. That there is no coordination of the heritage resource inventory effort so that heritage resources can be identified efficiently.
4. That not enough money is being spent on the identification and ecological inventory process (*e.g.*, endangered species, plant communities, aquatic types, etc.) in order to have the information necessary for site planning and decisionmaking.
5. That not all of the necessary components of a natural heritage program are being addressed by currently authorized programs.
6. That authorized programs are often paper programs without appropriations or adequate methodologies to accomplish their objectives.

Part Ten concentrates on the functions of private, nonprofit conservation organizations. The focus is on groups, landholding or non-landholding, which include the protection of natural areas in their programs. While the organizations, especially those which do not hold land, may be involved in related functions such as pollution abatement or population control, these are not discussed.

Private conservation organizations operate at a number of different levels: national, regional, state, multi-county, and local. A national membership organization is able to draw on the entire country for funds and has the opportunity to redirect them to areas where there is little population or where income is lower. The Nature Conservancy, as a national land preservation organization, can direct its funds to save areas of land of national ecological significance which are more often than not found in less populated areas. Such an organization may also operate at all levels, if it is decentralized into regional offices, field offices, chap-

ters, and project committees. Some membership organizations such as The Wilderness Society do not have local chapters, but maintain regional offices. Many national organizations have realized the importance of having paid staff and are directing their efforts to expanding at this level.

Just as the primary functions of national organizations differ, so do the activities of local divisions, though within the general objectives of the national organization. For example, a chapter of the Sierra Club may devote most of its time to local issues, using the "fighting" and consciousness-raising tools discussed in later sections. The Ventana Chapter of the Sierra Club, located near Carmel, California, has been working to protect the sea otter and has been developing a related educational program. Another state-level organization, Friends of the Sea Otter, is also working to protect the sea otter.

At the national level are found professional organizations with no membership structures, such as the Conservation Foundation or the Environmental Policy Center. They do research and provide needed background information in their areas of expertise. They, too, generally use the consciousness-raising and "fighting" tools. Professional societies, another type of private group, may operate at the national, state, or local level. They range in scope of interest from the American Institute of Biological Sciences to the National Wild Turkey Federation. Only some have committees actively concerned with natural area preservation.

State and local private organizations are often in a better position to use those protection tools which require a knowledge of local circumstances. Notification, for example, is one tool that must be used at a grassroots level. Rapport with local landowners is an important ingredient in using this method successfully to preserve privately owned natural areas.

Information for this part of the study was gathered through questionnaires sent to many conservation organizations, principally those holding land or conducting inventories to determine resource values. A major emphasis was information on sites actively being protected by private groups. A list of such sites was compiled by The Nature Conservancy and is available through it.

Groups which do not hold land were asked to send literature describing their structure, activities in connection with land preservation (whether on public or private land), or legal cases in which they had recently been involved.

Some interesting regional differences in the roles of private organizations were discovered. New England has perhaps the strongest tradition of private local action, partly because it was one of the first areas of the country to be developed and partly because most land is in private ownership. In the Midwest, again the majority of land is in private hands, but there is a greater history of action by state governments. The oldest state systems of natural area dedication are found there. Often the impetus for the systems came from private land preservation organizations, however. The West, with its large federal public holdings, has many groups concerned with the natural area protection processes of federal agencies. National and local groups in the East are also concerned with these issues, but the West appears to have a preponderance of such groups.

Many of the organizations which are discussed in the succeeding chapters use the tools described in Chapter 66. An attempt has been made to suggest the full scope of organizational activities, while at the same time concentrating on the tool most used by the organization to achieve its natural heritage-related objectives.

Chapter Sixty-eight

Identifying Priorities for Protection

68.1 Overview

Because it has seemed to various groups that national and local systems of parks and forest reserves neither contained nor were mandated to protect all biological features in the country, they began advocating additional identification and protection of areas which would safeguard the nation's diversity. With respect to protection, they called for the creation of a system of protected areas where natural biological and physical processes could be left unchanged.

A number of terms have evolved over the years to refer to such areas: "natural areas," "research natural areas," "national natural landmarks," "special interest areas," "natural history sites," "ecological reserves," "ecosystem preserves," "special management areas," "environmental protection zones," "nature sanctuaries," "wildlife refuges," "nature preserves," "reference areas," "benchmark areas," "biosphere reserves," and in some special cases, "wilderness areas," "national parks," and "areas of critical environmental concern."

An integral part of identifying priorities for inclusion in such a system is the use of inventories to find out what is of value and where it is located. Inventories can, of course, concentrate on anything from the habitat of one plant species to the full range of an area's natural diversity, depending on the interests and classification developed by the inventory group.

All of the organizations discussed in Part Ten either now benefit from or could benefit from the adoption of a common philosophy, classification, and a coordinated identification process. Some make substantial contributions to existing data bases (inventories). But major problems with the inventory and identification process have delayed the protection arm of the natural area movement.

First, there has been a lack of definition of what constitutes this nation's natural heritage which is reflected in a continuing controversy as to how finely to classify and protect the landscape. The variety of philosophies is evident in the types of classifications created by inventory groups. Many of the classifications, really lists of inventory targets, have been developed to predict economic productivity, such as those systems developed by the Society of American Foresters to describe broad forest cover types or by the Society for Range Management to describe range values. Only recently are classifications being specifically developed for the purpose of analyzing the status of and conserving the "total diversity of species."[1]

A second problem has been a lack of *centralized, organized,* and *accessible* biological data on the locations and protection status of ecological features and phenomena of special concern. There is probably no state without substantial preexisting ecological information in one form or another, but the information is of various levels of specificity and accuracy and in widely scattered locations (often outside the state). A great many states have made some effort, often quite ambitious, to assemble information and conduct inventories for the identification of unique resources, natural areas, critical areas, or some closely related resource. But often they lacked the ability to manage, analyze and update the data. As a result, these states are not able to set really defensible priorities for protection of still-unprotected species, community types, or other elements of diversity.

There is also a belief on the part of many people in the nation that the job of inventory and protection is being handled adequately at present by federal and state governments, if not directly through their various programs for wilderness, wild and scenic rivers, etc., then indirectly, simply by taking so much land out of production that the full range of the country's diversity is bound to be captured.

This belief is quite false. Federal and state programs cannot preserve the full array of natural diversity for two basic reasons: (1) federal and state programs are not directed to protecting diversity, but only special portions of it, and thus their lands do not and will not contain the nation's full biological diversity; and (2) there is usually no unity to federal and state programs for exchange of information among them. No

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[1]Radford *et al., Natural Heritage Classification and Information Systems* (1978), pp. 1-2.

agency is currently integrating, assembling, and correlating information from all of these efforts. What is more important, no agency currently has a cost-effective system for managing and continually updating the large amounts of data on ecological entities which are needed as the basis for defensible protection decisions.

The third and perhaps most significant impediment to defensible selection of natural areas is the general lack of data on biological resources. For example, of the 333 plants considered to be of special concern in Virginia, over half of them lack sufficient data for the scientists in the state to accurately assess their status. Also, the Ohio Natural Heritage Program,[2] a program established to create a data base to manage biological information for the protection of natural features of special concern, has just completed a 1-year assessment of existing data in an attempt to locate known examples of 888 elements of diversity. The Ohio Heritage staff discovered an unevenness of field survey and previous research work—10 percent of the state's counties (9 out of 89) accounted for 37 percent of all known element examples and 21 counties had only 10 or fewer examples of the elements being inventoried.

To overcome these three deficiencies, two approaches have been customarily invoked to identify and select sites for natural areas protection. These approaches differ primarily in methodology, but also to some degree in objectives.

In objectives, natural areas programs have often varied substantially in their focus and scope, some simply concentrating on the protection of undisturbed sites, some on plant communities, some on endangered plants and animals, and some on the full range of ecological diversity. The Wilderness Society, The Society of American Foresters, and The California Native Plant Society are examples of organizations which have programs espousing the protection of subsets of the full range of ecological diversity. In some cases, organizations have limited their objectives for practical reasons even though interested in the overall protection of diversity; in others, limitations have been imposed because of interest and expertise. The Nature Conservancy is an example of a private organization that promotes the synthesis and integration of all of these efforts for the protection from extinction of adequate examples of the full array of species, ecological communities, and other natural features and phenomena.

In methodology, a distinction may be drawn between the two approaches to identifying natural areas—the "site nomination approach" and the "data base approach." These both merit further examination.

68.2 The site nomination approach

Many natural area programs begin by requesting citizens of the state to submit nominations of sites which they believe should be designated natural areas. Varying degrees of specificity about the ecological characteristics of the site are required on the nomination form. A scientific review board is generally set up to review nominations, often with additional information about the site supplied from research or field work by the staff on an *ad hoc* basis. The board attempts to assess the relative importance of each area, in effect to set statewide natural area priorities. While the board and staff have general knowledge gained from experience with what they feel is the overall natural areas picture in the state, they do not proceed from a comprehensive (*i.e.*, statewide) data base which can provide them with quantitative information about the rarity of individual animals, plants, plant communities, etc., which occur in the state. On the contrary, because of the site-by-site focus, judgments as to the merit of each individual site tend to be judgments as to whether the site is "nifty" or "outstanding." In many cases, this in turn is reduced to a decision as to whether the site is undisturbed.

The site nomination approach appears to have the virtue of involving the citizenry in the process by throwing it open to the public at large. In fact, it relies in almost all cases on scientific expertise, since the ultimate selections are made by "experts," be they staff, an advisory board of scien-

[2]See Section 68.6 in this chapter for further discussion of Heritage Programs.

tists, or some other advisory board that relies heavily on the opinions of scientists. (In a few cases, the appeal to expert judgment may be abandoned, with the advisory board designating the favorite areas of those on the board.)

A significant problem is that although it is easy to write down the name of a site on a nomination form, it is quite another thing to define boundaries for that site that are defensible if challenged. The fact is that boundaries tend to be set in fairly arbitrary fashion, with little if any consideration to the complex ecological variables involved. There is a false impression that a site with a name—say, Dragon Run or Tiber Creek—has boundaries which are logically related to the ecological values which are supposed to make the site "outstanding." Another significant problem is that "outstandingness" is to a great degree in the eye of the beholder. Moreover, judgments made in this context are not likely to be based on a systematic consideration of where there are ecological gaps that need to be filled and whether a particular ecological type (*e.g.*, a pinyon-juniper forest) has been redundantly protected. Perhaps the most serious problem of all is that every individual site, however defined, is in fact unique, an ecological fingerprint. For this reason, rigorous comparison and priority-setting become impossible because of the existence of incommensurable factors entailed by any attempt to compare gross entities, such as sites with sites.

68.3 The data base approach

The approach begins not with site nominations but rather with the building of a comprehensive, statewide data base on the ecological entities which are in need of preservation (*e.g.*, individual plant species and animal species). Sites (Jones Woods, Doe Meadow) are in a sense secondary in this approach—they are derived from what is necessary to protect primary ecological entities. They are not starting points in and of themselves. The point of building a data base first is that the entities on which information is collected can be rigorously compared and can be the subject of objective priority-setting. For example, one habitat of a rare columbine such as *Aquilegia barnebyi* can be objectively compared to another such habitat, whereas comparing it to a short grass prairie involves subjective factors. Similarly, the number of *Aquilegia barnebyi* habitats throughout a state (or a region, or nation) can be counted and located on maps. If sufficient habitat to preserve the species exists on protected land, then protection of further habitat becomes a low priority. If no habitat exists on protected land, then it becomes a priority to get some protected.

More generally, the data base approach may be said to involve a continuing process for identifying significant natural areas from a quantitative data base. This approach involves the collection, management, and analysis of information on all the elements of a state's natural diversity.

A data base approach focuses on the elements which make up a state's natural diversity rather than on site nominations and specific tracts of land. Elements of diversity are defined as rare animal species (the blackfooted ferret would be an example); rare plant species; plant community types (the pinyon-juniper forest, for example); aquatic community types (*e.g.*, a quaking bog); geologic types (*e.g.*, a fumarole); and other important biological features such as rookeries and champion trees. These elements when taken together, define the natural heritage and diversity of a state or nation.

Generating a state's classification or target list of elements of ecological diversity is probably the most difficult aspect of creating a data base. However, once these units of classification (*i.e.*, the elements) are defined they become targets for both data collection and protection activity, and they help ensure that nothing is overlooked in the process of inventory. This classification system is a working one, and retains flexibility to be changed as need dictates. Individual categories may be added as they are identified, or preexisting categories may be subdivided or even eliminated.

Once the classification has been prepared, all existing information scattered in a variety of sources across the state on the existence, location, numbers, and status of the elements in the

system are digested and recorded in a standardized format. Although information on the *biology* of each element (*e.g.*, the ferret or the rare columbine) is kept in one set of files, the heart of the program is *locational* information—that is to say, precise information about where the element occurs on the ground. This information is usually kept on standard USGS 7.5- or 15-minute maps and in related computerized and manual files. Tallies of how many occurrences of each element there are in the state are kept, and these tallies are used in setting preservation priorities.

There are disadvantages to the data base approach. Unlike the site approach, it fails to provide almost instant results and gratification. When a program begins with site nominations and proceeds almost directly to *ad hoc* site selections, it can start designating natural areas as soon as a quorum of the advisory board is available. The data base approach, in contrast, yields priorities only after substantial groundwork has been laid. The data base approach is also methodical and cannot be as freewheeling as the site-nomination approach can be. The data base approach also does not involve the public-at-large in a conspicuous way at the beginning of the program.

A brief history of major inventory efforts is given in Section 68.4 of this chapter. Specific examples of inventory efforts which use nomination procedures to generate recommendations for protection are treated in the notification and registration/designation chapters which follow. (See specifically the discussions of the Society for Range Management, National Natural Landmarks Program, and Society of American Foresters for examples of efforts that utilize this approach to identification.)

Inventory efforts which have utilized more systematic approaches include those of the Smithsonian Institution, and the California Native Plant Society; these, however, are limited to tracking of rare plants. The Nature Conservancy's Heritage Program also falls in this category. It is the only data base approach which seeks to track the full array of ecological diversity. Its classification philosophy is discussed at the end of this chapter.

68.4 Some History

As mentioned, early inventories identified priority areas in essentially two ways. On the one hand, groups have conducted general inventories through questionnaires and interviews to determine what areas of ecological value had already been protected as natural areas and to solicit nominations of other sites. On the other hand, groups with very specialized protection interests have prepared inventories of ecological subsets such as grassland or forest types, migratory bird habitats, raptor nests, or individual endangered species such as the manatee.

The Ecological Society of America's Committee for the Preservation of Natural Conditions falls into the former category. It was formed in 1917 to identify already preserved and potential natural areas in the United States. A list and description of these was published as the *Naturalist's Guide to the Americas.*[3] An updated listing,[4] prepared for the Ecologists Union[5] and the Ecological Society of America by the Committee on the Study of Plant and Animal Communities and issued in 1950, identified 691 nature sanctuaries in the United States and Canada. In 1963, the American Association for the Advancement of Science listed more than 800 natural areas and emphasized the need for establishing and stabilizing a natural areas system for research needs.[6]

At the time these surveys were done, however, insufficient ecological data existed to ensure that the various areas

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[3]Victor E. Shelford. *Naturalist's Guide to the Americas.* Ecological Society of America (Baltimore: William and Wilkins Company, 1926). 761 pp.

[4]Charles S. Kendeigh. "Nature Sanctuaries in the United States and Canada, A Preliminary Inventory," *The Living Wilderness* Vol. 15, Number 35, Winter 1950-51.

[5]The Ecologists Union adopted a new name, "The Nature Conservancy," at its annual meeting held in Columbus, Ohio, September 11, 1950.

[6]American Association for the Advancement of Science, Science Council Study Committee, "Natural Areas as Research Facilities," 1963.

nominated would protect the entire spectrum of natural features and phenomena.

Among the groups with specialized interests, the Society of American Foresters, a professional society, created a Committee on Natural Areas in 1947. Its mission, related to the more specific interests of its members, was to encourage preservation of an adequate number of natural areas to represent all significant forest and forest-related vegetation in the United States.[7] In 1966, the Society for Range Management started its Rangeland Reference Area Program, designed to identify and protect baseline rangeland areas.[8]

In 1971, under the auspices of the International Biological Program's Conservation of Ecosystems Section, Another effort was begun, sponsored by the American Institute of Biological Sciences. The goal was to design an information management system that would sort out and classify the areas identified in previous inventories in the continental United States as "natural areas" according to state, private, and institutionally held lands. The assumption was that gaps in protected diversity could be easily identified. Twenty-five hundred areas were entered into an information retrieval bank, but because of insufficient data and the lack of an agreed-upon ecological classification, the computer was unable to improve the capability to pinpoint gaps.

Most of the above-mentioned programs advocated the preservation of plant communities. There have also been advocates for wildlife. The National Wildlife Federation and Defenders of Wildlife are two prominent groups. The former maintains an important wildlife sanctuary in the West. The National Audubon Society also maintains a system of wildlife sanctuaries.[9]

Endangered plants and animals are also increasingly being represented by special interest societies such as lepidopterists' societies, malacological unions, native plant societies, and herpetological societies. At all levels, then, groups such as these are gathering information about areas and features they think should be protected and are applying the tools necessary to protect them.

In 1974, The Nature Conservancy founded its State Natural Heritage Program to coordinate all of the various activities in a state.[10] It involves the classification of the full range of each state's natural diversity—species, ecological communities, and other natural features of special concern—and compiling all available information as to the location and dynamics of these into one central and accessible repository.

68.5 The California Native Plant Society

The California Native Plant Society is an example of an organization which uses a data base approach to the protection of plants in California. The California Native Plant Society is a private organization of professionals and laymen united by an interest in the plants of California. Its goal is to preserve the native flora and to add to the knowledge of members and the public at large. In furtherance of this purpose, the society conducted a census of the state's rare and endangered plants. One product of this inventory is a publication listing the plants, keying them to known localities plotted on USGS 7.5- or 15-minute topographic quadrangle maps, and classifying them as to rarity, endangerment, vigor, and distribution within and without California.

The inventory effort was begun by the Society in 1968 with volunteer labor and Society money and was assisted in 1973 and 1974 by a contract with the state which helped fund the mapping effort. Identification and classification of candidate plants have involved most of the state's professional and lay field botanists and a heavy infusion of volunteered time and knowledge, although

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[7]See Chapter 70, Registration/Designation, Section 70.8(c), for the Society's identification process.

[8]See Chapter 69, Notification, Section 69.4, Society for Range Management.

[9]See Chapter 72, Section 72.3, National Audubon Society.

[10]See Chapter 68, Section 68.6, The Nature Conservancy's State Heritage Program.

there has been some paid help. The task of photographing herbarium specimen labels of identified plants was begun on Society funds, but was completed under a state contract.

The Society seeks to protect native plants through publicity, persuasion, legislation, and occasionally legal action. Availability of the inventory was announced generally to governmental agencies, including county and regional planning bodies, in 1975, and most have made much use of the information. Since January 1, 1977, consideration of impact on rare plants and plant communities has been required in environmental impact reports prepared pursuant to the state's Environmental Quality Act of 1970. Such impacts were often being considered prior to then on the basis of the published inventory or preliminary versions, especially by government agencies. The Society has worked closely with the U. S. Forest Service and the Bureau of Land Management (which together manage about 43 percent of the land in California) in supplying data used in their land management programs. In turn, their field workers supply new information to the Society.

The Society has not been a regular participant in reviewing all state environmental impact reports due both to not always being notified in the review process and not having the staff and funds necessary for the task. Nevertheless, their inventory is increasingly important because of newly formalized requirements for consideration of rare plant protection. Awareness of the inventory has grown more slowly among professional consulting firms than among governmental agencies. A continuing problem, especially among the former, is misuse of available information. The Society tries to emphasize that plotted localities are the *known* localities and that suitable habitat in the vicinity of any proposed project must be carefully searched. This is often not done.

68.6 The Nature Conservancy's State Heritage Program

(a) Philosophy and Classification

The philosophy of the Heritage Program is very different from that of most land managing or land use planning agencies. The Heritage Program is concerned with the perpetuation of natural diversity. These others are for the most part concerned with the present economic value of natural resources and with inventorying land for its economic use potential. Given these two very different objectives, existing programs have produced very different types of classifications for targeting their inventories and for data management.

The diversity classification is based on a thorough survey of biotic features. It seeks to list all of the special species of concern to the state. It also seeks to list all of the terrestrial and aquatic communities which reflect the numerous habitats within the state.

Tracking the occurrence of species is a fundamental aspect of the program. However, creating a bookkeeping system to account for *all* of the species in a state would be an overwhelming and futile task. An eastern state may contain over 300 species of vascular plants (ferns, conifers, and flowering plants), some 200 species of fishes, 140 reptiles and amphibians, over 200 species of breeding or wintering birds, some 60 mammals, and nonvascular flora and invertebrate fauna which run into the thousands. All these species collectively make up the biological diversity of the state.

Because it would be cost-prohibitive to inventory for each and every one of these individual species, the Heritage Program has adopted an approach which is not unlike installing a set of filters. First, a coarse filter is installed which will capture most of the species in the state without having to sort them out and keep track of them individually. This coarse filter is a classification of aquatic and terrestrial communities. The premise behind tracking communities or types is that each has a known complement of species contained in the type. The assumption, moreover, is that if one preserves viable examples of these communities, one will have preserved all those species more frequently associated with them. Further, by preserving examples of all community types in the classification system, we will have preserved perhaps 85 to 90 percent of the biological diversity of the state.

The remaining 10 to 15 percent of the flora and fauna species are those which

fall through the coarse filter, since they do not occur consistently in their potential habitat. For example, of 100 bogs in Pennsylvania, the bog turtle may occur in only 10; therefore, it cannot be assumed that by protecting a bog within that state the bog turtle has been preserved. Thus, the bog turtle belongs to that fraction of biological diversity which must be dealt with on a species-by-species basis; one must look for those places in the landscape where they actually occur. The fine filter for capturing this segment of the state's diversity is simply a list of those plant and animal species which must be looked for on an individual basis.

Within the classification system, the elements of diversity are grouped into classes, based on their essential similarity. For example, all plant community types make up a class in which each community type is an element. The classes now in use are *plant communities, aquatic habitats, special animal and plant species* (including those species in these two classes which are endangered, threatened, rare, peripheral, endemic, or otherwise of special concern and *other* (incorporating miscellaneous elements such as unique biological specimens, breeding and feeding concentrations, and geological features).

Most major classifications which have been utilized nationwide are much coarser than those developed for State Heritage Programs. For example, The State of Florida has utilized the Land Use Development Assistance package (LUDA) developed by the U. S. Geological Survey for much of its planning. This classification identified 29 plant community types primarily based on their discernibility from aerial photographs. This compares with 87 types in Ohio and over 300 in North Carolina (where the academic community has been working at this level of detail for some considerable period of time).

The LUDA classification system contains no individual species. The Ohio Heritage System contains 758 and the North Carolina system contains over 650. The Ohio and North Carolina systems and others now in operation in 26 states, contain extensive species coverage.

It should be pointed out, finally, that the Heritage classification systems contain no bias toward species of commercial value, at either the level of individuals or of types. They represent an attempt to do nothing more (and nothing less) than exhibit the full range of ecological entities that actually characterize a state and constitute its natural diversity.

(b) Methodology

Under the Heritage Program, a state generally enters into a contract with The Nature Conservancy which obligates the Conservancy to develop a system for compiling ecological information on elements of the state's natural heritage and to advise the state on how best to protect examples of these elements. A typical state contract with the Conservancy lasts about 2 years, during which time the Conservancy sets up an entire data management system and completes the pilot inventory. After the contract period the state continues the inventory, which is intended to be an ongoing process, and also maintains the data system.

The Heritage Program design has continuously been evolving as a result of feedback from the individual programs, research in the national office, and interaction between the Conservancy and outside efforts.

Heritage Programs share a common methodology for identifying crucial ecological areas. This standard methodology holds out the promise of a regional (and eventually national) overview of natural diversity and the relative rarity of its crucial elements. Standard programs also offer state governments a means of sharing information and mechanically linking up with the Conservancy's national data bank.

The first phase of a Heritage program entails hiring and training an in-state staff to establish an operations center, data collection plan, and data management apparatus. A professional from the sponsoring state agency is assigned to the project as the program's liaison. At the minimum, the typical Heritage Program staff consists of an administrator, botanist, zoologist, and secretary/data handler.

The most important task in this early phase is the development of a classification document listing all the plants, animals, plant communities, and other natural features which deserve protec-

tion. This shopping list of the elements of a state's natural diversity becomes the focus of the subsequent inventory.

In the second phase, scientists from educational institutions and federal and state government agencies are contacted for leads on the locations of occurrences of these elements. All museum collection specimens in the state are systematically checked for information on where they were taken.

Five major files are kept under each program. They include

(1) a file on sources of information (experts, agencies, publications, institutions, etc.) cross-referenced by geographic and subject areas of information and expertise.

(2) Files on the ecologic characteristics of plant and animal species, communities, and other natural elements considered of significance in the state. (These ecological descriptions and other relevant information on the target elements are helpful in locating, protecting, and managing the elements.)

(3) Map files for the state, usually the 1:24,000 USGS topographic scale, on which the actual occurrences of significant features are plotted and identified for easy cross-reference.

(4) Manual files in which all recorded information on the plotted occurrences is stored (such as the field survey or other documents from which the mapped data originally came); and

(5) A computer file which contains an abstract of information on each mapped occurrence. The computer records consist primarily of information needed for basic analysis and decisionmaking.

This methodology continues to evolve. In the newest or most up-to-date programs, several additional computerized files are maintained on elements, managed areas, and sources of information and a more powerful interactive computer system is employed. In at least one program there is a strong computer graphics component.

The Heritage information management system is used to meet various decisionmaking needs. A frequent query concerns the number of occurrences of each species or community. This query is ordinarily addressed through the computer which can quickly provide information on which species or communities have the fewest records and thus are the most rare or in need of further verification.

The system can also be used to estimate the impact of a particular proposed decision, such as development of an area. The matter is best addressed through the maps, where the site of a proposed development can be located to determine its proximity to areas known to contain occurrences of elements of significance. By cross-reference with other sources of information, the ecological items identified from the maps can be considered in terms of relative rarity, degree to which they are protected elsewhere, and vulnerability to the proposed development.

Currently the Heritage elements of diversity include over 8,000 vascular plants, animals, and plant communities in 25 states. Approximately 77,000 occurrences of these species have been located to date. It is projected that in the next couple of years, by the end of 1983, there will be approximately 175,000 species records in the 25 states.

In Tennessee, for example, the inventory team has created a classification system which lists 75 plant communities, 117 plant species, and 164 animal species. After the first year of operation, ending in January 1977, over 2,000 actual occurrences of these elements had been mapped and stored in the Heritage data management system. Elements which were found to have few occurrences became targets or priority areas for protection by Conservancy protection planners. Protection is accomplished through outright acquisition, by disseminating information to decisionmakers, and by other means.

In Tennessee protection also results from the A-95 review process, in which occurrences are checked against proposed federal and state development proposals. Over 400 projects were reviewed between July 1, 1976, and January 1, 1977.

The information in the system has also been used by the Tennessee Wildlife Resources Agency, the Tennessee Valley Authority, the state Department of Transportation, numerous consulting engineering firms, and development districts doing water quality planning in the state.

In South Carolina information from the Heritage data bank has led to the Conservancy's focusing its preservation efforts on a site containing endangered flora. Field representatives from the

Conservancy's Southeastern Regional Office, working with state-sponsored Heritage staff, have begun private fund-raising to acquire the critical ecological area.

68.7 Key information contacts

Alice Q. Howard
California Native Plant Society
2380 Ellsworth, Suite D
Berkeley, California 94704
(415) 642-2465

The Nature Conservancy
Science Department
1800 North Kent Street
Arlington, Virginia 22209
(703) 841-5300

68.8 Bibliography

California Native Plant Society, *Fremontia, A Journal of the California Native Plant Society* Vol. 5, No. 4, January 1978.

68.9 List of other organizations

Arizona
Natural Heritage Program
30 North Tucson Boulevard
Tucson, Arizona 85716
(602) 323-9867, 1857
Coordinator: Terry Johnson

Arkansas
Natural Heritage Inventory
Continental Building, Room 514
L00 Main
Little Rock, Arkansas 72201
(501) 371-1706
Coordinator: Ken Smith

California
Natural Diversity DataBase
987 Jed Smith Drive
Sacramento, California 95819
(916) 322-2493
Coordinator: Sam Johnson

Significant Natural Areas Program
California Department of Fish and Game
1416 - 9th Street
Sacramento, California 95814
(916) 445-4214
Coordinator: Kent Smith

Colorado
Natural Heritage Inventory
Suite 307, The Ross Building
1726 Champa Street
Denver, Colorado 80202
(303) 623-1913
Coordinator: Lou Vincent

Georgia
Special Projects Section
Office of Planning and Research
Room 815-0
270 Washington Street, S. W.
Atlanta, Georgia 30334
(404) 656-4985
Coordinator: Britt Pendergrast

Illinois
Natural Areas Section
Illinois Department of Conservation
605 William G. Stratton Building
400 South Spring Street
Springfield, Illinois 62706
(217) 782-1853
Chief: John Schwegman

Indiana
Heritage Program
Division of Outdoor Recreation
Indiana Department of Natural Resources
612 State Office Building
Indianapolis, Indiana 46204
(317) 232-4078
Coordinator: Cloyce Hedge

Kentucky
Heritage Program
Kentucky Nature Preserves Commission
407 Broadway
Frankfort, Kentucky 40601
(502) 564-2986
Commission Director: Donald Harker, Jr.

Kentucky, continued
Natural Heritage Program
The Nature Conservancy
1800 North Kent Street, Suite 800
Arlington, Virginia 22209
(703) 841-5326
Coordinator: George Fenwick

Massachusetts
Heritage Program
Massachusetts Department of Environmental Management
Division of Planning
100 Cambridge Street
Boston, Massachusetts 02202
(617) 727-6268 (3260/3178)
Coordinator: John Feingold

Michigan
Natural Areas Council
University of Michigan
Botanical Gardens
1800 North Dixoboro Road
Ann Arbor, Michigan 48105

Natural Features Inventory
Steven T. Mason Building
Michigan Department of Natural Resources
Land Resources Programs Division
Box 30028
Lansing, Michigan 48909
(517) 373-1552
Coordinator: Larry Master

Minnesota
Natural Heritage Program
Department of Natural Resources
Box 11, Centennial Office Building
St. Paul, Minnesota 55155
(612) 296-4284 (9782)
Coordinator: Barbara Coffin

Mississippi
State Heritage Program
111 North Jefferson Street
Jackson, Mississippi 39202
(601) 354-7226
Coordinator: Joe Jacob

Missouri
Natural Areas Committee
c/o Missouri Department of Natural Resources
P. O. Box 176
Jefferson City, Missouri 65102
(314) 751-2479
Coordinator: Greg Iffrig

Missouri, continued
Natural Areas Division
c/o Missouri Department of Conservation
P. O. Box 180
Jefferson City, Missouri 87503
(314) 75103332
Coordinator: Richard Thom

New Mexico
State Heritage Program
Department of Game and Fish
Villagra Building
Santa Fe, New Mexico 87503
(505) 827-5531
Coordinator: Bill Isaacs

North Carolina
Natural Heritage Program
Division of State Parks
Department of Natural and Economic Resources
Box 27687
Raleigh, North Carolina 27611
(919) 733-7795
Coordinator: Charles E. Roe

North Dakota
Natural Heritage Program
North Dakota Parks and Recreation Department
R. R. 2, Box 139
Mandan, North Dakota 58554
(701) 663-9571
Coordinator: Jane Cross-Cella

Ohio
Natural Heritage Program
Ohio Department of Natural Resources
Division of Natural Areas and Preserves
Fountain Square, Building F
Columbus, Ohio 43224
(614) 466-8970
Coordinator: Robert McCance, Jr.

Oklahoma
Natural Heritage Program
University of Oklahoma
Botany and Microbiology Department, Greenhouse
Norman, Oklahoma 73019
(405) 325-2791 (4034)
Coordinator: Ian H. Butler

Oregon
Natural Heritage Program
c/o Northwest Field Office
1234 N. W. 25th Avenue
Portland, Oregon 97210
(503) 228-9550
Coordinator: Wayne Rifer

Rhode Island
Heritage Program
Department of Environmental Management
Division of Planning and Development
83 Park Street
Providence, Rhode Island 02903
(401) 277-2776
Coordinator: Rick Enser

South Carolina
Heritage Trust Program
South Carolina Wildlife and Marine Resources Department
Suite 117, Dutch Plaza
P. O. Box 167
Columbia, South Carolina 29202
(803) 758-0014
Coordinator: Steve Bennett

Tennessee
Heritage Program
2611 West End Avenue
Nashville, Tennessee 37203
(615) 741-3852
Coordinator: Sam Pearsall

TVA Regional Heritage Program
Office of Natural Resources
Norris, Tennessee 37828
(615) 494-8900 (0184)
Coordinator: William H. Redmond

Texas
Texas Conservation Foundation
4200 Smith School Road
Austin, Texas 78744
(512) 475-4941
Director: John Hamilton

Virginia
Natural Diversity Program
Virginia Polytechnic Institute and State University
Biology Department Herbarium
Blacksburg, Virginia 24061
Project Director: Steve Croy

Washington
Natural Heritage Program
3111 Seminar Building SE 3109
The Evergreen State College
Olympia, Washington 98505
(206) 753-2449)
Coordinator: David Mladenoff

West Virginia
Heritage Trust Program
1800 Washington Street, East
Charleston, West Virginia 25305
(304) 348-2707
Coordinator: Ron Fortney

Wisconsin
Scientific Areas Program
Wisconsin Department of Natural Resources
Madison, Wisconsin 53706
(608) 266-8916
Director: Clif Germaine

Wyoming
Natural Heritage Program
1603 Capitol Avenue, Room 325
Cheyenne, Wyoming 82001
(307) 634-9629, 9620
Coordinator: Mark Stromberg.

Chapter Sixty-nine

Notification

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A. Introduction

69.1 Overview

Notification, as mentioned in the discussion of tools in Chapter sixty-seven, is a first step in the process toward the permanent protection of elements of natural diversity. Notification involves information dissemination, education, and consciousness raising. As such its success is hard to measure. Its use is predicated on 2 assumptions: (1) ideally, an individual enlightened about the ecological value of his property will disregard personal gain for the good of society, and (2) it is better to make known and "red flag" all truly unique areas than to follow a reactionary approach to conservation.

Unfortunately, however, economic realities and the principle of personal freedom rather than social good usually dictate choices. At best, notification can only be considered of unpredictable and/or short-term value, especially where private individuals are involved. Many people can be educated as to the environmental value of their land and will accept the principle of the need for preserving its elements but are still powerless to do so.[1] Personal livelihood and survival are often at stake. For example, in Vermont farmers see farming as a declining industry and frequently must sell their farms, even though the farms may contain a valuable bog or a species of special interest to the state. In other instances, people may oppose notification. In some states where there is prejudice against governmental actions and where many regulatory programs have been created or proposed, an individual may see notification as just another zoning plan. In Vermont, for example, land use planning was a very controversial issue with the public and the legislature. The Vermont Natural Resources Council, in its notification work, has had to mount a defensive campaign, explaining that it does not work for the state and that the land will not be condemned for a state park.[2] In Maine, the converse has been true. Because the state already had a large number of regulatory programs (about one-half of the state comes under shoreline zoning regulations), a non-regulatory notification program has been well-received.[3] A spokesman for the Maine Critical Areas Program states, "had we proposed a regulatory program for critical areas, ten bills would have been submitted in opposition to us."[4]

On the whole, though, notification and disclosure of information about a critical locality are considered to be positive activities. Many landowners are in a position to act for society's benefit but are simply not aware that they own a rock, land form, or plant considered of value and which they could inadvertently destroy. Generally, public agencies, corporations, and developers are in such a position. They can meet environmental goals and still make profits or achieve their other objectives. In Ohio, the chapter of The Nature Conservancy notified a number of major utility companies of existing and potential Conservancy preserves. The companies appreciated the information and indicated that, if they were notified of preserve locations far enough in advance, they would switch locations of of rights-of-way rather than fight.

Full disclosure and notification of sensitive, valuable, and rare localities is not without its drawbacks, however. In some cases developers have destroyed the element in question in order to get the permit to develop. In others, the elements have been collected by students and collectors who learned of their whereabouts. As a report of the Vermont Natural Areas Project states, "Several years ago, the location of Vermont's major colony of *Calypso* orchid became widely known. At that time, the colony consisted of some 200 plants. Since then surreptitious collectors have made off with all but a handful of plants. Today the colony is nearly decimated. Many people feel that this is the result of publicity and that, therefore, the location of natural areas,

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[1]See Chapter 70: Registration/Designation for a discussion of this point.

[2]Bob Klein, Vermont Natural Resources Council, personal communication, January 1977.

[3]Hank Tyler, Maine Critical Areas Program, personal communication, February 1977.

[4]*Ibid.*

particularly fragile ones, should be kept secret."[5]

The Vermont Natural Resources Council cites another example—a bog in Bennington County which was so pristine and fragile that local botanists who knew of it kept its existence a secret. For this reason it was not recognized as one of the county's most important natural areas, and today its water level is being severely altered by culverts beneath a newly built road.[6]

Other natural features have had similar fates. Birds of prey have been hunted to extinction for sport; some rarer cacti have been exploited for commercial interests. Notification of the presence of an occurrence of an element of diversity has also on occasion prompted an owner to raise the price of his land so no conservation group could afford to buy it.

There are, therefore, persuasive reasons for both publicity and secrecy. Many conservation groups believe that natural areas protection is best accomplished through effective information dessemination, notification, and publicity. Their argument is that if it is not known that a natural area or fragile element lies in the path of highway construction or a housing development, how can such an area be protected? They believe that only when the consideration of natural areas is integrated into local and state planning processes and regulatory programs will protection be complete.

Others argue that while the information is necessary to the protection process and should be released, it must be with discretion. In some instances, facts about the location of very rare plant colonies should not be released to the general public when such information would encourage serious abuses. In this vein, despite sunshine laws, state agencies are generally permitted to evaluate ligitimate uses of information and to control the quality and level of information distributed if there is some question of jeopardy to the affected element.

[5]Vermont Natural Resources Council, *Technical Report: Vermont Natural Areas Project (Phase II), Montpelier, Vermont, March 1976.*

[6]*Ibid.*

69.2 Notifying the landowner directly

Notification has taken many forms, depending on the time, energy, and resources of the notifying party. They have included letters, conferences and town meetings, personal visits, and general consciousness-raising on the value of diversity, endangered species, and natural area protection via television and radio spots. In Georgia, a county-by-county inventory of natural areas was developed in the early 1970s which included 725 site nominations. A letter was written to owners of the sites indicating that they had something of value on their land. In Rhode Island a similar letter was sent to owners of land in that state's inventory, which was carried out by the Audubon Society of Rhode Island. The letter simply notified the individual that portions of his land were in the state's natural areas survey and that the Audubon Society of Rhode Island thought the owner would be interested in knowing the value of his land. The letter included a card stating that, if the individual wanted further information about what was on his property or about the natural areas program, he could return the card. The return of cards expressing interest was encouraging. Because of a lack of funding, the Society has as yet not been able to respond to individuals who expressed an interest.[7] The Society is currently seeking a grant to support a meeting of all respondents. The proposed $35,000 grant would pay for experts in law, tax, and land use to lead a 3-day conference to determine the problems private landowners foresaw in protecting their natural areas, their reasons for owning their properties, and to give free advice and alternatives to those who were planning to sell or change the character of their land.[8]

In its notification program, the Vermont Natural Resources Council is emphasizing a statewide program to increase awareness of the concept of natural areas protection.[9] In New Hampshire, the

[7]Al Hawkes, Audubon Society of Rhode Island, personal communication, January 1977.

[8]*Ibid.*

See Section 69.5 for a description of the Vermont Natural Resources Council.

Society for the Protection of New Hampshire forests works through local groups, including conservation commissions, to notify landowners and ensure that public service organizations have a copy of the New Hampshire inventory. The Society feels that personal contact is fundamental to any notification program because of the many personalities, feelings, and emotions which are tied up in land ownership. Fifteen years ago the Society wanted to put a trail between Mount Monadnock and Mount Sunapee which would have cut through the properties of approximately 50 landowners. It is felt that the efforts of but one individual, who spent hours visiting with owners, getting to know them, and talking about their concerns, made the difference in achieving credibility for the trail and a willingness to sign the agreement.

Personal contact has been used in a number of other programs. The Connecticut Forest and Park Association contacted landowners for permission to conduct its initial inventory and survey. Surveyors in various other inventory programs have also contacted landowners for permission to inventory their lands. In the process of requesting permission, they have explained the purposes of the natural areas program and the possible significance of an owner's land to the program.

This procedure in notification—requesting permission—has usually been followed at the surveyor's initiative since the typical inventory contract stipulates that sites are to be inventoried without giving a directive that landowners be notified of the inventory. In Ohio, for example, surveyors for Arthur Herrick's inventory of natural areas only spoke to landowners when they bumped into them and "usually only when they were greeted with a shotgun."[10] On the other hand, Dr. J. Dan Pittillo, who had had three contracts to inventory natural areas in North Carolina and the surrounding region (one for the Bureau of Outdoor Recreation and Appalachian Regional Commission and two for the National Park Service's National Natural Landmarks Program), states that he usually tried to contact landowners when he was conducting inventories, although he did not bother contacting some because he knew they would refuse to listen to or meet with him.[11] Of those contacted, in only two instances did they refuse to listen. In the other cases they were willing and receptive. One landowner on Grandfather Mountain invited him over for lunch, helped him prepare a map and survey, and expressed his family's intention and hope to be able to continue to preserve the site for generations to come.

Although personal contact is understandably the preferred mode of notification, it is obviously the most time-consuming and costly unless it is linked with ongoing and funded operations such as inventories and evaluations. Many of the organizations which have been charged with, or have taken it upon themselves to disseminate, inventory information and raise consciousness through notification have been understaffed and short of the funds needed to conduct this effort. As a result, some private organizations, in New England for example, are restricting their activities to a clearinghouse function wherein they distribute information to more grass-roots organizations such as conservation commissions and conservation land trusts which can, in turn, carry out the notification process. The state-level clearinghouse approach was promoted in New England by the New England Natural Areas Project (NENAP), a program funded in 1970 by the New England Regional Commission to inventory New England's natural heritage, develop a strategy for protection, and assure funding of protection efforts. As a result of the NENAP effort, a clearinghouse was established in a private conservation organization in each of the New England states. Because a regional funding mechanism did not materialize, each clearinghouse has been expected to generate its own funds.

In Connecticut, the Connecticut Forest and Park Association and later the Department of Environmental Protection have attempted to notify the conservation commissions and municipalities of areas within their jurisdictions. Once a year the Department publishes a fact

[10] Dr. Charles C. King, Ohio Biological Survey, personal communication, February 1977.

[11] Dr. J. Dan Pittillo, Western Carolina University, personal communication, March 1977.

sheet for each municipality, listing natural areas and indicating yearly additions to, or deletions from, the list. The Forest and park Association has worked with the Connecticut Chapter of The Nature Conservancy to have the chapter notify landowners.

In New Hampshire, the Society for the Protection of New Hampshire Forests, which cooperates with the New England Natural Areas Project, is also working through its Conservation Trust Program to notify landowners of the conservation value of their land. The Conservation Trust Program has successfully attempted to stimulate an interest by conservation commissions in becoming the grantees of conservation easements, and the conservation commissions now notify all landowners of the value of their land and request that they protect it. All towns and conservation commissions have been provided by the Society with a copy of the inventory of areas in their jurisdictions. These local approaches have been considered successful.[12]

69.3 Notifying others and applying indirect pressure

Direct notification of the individual may suffice to convince an individual or developer of the principle of preservation. A good presentation of the land's uniqueness by responsible people may even persuade a developer to change his plans. However, because direct notification may not always be successful, conservationists can take a stronger action by notifying other organizations or institutions on which individuals may be dependent for permission or subsidies to alter the environment. Properly notified, zoning boards, local, state, and federal permit offices, funding sources, the press, and local organizations can exert a good deal of pressure against changing the *status quo*. For example, many developments require a rezoning action by local authorities. Since local authorities are responsible to the people, if enough people present a well-thought-out case for the protection of an area, the authorities can be persuaded to deny the rezoning application and, thus, kill the development plans.

The application of indirect pressure for areas where developers are particularly vulnerable has already been used effectively to block environmentally unsound development. Generally a developer feels his reputation is important. If he is a local individual or corporation, he has to be very conscious of his image since he has a commitment to both the community and state. If he hopes to stay in business, he cannot afford to destroy any area that has significance to the people of the community or state. Nevertheless, in order to be convinced of the importance of the land, he often must be persuaded that it is significant to those with power to stop him from developing it. The Nature Conservancy and other organizations have found that disseminating inventory information and a list of priorities with respect to preservation of target sites has been an effective means of pressuring developers to preserve land.

Similarly, any development requires some type of local, and possibly state and federal, permit. These involve everything from density to actual construction specifications. For example, developments over 50 units and 10 acres that involve interstate sales must be registered with the U. S. Department of Housing and Urban Development (HUD). To be registered by HUD, a development has to meet certain strict requirements. The National Environmental Policy Act (NEPA) requires that HUD do an environmental assessment of every development it registers. This requirement can force many developers to file a formal environmental impact statement before they proceed with sales and construction. Disposition of a list of areas to local, state, and federal permit authorities can ensure that environmental factors are considered as permits are let.

Notifying sources of funding may also be effective. Be they individuals, banks, insurance companies, or some other entity, whoever finances a project has a vested interest in its success. If a developer is planning to destroy a significant area, lenders might be hesitant to commit any funds. In New Hampshire the Society for the Protection of New Hampshire Forests is trying to work out an arrangement with local banks

[12]Ron King, Society for the Protection of New Hampshire Forests, personal communication, March 1977.

whereby the banks will not finance any development until it has met a strict set of criteria. Because a high number of recreational developers have recently gone bankrupt, local banks are very interested in exploring this new idea.

Notifying land acquisition groups to purchase inholdings has also worked to stop development. In some instances a developer has to assemble several parcels of land. In such cases, conservationists can buy a few key tracts and literally block the entire development.

Likewise, the press can be an effective agent for preservation if a valid case can be made that the proposed development will have a negative effect on the environment and community. Adverse publicity can force a developer to give up his plans. The only way a developer can make money is to sell lots; and, if the public thinks the project is environmentally unsound, it will definitely hurt the developer's sales. Almost every developer includes favorable press clippings in his sales brochures, so there is no question that they are very conscious of adverse publicity.

Coordination and organization is critical to preserving land. Rather than start from scratch, it is usually quite helpful to alert existing organizations to areas of significance and to enlist their support as watchdogs. The League of Women Voters, Garden Clubs of America, the Scouts, and the Jaycees, as well as local and national conservation organizations, are all excellent sources of support that can be notified.

B. National Organizations

69.4 Society for Range Management

(a) History and objectives

The Society for Range Management, established in 1948 as a nonprofit corporation under the laws of the State of Wyoming, is an international professional organization composed of individuals with a common interest in the study, management, and rational use of rangelands and related ecosystems. The Society's objectives are

o to develop an understanding of range ecosystems and of the principles applicable to the management of range resources;

o to assist all who work with range resources to keep abreast of new findings and techniques in the science and art of range management;

o to improve the effectiveness of range management to obtain from range resources the products and values necessary for man's welfare;

o to create a public appreciation of the economic and social benefits to be obtained from the range environment; and

o to promote professional development of its members.[13]

In 1966 the Society began the Rangeland Reference Area Program in recognition of the fact that very few natural area programs had devoted their attention to the preservation of baseline rangeland areas, although rangelands actually constitute more than 40 percent of the earth's land area. (Rangelands include natural grasslands, savannas, shrublands, most deserts, alpine communities, coastal marshes, and wet meadows.)

The problem had been clearly noted in 1963. According to a listing of approximately 800 natural areas prepared by the American Association for the Advancement of Science (AAAS) in that year,[14] only 140 areas included grass, shrub, or other rangeland vegetation types as classified by Shantz and Zon;[15] and of all the types used for grazing, only pinyon-juniper and sagebrush were considered by the AAAS to have possibly adequate representation in existing protected natural areas. The AAAS publication also noted that only a few protected areas existed for most grassland types. The Association stated that

> . . . if there were an active group interested in grassland in the same way that the Society of American Foresters have worked on forest types and their preservation, the status of

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[13] William A. Laycock, "Rangeland Reference Areas," Range Science Series Number 3, Society for Range Management, Denver, Colorado, 1975, p. 1.

[14] American Association for the Advancement of Science, *Natural Areas as Research Facilities*, Washington, D. C., 1963, 193 pp.

[15] H. L. Shantz and R. Zon, *Atlas of American Agriculture, Part 1, Sec. E*, "Natural Vegetation," U. S. Government Printing Office, Washington, D. C., 1924.

prairie preservation would not be in the sorry state that it is now.[16]

Historically, the need for reference areas on rangelands had been met primarily by the establishment of exclosures and the continued protection of are as where natural barriers had pre vented grazing. These exclosures, however, had been established on a local basis with little regard for the larger picture. Thus, some kinds of sites, plant communities, or edaphic conditions were duplicated while others were inadequately represented.

Under the program a Rangeland Reference Area Committee was set up to undertake a national effort to identify, list, and encourage preservation of exclosures and reference areas in the interests of science, research, and education. The sites were to illustrate or typify virgin conditions of forest or range growth as well as other (including grazed) conditions of importance from the standpoint of range resources.

(b) Structure of the organization

The Society for Range Management is divided into 19 sections. Its membership of approximately 5,500 represents more than 35 countries in all parts of the world and includes representatives from federal and state land management agencies, universities, and other interested organizations within each section's territory; research scientists; ranchers; government agency administrators; technical assistance personnel; educators; students; and people associated with business and industry. Each section has its own standing Rangeland Reference Area Committee, which is encouraged to keep personnel changes to a minimum. Participation on the committees is voluntary, which has resulted in variations in performance.

(c) Protection technique

The program is essentially an inventory and notification program. To date the Society does not have a formal registry. Development of a formal registry, inclusion on which can be offered as an incentive to a landowner to protect an area (similar, for example, to that of the Soil Conservation Society of America for managed natural areas[17]), has been hindered by a lack of universal acceptance by range society members of a designation system. This lack of acceptance has been due to fears that federal and ranch lands which are currently grazed would be withdrawn from grazing.[18] Reference Area Committees at the section level therefore attempt to prevent the loss of existing areas and to gain full representation of rangeland vegetation types in the territory of their jurisdiction in the following ways:

(1) Establish contact with all other agencies and organizations interested in natural areas or reference areas;

(2) Make an inventory of category of all existing reference areas in each section territory;

(3) List the major range plant associations or communities that should be protected in reference areas and, using the findings of Step 2, determine which plant associations do not presently have established reference areas;

(4) Initiate a program of cooperation with appropriate agencies, organizations, and private landowners to get at least one kind of reference area established for each of the missing plant associations;

(5) Offer to federal and state land management agencies and private landowners the services of the section's committee as consultants on establishment or preservation of reference areas on rangelands;

(6) Assemble a bibliography of publications, theses, etc., reporting studies conducted in reference areas in each section's territory; and

(7) Encourage and participate in sampling or resampling of reference areas by resource management agencies and research organizations to acquire

[16] *Op. cit.*, Laycock, 1975, pp. 5-6.

[17] See Part Ten: Chapter 70, Registration/Designation for a discussion of the Soil Conservation Society of America program.

[18] William A. Laycock, personal communication, March 1977.

additional and current data useful for understanding rangeland ecology.[19]

Committees rely heavily on agency cooperation to develop lists and on area owners to gather information for the inventory. This combined participation and involvement in a sense serves to notify landowners of the society's and the nation's interest in rangeland areas.

To date, a number of inventories have been completed. The Wyoming Section of the Society had compiled a list of exclosures in Wyoming[20] before the formation of the Reference Area Committee. The Utah,[21] Nebraska,[22] and Pacific Northwest[23] Sections have now compiled lists of exclosures and natural areas on rangeland in their territories. In other sections, the effort is currently under way. Other comparable inventory efforts related to the Society's program include a description of soils and vegetation of 66 pristine or long-protected sagebrush rangeland areas in southern Idaho, northern Utah, and northeastern Nevada by Passey and Hugie[24] and a similar description of 44 near-pristine sites in Montana by Ross *et al.*[25]

The Society encourages formal publication of inventories of reference areas with as wide a distribution as possible to Society members in the section and key personnel engaged in research and the use and management of rangelands. Inventories are updated every five years.

Once an area is identified, the Rangeland Reference Area Committee of each section recommends to the appropriate private landowner, organization, or agency that a research natural area or other reference area be established. Recommendations are made for establishment and management of the exclosure in an Establishment Report, and copies of the report are filed with the owner or administrator of the land as well as with all other interested persons or organizations.

For management purposes, Rangeland Reference Areas generally fall into the following four categories:

Research Natural Areas—baseline or check areas of large size (usually at least several hundred acres), which are representative of original (pristine or climax) vegetation and which will receive nondestructive or nonconsumptive management. These areas have been set aside or designated by other active natural areas programs such as the Federal Committee on Research natural Areas, the U. S. International Biological Program, The Nature Conservancy, the Society of American Foresters, and the Society for Range Management. One of the functions of SRM Rangeland Reference Area Committees is to maintain contact with these groups, determine which areas already set aside include rangeland types, help in selection of new areas, and recommend rangeland types not presently included in lists of vegetation needing protection.

Exclosures—smaller areas set aside and protected from grazing either to preserve representative areas in excellent range condition or to allow observation of succession on depleted rangeland without grazing. Exclosures protected from grazing by a fence, and relict areas protected from grazing by some natural feature, have long been used by managers and researchers as baseline areas. Relict areas too small to be considered as research natural areas and all fenced areas including those protected from grazing for other purposes, such as

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[19] *Op. cit.*, Laycock, "Rangeland Reference Areas," p. 20.

[20] Clayton Williams, "Range Exclosures within the State of Wyoming," *Wyoming Range Management*, Volume 170, 1963, pp. 1019

[21] William A. Laycock, "Exclosures and Natural Areas on Rangelands in Utah," U. S. Forest Service Research Paper INT-62, 1969, 44 pp.

[22] American Society for Range Management, Nebraska Section "List of Nebraska SRM Reference Areas," *Newsletter*, Volume 22, Number 3, 1973.

[23] American Society for Range Management, Pacific Northwest Section, "Tentative List of Range Reference Areas, 1969, 7 pp.

[24] H. B. Passey and V. K. Hugie, "Sagebrush on Relict Areas in the Snake River Plain and Northern Great Basin," *Journal of Range Management*, Volume 15, 1962, pp. 113-118.

[25] R. L. Ross, E. P. Murray, and J. C. Haigh, "Soil and Vegetation Inventory of Near-Pristine Sites in Montana," USDA, Soil Conservation Service, Bozeman, Montana, 1973, 55 pp.

cemeteries, are also considered exclosures in the following discussion.

The Society for Range Management is the only professional organization presently active in the natural areas field that is concerned with inventory, evaluation, and preservation of all exclosures on rangelands. For many range plant communities, exclosures are the only representative areas of relatively undisturbed vegetation available.

Managed Range Study Areas—Grazed areas that illustrate either excellent range condition or a specific type of livestock management. They could include part or all of federal, state, or university experimental ranges where long-term grazing management studies are carried out or other areas where the results of specific types of range management can be seen. Areas in this category resemble the "managed natural areas" recognized by the Soil Conservation Society of America (SCSA). The section committees of the Society for Range Management therefore cooperate with SCSA in establishing and recognizing these areas.

Because they are grazed, however, managed range study areas are vulnerable to unwanted modifications caused by changes in grazing rates or management. A drastic change in management can make the area almost worthless as a reference area. Before a managed range study site is approved, the Society attempts to reach a firm agreement with the owner or manager of the land to insure that changes in management will not take place or, if they do, that the appropriate committees will be notified in advance.

Other Reference Areas—educational areas; endangered species preserves; botanical, geological, or archeological areas; recreational areas; or other types of reference areas that do not readily fit into the other categories of the Rangeland Reference Area Program. These areas have only local or regional significance.[26]

[26] *Op. cit.*, Laycock, "Rangeland Reference Areas," 1975, pp. 11-19.

Once an area has been identified and established, the most important function of the section Rangeland Reference Area Committee is to act as a consultant and to notify rangeland owners of the value of their range, especially when elimination of an exclosure is contemplated. Committees are often in a better position to evaluate the worth and broader scientific values of these areas than land management or other resources agencies who may judge the value of exclosures on a limited basis.

A case in point was the removal of two large exclosures of the aspen type in Grand teton National Park during the summer of 1972 in spite of objections from the Society for Range Management. The reason for removing the exclosures was stated by Superintendent Everhardt in a letter to Senator Clifford Hansen of Wyoming:

> A primary management goal of the National Park Service is to maintain ecosystems in as natural a state as possible. Large game populations are a part of these natural ecosystems. Conditions within exclosures clearly represent a departure from natural conditions.[27]

Park management staff presented essentially the same argument:

> Exclosures in climax grassland may simply show "site potential" without large herbivores. Interpretations that such exclosures illustrate how things should be in a park would more often than not be confusing artificial with natural conditions.[28]

[27] Alan A. Beetle, "The Zootic Climax Concept," Journal of Range Management, Volume 27, pp. 30-32.

[28] Glen Cole, "Some Considerations in the Use of Exclosures to Assess the Biotic Effect of Herbivores and Departures from Natural Conditions in Yellowstone National Park," Yellowstone National Park Information Paper 13, 1971, 5 pp.

C. State Organizations

69.5 Vermont Natural Resources Council

(a) History and objectives

The Vermont Natural Resources Council (VNRC) is a private, nonprofit organization established in 1972 to identify natural area sites in Vermont. The organization is not authorized to own land. It has limited its activities to the inventory and analysis of recommended sites and to working with landowners, planning commissions, and state agencies to accomplish the protection of natural areas previously identified.

The organization does not have a permanent staff and works primarily on special projects. Its limited funds come primarily from private (60 percent) and foundation (25 percent) sources, with lesser funding from federal (10 percent) and state (5 percent) governments.[29] Between 1971 and 1973, the Council worked in cooperation with the Agency of Environmental Conservation, the University of Vermont, and other concerned groups to assemble an inventory of natural areas in Vermont. This effort was supported by the New England Natural Areas Project (NENAP) and resulted in the identification of 517 natural areas.[30] In 1973, because NENAP was unable to review its activities, the Vermont Natural Resources Council secured a small grant from the U. S. Army Corps of Engineers to coordinate work toward extending the Vermont natural area inventory begun under NENAP. This subsequent investigation added another 480 areas, about half of which were deer-yards identified by the Department of Fish and Game.[31]

In the summer of 1975, the Vermont Natural Resources Council was chosen by the Agency of Environmental Conservation to coordinate a six-month Phase II aspect of the Natural Areas Project. This phase was to involve the analysis of the potential of the natural areas inventory as an information source and the recommendation and preparation of the materials necessary to realize this potential. Among Phase II project goals were efforts to

(1) Determine criteria for evaluating the existing natural areas inventory;
(2) Prepare a list of Vermont's most important natural areas using the criteria;
(3) Coordinate with the Environmental Board and the State Planning Office;
(4) Prepare a manual explaining planning approaches to natural areas for local planning commissions;
(5) Consider needed legislation and administrative rule changes, and draft recommendations when appropriate;
(6) Organize data into different geo-jurisdictional units and distribute as appropriate;
(7) Prepare a summary report; and[32]
(8) Prepare a technical report.[33]

In 1976 the Vermont Natural Resources Council received another grant to conduct Phase III, the implementation phase, of the Natural Areas Project. It is essentially an education and notification phase and relies heavily on information dissemination and provision of technical assistance.

(b) Protection technique

In Phase III of the Project, the Vermont Natural Resources Council is developing educational materials about natural areas, their importance, and their protection. The materials which have been developed to aid in the notification and education process include

(1) an 8.5-minute slide/tape presentation describing the biological significance of these areas, their value to research and education, and their relevance to municipal planning. It emphasizes the current

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[29]The Nature Conservancy, "Survey of Natural Area Activities Questionnaire," 1976.

[30]*Op. cit.*, Vermont Natural Resources Council, Technical Report: . . . March 1976, pp. 3-5.

[31]*Op. cit.*, Vermont Natural Resources Council, Technical Report: . . . March 1976, p. 5.

[32]See Technical Appendix 69.8(a) for a copy of the summary report.

[33]*Op. cit.*, Vermont Natural Resources Council, March 1976, p. 6.

situation in Vermont, detailing the opportunities for coordinating with concerned state and private interests. The presentation reviews Vermont's natural areas problems and opportunities in regional and national contexts and presents interviews with landowners and university professors showing how their interest in natural areas grew and what they have done to protect these areas. The slide show was presented on educational television in 1977.

(2) a collection of case studies detailing how natural areas have been protected successfully in Vermont and elsewhere, with emphasis placed on explaining poorly understood protection techniques and their implications. For example, instances where gift-purchase,[34] easements, management agreements, bargain sales, and regulations have proven to be effective in protecting natural areas are investigated and described.

(3) a "how-to" checklist which reviews the procedures municipal planning commissions might follow to incorporate natural areas protection features in town plans (including a summary of goals, techniques, and strategies).[35]

(4) reference materials on the subject of the identification and protection of natural areas.[36]

These materials are used in workshops with regional and town planning commissions which have several natural areas within their jurisdictions and form the basis of discussions with landowners, citizens' groups, and school classes. Commissions are assisted in evaluating the importance of natural areas according to local and regional priorities and developing plan objectives and methodologies for natural areas protection.

When appropriate, the Project is helping landowners and towns to design protection or management plans for particular areas. Emphasis is on retaining lands in private ownership while protecting them through negotiated agreements with landowners.

At the same time, the Council is working directly with individual landowners. Using the list of 64 "primary natural areas" developed previously,[37] the Project is choosing 5 to 10 natural areas which are promising prospects for protection. The selection of these natural areas is influenced by such considerations as ownership patterns, accessibility of owners, complexity of boundaries, current and projected land use patterns, and the flora, fauna, or geological features on the site. Once particular areas are chosen, the Project staff discuss protection options with landowners and towns. When feasible, specific protection plans are explored and appropriate solutions negotiated. Where acquisition by either gift or purchase is a possibility, the Project will invite The Nature Conservancy or the Vermont Agency of Environmental Conservation to participate.

The Project hopes to demonstrate that natural area protection based on a strong educational program is possible without great expense and is something that can be accomplished through the cooperative efforts of government, private organizations, and landowners.

D. Information and Bibliography

69.6 Key information contacts

David H. Abell
Former Coordinator of Natural Areas Project
Audubon Society of Rhode Island
97 Elm Street
Sea Cork, Massachusetts 02771
(617) 903-7863

[34]See Discussion Chapter 72, Fee Acquisition.

[35]See Technical Appendix 69.8(b) for a copy of the checklist.

[36]Vermont Natural Resources Council, *Information Brief. Vermont Natural Areas Project, Phase III*, Montpelier, Vermont, 1977.

[37]The Vermont Natural Areas Inventory contains information on over 800 sites. In 1975-76 a joint Vermont Natural Resources Council/Vermont Agency on Environmental Conservation Natural Areas Project identified 64 of these as being outstanding.

Lou Greathouse
Georgia Department of Natural Resources
Office of Planning Research, Natural Areas Unit
270 Washington Street, Room 702C
Atlanta, Georgia 30334
(404) 656-5164

Al Hawkes
Audubon Society of Rhode Island
40 Bowen Street
Providence, Rhode Island 02903
(401) 521-1670

John Hibbard
Connecticut Forest and Park Association, Inc.
P. O. Box 389
1010 Main Street
E. Hartford, Connecticut 06108
(203) 289-3637

Ron King
Society for the Protection of New Hampshire Forests
54 Portsmouth Street
Concord, New Hampshire 03301
(603) 224-9945

Robert Klein, Director
Natural Areas Project
Vermont Natural Resources Council
7 Main Street
Montpelier, Vermont 05602
(802) 223-2328

William A. Laycock
USDA, SEA-FR
Crops Research Laboratory
Colorado State University
Fort Collins, Colorado 80523
(303) 482-7332

D. A. Smith, Executive Secretary
Society of Range Management
2760 West Fifth Avenue
Denver, Colorado 80204
(303) 571-0174

Dr. Hugo Thomas
State Geologist Director, Natural Resource Center
Department of Environmental Protection
165 Capitol Avenue
Hartford, Connecticut 06115
(203) 566-3540

Gary Van Waart
Trustees of Reservations
224 Adams Street
Milton, Massachusetts 02186
(617) 698-2066

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Vermont Natural Resources Council. "Charitable Gifts of Land: Their Tax Implications." Vermont Natural Resources Council: 26 State Street, Montpelier, Vermont 05602, 1976.

Vermont Natural Resources Council. *Information Brief, Vermont Natural Areas Project (Phase III).* Vermont Natural Resources Council: 26 State Street, Montpelier, Vermont 05602, 1977.

Vermont Natural Resources Council. *Technical Report: Vermont Natural Areas Project (Phase III)* Vermont Natural Resources Council: 26 State Street, Montpelier, Vermont 05602, 1976.

Williams, Clayton. "Range Enclosures Within the State of Wyoming." *Wyoming Range Management,* 170 (1963) 1-19.

69.8 List of technical appendices

(a) *Summary Report, Vermont Natural Areas Project (Phase II).* Vermont Natural Areas Council: 26 State Street, Montpelier, Vermont 05602, 1975.

Steps Toward the Protection of Natural Areas--A Checklist for Municipal Planning Commissions. Vermont Natural Areas Council: 26 State street, Montpelier, Vermont 05602, 1976.

69.9 List of other organizations[38]

Arizona
- Arizona Natural Heritage Program (Tucson)

Arkansas
- Arkansas Natural Heritage Inventory (Little Rock)

Alaska
- Denali Citizens Council
- McKinley Park

California
- California Natural Diversity Data Base (Sacramento)

Colorado
- Colorado Natural Heritage Inventory (Denver)
- Society for Range Management (Fort Collins)

Connecticut
- The Connecticut Forest and Parks Association (East Hartford)

Illinois
- Eagle Valley Environmentalists (Apple River)
- Illinois Dunesland Preservation Society (Highland Park)
- Natural Land Institute (Rockford)
- Save the Prairie Society (Westchester)

Indiana
- Indiana Heritage Program (Indianapolis)

Kentucky
- Kentucky Heritage Program (Frankfort)

Maryland/Delaware
- Maryland Natural Heritage Program, TNC (Arlington, Virginia)

Massachusetts
- Massachusetts Heritage Program (Boston)

Michigan
- Michigan Natural Areas Council (Ann Arbor)
- Michigan Natural Features Inventory (Lansing)

Minnesota
- Minnesota Natural Heritage Program (St. Paul)

Mississippi
- State Heritage Program (Jackson)

Missouri
- Missouri Natural Area Survey (St. Louis)

Nebraska
- Nebraska Statewide Arboretum Council (Lincoln)

New Hampshire
- Society for the Protection of New Hampshire Forests (Concord)

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[38] All offices of The Nature Conservancy, chapters, field offices, and regional offices can and do notify landowners of the value of their properties. See "Master List of Organizations," which includes these offices and their addresses beginning on page 338.

Tennessee
  Tennessee Heritage Program (Nashville)
Washington
  Washington Natural Heritage Program (Olympia)
West Virginia
  West Virginia Heritage Trust Program (Charleston)
Wisconsin
  Portage County Preservation Projects, Inc. (Stevens Point)
  The Head Foundation (Madison)
Wyoming
  Wyoming Natural Heritage Program (Cheyenne)
New Jersey
  New Jersey Conservation Foundation (Morristown)
  Pine Barren Conservationists
New Mexico
  New Mexico State Heritage Program (Santa Fe)
New York
  Caumsett Citizens Committee (Huntington)
  Group for America's South Fork (Bridgehampton)
  New York/New Jersey Trail Conference, Inc. (New York)
North Carolina
  North Carolina Natural Heritage Program (Raleigh)
North Dakota
  North Dakota Natural Heritage Program (Mandan)
  North Dakota Natural Science Society (Jamestown)
Ohio
  Ohio Natural Heritage Program (Columbus)
Oklahoma
  Oklahoma Natural Heritage Program (Norman)
Oregon
  Oregon Natural Heritage Program (Portland)
Rhode Island
  Rhode Island Heritage Program (Providence)
South Carolina
  South Carolina Heritage Trust Program (Columbia)

Chapter Seventy

Registration/Designation

A. Introduction

70.1 Overview

Registration of natural areas, as has been noted in Chapter 66, Section 66.4: Tools for the Protection of Natural Diversity, of this volume, is the process of officially recognizing and listing an area as significant. While the scope and objectives of registries usually differ, the registration process in all cases is much the same: nomination of areas that meet the criteria of the registry; evaluation, selection, and listing; notification of the owner; and elicitation of some sort of non-binding administrative agreement and moral commitment on the part of the landowner to maintain the integrity of the site. The landowner may be a federal, state, or county agency, university, private organization, or private individual.

70.2 Registries

Registries have been and may be maintained at any level of government or by private organizations. As has been noted, the National Park Service is maintaining a registry of geologic and ecologic sites known as the National Registry of Natural Landmarks. The National Park Service limits its registry to areas of *national significance* throughout the country. Fifteen states are known to have statutes which require maintenance of statewide natural area registries: Arizona, Arkansas, Colorado, Connecticut, Georgia, Hawaii, Maine, Minnesota, Mississippi, Missouri, Montana, New Jersey, New York, Tennessee, and Wisconsin. Other states which have active natural area dedication systems are also required to maintain registries.[1] State-level registries usually include areas of national and statewide significance. Local governments may also maintain registries of natural areas.[2] Understandably, these include areas of national and statewide significance as well as local importance. Private organizations have also successfully encouraged and monitored the protection of natural areas by identifying and maintaining registries or lists of significant areas. Areas registered by these groups vary from national and state significance to those of very local significance, such as the sites registered by the Brooks Bird Club in West Virginia which maintains a registry of backyard sanctuaries. (These sanctuaries are designated primarily to educate individuals in the protection of wildlife. Over 20,000 acres have been registered, with registrants signing protection agreements with the club.) Major landowners and corporations have also identified and designated properties for preservation. These areas may likewise range in significance from national to local.

The efficacy of registries naturally depends on the degree of authority of the institution maintaining them and the level of significance of the areas listed. National Natural Landmarks listed in the *Federal Register* more than likely carry greater weight in the eyes of planning bodies than do areas registered at state or local levels by virtue of the fact that the areas are deemed of national significance.

The value of state listings depends on the degree to which the listed areas were evaluated and analyzed as to their ambient rarity at state, regional, or national levels. Most state programs reviewed showed appreciation for the fact that, if a listing is to mean anything, care must be taken in selecting and evaluating the site. They recognize that lists should include only high priority sites of state or national significance.

A spokesman for the Vermont Natural Resources Council is seeking legislative approval of a state registry of Vermont's natural areas in order to give the listing more clout. In his opinion, approval by the state legislature is

[1] See Part 10, Chapter 3, for a listing of dedication states. There may be some overlap of states due to hybrid systems.

[2] See Part 12, Chapter 91, on local government efforts at registration/designation.

important in that it shows the degree to which the state is supportive of the concept of natural areas and will uphold them as a legitimate concern of the state and its planning bodies.[3] The proposed registration process would require careful scrutiny of areas by a technical advisory committee to justify their inclusion, as well as public hearings to allow all interested parties to question the proposed designations. Of 1,000 sites nominated in Vermont, only 64 are being considered for the initial registry.

In Maine, where registration legislation has already passed, the inventory and review process for areas to be entered on the registry is very long. To date, only 36 areas have been listed.

Private registries, while generally lacking the legitimacy and clout of federal and state registries, can effectively forestall development by serving to raise awareness and educate landowners as to the natural value of their holdings. Whereas private organizations which create these listings are subject to the criticism that they represent vested interests, their usefulness cannot be denied. In Michigan, for example, many areas in federal, state, and private ownership would have been lost had it not been for the efforts of the Michigan Natural Areas Council which antedated all state efforts in this direction. Private organizations and volunteers are often the only alternative for designation when a federal, state, or local government either has not been educated as to the value of natural areas or lacks the power or funding to do anything.

70.3 Response to registration

Generally the most receptive parties to registration are federal and state landholders, corporations, and private conservation organizations. The least receptive are private individuals and local governments. This difference in receptivity can be explained by variations attributable to economic flexibility. Federal and state public agencies and corporations usually have enough surplus land that they are not losing anything by designating areas. If anything, they stand to benefit both financially and image-wise from good public relations. As an example, when a corporation builds a power plant, substation, or other facility, there is usually land left over that is not used directly for facilities but must be retained for operation of the project. The corporations can be asked to put this land to beneficial use by instituting land management programs for conservation of natural resources. These land preservation/management programs will benefit the company, the public, and the environment by providing for uses such as public recreation, timber production, wildlife habitat improvement, protection of natural areas, and preservation of open space and lands.[4]

Private individuals, on the other hand, even if they have the best intentions and are well informed, very often cannot be as receptive to registration as are public agencies and corporations. An individual is often unable to register his land because it would be financially prohibitive for him to protect the site. He frequently finds himself forced to sell because he is, in effect, land poor. An increase in land values may present him with liquidity problems in the event of death. Estate taxes will deplete liquid assets, reduce current income, and make it difficult to provide a cash alternative to land ownership for descendants no longer able or willing to hold onto the family property. Even before death, the burden of real estate taxes may be unbearable. In other cases there are too many heirs to reach a consensus for designation. Further, a private individual knows that, if his site is identified as nationally significant, there will be a much larger influx of visitors, making it impossible or cost-prohibitive for him to protect and maintain it in an isolated, natural condition. An individual, too, usually does not have the time or resources to handle the problems generated by requests for permission to use the area for botanical or other studies.

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[3]Bob Klein, Vermont Natural Resources Council, personal communication, March 1977.

[4]See Section 70.11: Pennsylvania Power and Light Company.

There is a reluctance under many registration programs to expend any effort to register private lands. Some program administrators feel that registration of these lands does not afford much protection and that stronger measures should be used. A case in point is an area in Georgia, Bartram Salt Lick, which was registered 9 years ago and recommended for state acquisition. When the state finally returned 7 years later, the owner who had agreed to the registration had died and his son had converted the area into a campground.

70.4 Use of registries and the planning process

The argument for registering private and other lands, even if an individual or agency is unable to agree to protect an area, has been its value in signaling a valuable site. This argument has been used by the National Park Service in registering landmarks regardless of an owner's acceptance of the designation. If registered, these sites can be protected under the National Environmental Policy Act of 1969 if they are made known in the review process required by the Act.[5] An environmental impact statement must be written for all federally financed or licensed activities which have a significant effect on the environment. In the selection of alternative and mitigating actions, it must consider, among other things, the occurrence of important natural areas. Several states have comparable laws regarding state-funded or licensed projects.

The principal protection provided by the natural landmark and other designations of significant natural areas, therefore, is to have called attention to areas containing exceptional natural values so that intelligent planning and land use decisions can be facilitated; and, if significant natural resources are potentially affected, mitigating actions can be taken to minimize impact.

Numerous situations have occurred where proposed plans have been significantly altered and even abandoned due, at least in part, to the presence of registered areas or elements at proposed project sites. In general, protection planners feel that most sites are lost out of ignorance of their importance and lack of information dissemination early in the planning process before large sums of money have been committed. If, for example, the snail darter had been known to occur at TVA's Tellico Dam site prior to TVA's expenditure of millions of dollars in planning and construction, either the dam could have been located elsewhere or mitigating measures could have been found which would have accommodated both the dam and the darter.

While no absolute legal protection is afforded registered areas and no long-term commitment can be expected from private landowners, the recognition factor has proven to be quite effective as a means of preservation. The National Park Service, for example, is continuously providing information concerning the location of significant natural areas, regardless of ownership, to public and private organizations responsible for planning development. This information is usually well received and relied on in the planning phases of development, thus avoiding the destruction of known important natural resources. Early knowledge of a site has allowed states time to obtain Land and Water Conservation Fund monies to acquire natural landmarks for state natural areas or other preservation land use categories. The Nature Conservancy and other private conservation organizations also have information on existing natural landmarks, potential natural landmarks (sites under study), and other designated areas to assist them in setting priorities for their natural area acquisition efforts. In 1977 the Michigan Natural Areas Council was asked to provide a list of privately owned registered sites for The Nature Conservancy to consider for acquisition. The record shows that designation programs have been effective in encouraging the preservation of significant natural areas through the process of recognition on both public and private lands.[6] At the present time, the Natural Landmarks Program staff knows of only two instances

[5]See also Part 10, Chapter 75: Environmental Analysis.

[6]See Technical Appendix 70.14(a) for a list of sites which have been purchased by The Nature Conservancy and are designated.

where natural landmarks have been damaged to the point of losing their inherent natural integrity.

70.5 Constraints on registration

While the record is fairly good, registration programs are typically understaffed, with only one to two individuals to coordinate identification, selection, notification, and monitoring. To date most registration programs have been forced to spend much of their resources on identification and evaluation of sites to be registered because of the inadequacy of systematic inventories.[7] As a result, relatively few sites have been actually registered as compared to the projected large number of sites suitable for registration; likewise, relatively few owners have been effectively notified and monitored, Agreements reached with owners depend on the time, resources, and priorities of the listing agent, as well as those of the owner.

70.6 Variations in the registration agreement

The method used to obtain cooperative agreements in order to protect an area varies from program to program. Some require that a standard form "letter of intent and agreement to register" be signed, others that a simple statement of agreement be sent to the listing agent and that a certificate or plaque be accepted as an expression of good faith. Still others require that lands be designated or zones in a formal master plan.[8] Generally, in programs that do have formal letters of agreement, it is only required that the owner declare his intention not to modify the property for a certain specified number of years. No written agreements were found requiring that the owner notify the listing agent of proposed developments which might alter the property or give a conservation organization or state or federal agency the right of first refusal should the owner intend or be forced to sell. In some cases formal agreements are made between the listing agency and other public agencies (such as the U. S. Forest Service, Fish and Wildlife Service, Bureau of Land Management, Department of Defense, Bureau of Indian Affairs, and other federal and state agencies) concerning the designation of registered areas on these public lands to ensure a more permanent preservation. For example, information on registered Natural Landmarks is provided to each administering agency so that it can be incorporated into management plans. Such plans form the basis for the type of management permitted. While Natural Landmark designation requires that the integrity of the natural area be maintained, the specific type of use permitted is left to the bureau administering the property. In other words, various types of use may be permitted as long as the significant natural values of the site are not impaired. Such compatible uses might include scientific use, interpretation for the public, fishing, nature study, photography, hiking, and other basically nonconsumptive uses.

The Society of American Foresters natural areas program provides standards and policy guidelines for areas designated as Society natural areas. Some programs advise owners on specific measures that can be taken to protect the area from encroachment. In rare cases the listing agent will draw up formal management plans.

The following section will analyze variations in the scope and techniques of a number of representative registry programs.

B. National Programs

70.7 The National Natural Landmarks Program

(a) History and objectives

The National Natural Landmarks Program was established in 1962 by the Secretary of the Interior to encourage the preservation of areas that illustrate the ecological and geological

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[7] Lou Greathouse, Georgia Department of Natural Resources, personal communication, February 1977.

[8] See Technical Appendix 70.14(b) for sample agreements used by the Society of American Foresters.

character of the United States, to enhance the educational and scientific value of the areas thus preserved, to strengthen cultural appreciation of natural history, and to foster a wider interest and concern in the conservation of the nation's natural heritage. The program was briefly transferred from the National Park Service, which had administered it from its inception, to the Heritage Conservation and Recreation Service (HCRS) when it was created in January of 1978. It was later returned to the National Park Service in February 1981 as a part of the Reagan administration's attempt to consolidate related functions. Because the Natural Landmarks Program is a recognition program, neither ownership nor responsibility for the area changes with designation. Instead, following designation by the Secretary of the Interior, the owner(s) is notified that his property has been determined to be of national significance as a superlative example of the national natural heritage, and he is invited to sign a voluntary agreement with the Secretary of the Interior stipulating that he intends to preserve the site in such a way as to maintain its inherent natural integrity. Registration is not legally binding, and, therefore, long-term preservation of a registered natural landmark is not as certain as with federal ownership.

In general the Department of the Interior considers its program of registering private areas to be successful. Most private owners seem to be receptive to national recognition and designation, although in a few cases owners have been reluctant to agree to designation. In these cases, reluctance stems from a fear that publicity will result in overvisitation by the public and that registration is only a first step toward condemnation for federal ownership.

(b) Protection technique

Natural Landmarks are protected in four major ways: by incentive, by the environmental impact statement review process, by periodic monitoring and inspection, and by acquisition.

The incentive to the landowner is knowing that he owns an area of national importance. The Department of the Interior encourages the landowner to protect his land through such recognition procedures as press releases, designation ceremonies, and the gift of a certificate and bronze plaque. In general this level of protection suffices until the owner dies and the land becomes a matter of estate settlement.

The second means used by the Department is to make sure that landmarks are considered in the impact review process. Each National Park Service regional office is responsible for reviewing environmental impact statements for their impacts on landmarks. This review involves a simple map check of plotted landmarks and a look at the state landmark index. Verification of this nature has already produced some fairly hot battles over areas threatened by federal projects. Examples include a proposed Corps of Engineers dam threatening a 15-acre, university-owned natural landmark known as Allerton Park in Illinois;[9] a proposed federal highway which threatened a state-owned area, Volo Bog,[10] in Indiana; another proposed highway in the state of New York which was supposed to pass over the Moss Island National Natural Landmark and be braced in the best glacial potholes in North America; and a proposed power line which was to cross a geologic area of earth mass wasting and mud slumpage in Colorado known as the Slumgullion Earth Flow. In Indiana, too, the landmark designation at Big Walnut Cove was instrumental in getting the Corps of Engineers to move a proposed dam site downstream.

While the Park Service has notified federal agencies of landmark locations, it has not systematically distributed landmark information to decisionmakers in state and local governments to ensure that the landmarks are not impacted by state, local, or private development proposals.

The Park Service monitors landmark sites by making regional offices responsible for going to the sites or contacting local sources and filling out forms as to the current status of each site.

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[9]See Part 11, Chapter 82: Registration/Designation.

[10]See Part 11, Chapter 85: Dedication.

The quality and frequency of inspections has varied by region.

As of January 1981, the National Park Service and Department of the Interior listed 537 National Natural landmarks on the National Registry of Natural Landmarks. Approximately 175, with a total of 6,036,815 acres, are wholly or partially in federal ownership.[11] Under non-federal administration, the Park Service lists 362 sites, with 2,229,699 acres.[12] Of this number, state and local governments own 183 sites.[13] Another 170 sites, representing 323,164 acres, are owned by private conservation organizations, private individuals, and corporations.[14] About one-half have had owners sign letters agreeing to a land use which would ensure the quality of the sites' natural features. The following table shows a breakdown by owner and level of agreement for privately owned landmark sites.

Table 70.1

Registered National Natural Landmarks on Private Lands

	Category NNL[15]		Category ENL[16]		Categories NNL and ENL	
	Number of Landmarks	Acres	Number of Landmarks	Acres	Number of Landmarks	Acres
Private Conservation Organizations	32	56,603	2	3,126	34	59,729
Private Individuals	26	7,464	68	106,605	94	114,069
Corporations	25	16,140	17	133,226	42	149,366
TOTALS	83	80,207	87	242,957	170	323,164[17]

70.8 Society of American Foresters

(a) History and objectives

The Society of American Foresters (SAF) was established in 1900 by Gifford Pinchot and six other pioneer foresters. It is a national professional organization representing all segments of the forestry profession in the United States, including public and private foresters, researchers, administrators, educators, and students. The Society's objectives are to advance the science, technology, education, and practice of professional forestry in America and to use the knowledge and skills of the profession to benefit society.

Interest in the preservation of forested natural areas began in the 1920s when professional foresters of the U. S. Forest Service suggested natural area status for a number of areas located in national forests. The first such natural area, the Santa Catalina Research Natural Area in the Coronado National Forest in Arizona, was formally designated in 1927. Because of the interest shown in designation of forested areas, in 1947 the Society created a Committee on Natural Areas consisting of forestry

[11] Halvorson, William, personal communication, February, 1981.

[12] *Ibid.*

[13] *Ibid.*

[14] *Ibid.* Figures may be somewhat misleading and inflated due to landmarks which may be under mixed administration.

[15] NNL: National Natural Landmarks approved by the Secretary of the Interior, registered on the *Federal Register*, and an owner agreement signed.

[16] ENL: National Natural Landmarks approved by the Secretary of the Interior, registered on the *Federal Register*, but no owner agreement signed.

[17] See Technical Appendix 70.14(c) for a copy of the full listing of privately-owned and local government-owned landmarks.

professionals in a wide range of jobs.[18] Among the tasks it undertook was to determine the criteria and standards necessary for establishment and maintenance of the Society of American Foresters' natural areas and to prepare an inventory of known natural areas located throughout the United States. After consulting with forest land management agencies, forestry schools and colleges, and chairmen of SAF Sections, the committee presented the Society with its first formal listing of natural areas. Published in the February 1949 *Journal of Forestry*, it recognized 68 natural areas representing 66 forest types, 38 of which were in the East and the remainder in the West. (There are 251 major forest types classified by the Society in the United States for which natural area protection is sought.[19]

To date the Committee on Natural Areas has published four national lists of SAF natural areas. Three were published in the *Journal of Forestry*: a February 1949 listing of 68 sites, a May 1954 listing of 91 sites, and a November 1960 listing of 128 sites. A fourth listing, which was published separately in 1972, included 281 sites. In 1974 an addendum added another 12 areas, bringing the total to 293. SAF natural areas are located in 42 states and Puerto Rico. The committee continues to update the national register of Society-approved natural areas by identifying gaps in the system of forested natural areas and encouraging public agencies to set aside suitable areas. The committee's long-term objective is to locate and register forest stands representative of all of the forest types of the United States for the purpose of having natural reserves of controls as a research base.

(b) Structure of the organization

The Society of American Foresters, with a membership of about 22,000, has a Committee on Natural Areas headed by a part-time staff person in Washington. The committee is responsible for approving registration of natural areas on the basis of an area's qualifications, the needs of the national program, and an assurance of protection from the landowner. Areas thought worthy of registration are brought to the attention of the section's natural area liaison officer. There are 23 sections in the United States, many of which are further divided into local SAF chapters.[20] Six have appointed natural area committees to assist the natural area liaison officer appointed to each section. As part of his responsibilities he searches out and recommends potential natural areas within his section to the national committee. Approximately 200 volunteers work on identifying natural areas. The SAF considers the use of foresters on a voluntary basis for inventory and as watchdogs an effective means of protecting natural areas. Foresters know the country, are receptive to the need for natural area protection, and, as a relatively close-knit group of professionals, are usually able to effect designation informally at the state level by simply suggesting and discussing candidate areas.

The total cost of operating the program is about $500 per year.

(c) Protection technique

Persons interested in SAF registration of a natural area may contact section natural area liaison officers and complete a natural areas nomination form. It can then be forwarded to the national Committee on Natural Areas. The form requires description of the proposed natural area, the reasons for wanting to give it Society recognition, and the landowner's agreement to protect it.

Procedures for generating nominations of areas for designation vary from section to section, depending on the members of the committee. The natural areas liaison officer of each section reports to the permanent staff director of science programs for the Society.

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[18]See Technical Appendix 70.14(d) for a copy of the Committee's charter.

[19]Robert E. Buckman and Richard L. Quintas, *Natural Areas of the Society of American Foresters*. Society of American Foresters, Washington, D. C., 1972.

[20]See Technical Appendix 70.14(d) and (f) for section map and list of SAF section officers.

Each section has an individual constitution, its own bylaws, and a natural areas committee. Because committee participation is voluntary, performance has not been uniform among sections. The number and kind of areas nominated varies from section to section. No attempt has as yet been made to standardize and systematize procedures and methodologies used for identification. Each section conducts inventories in its own way.

The Appalachian Section, which has been in existence since 1963, is perhaps the first one to undertake a real grassroots approach to identifying sites in order to come up with a relatively comprehensive list of areas. The approach taken by this section in conducting its inventory is described in the article "Project Virgin--An Action Program for Natural Areas in the SAF Appalachian Section."[21]

A decision by the Committee on Natural Areas to nominate an area is made known to appropriate section officers and to the cooperating landowner. If the committee decides the area warrants recognition, a description of the area is added to the register which is published periodically by the Society. Criteria for selection and protection of SAF natural areas are stated in *Natural Areas of the Society of American Foresters*:[22]

> The Society of American Foresters is interested in establishing natural areas that represent all forest and forest-related vegetative types and considers *Forest Cover Types of North America* as the basis for classification of forested natural areas.[23] When contemplating establishment of new natural areas in extensive and variable forest types such as ponderosa pine and aspen-birch, recognition is given to sub-types and diverse habitats.
>
> Highest priority is given to establishment of natural areas which: (1) represent typical undisturbed examples of major, commercially important forest types, and (2) protect rare and endangered species of forest plants and animals. Where typical examples of undisturbed forest types are not available, sample areas of those types which will return to nearly natural conditions with the passage of time are sought.
>
> Natural areas should be large enough to protect the ecosystem in question. SAF natural areas are generally 300 to 1,000 acres in size, or even larger. The SAF Committee considers natural areas of this size to be highly desirable. Natural areas which are small in size should be buffered by suitable forest areas. A watershed, for example, makes a logical natural area unit.
>
> Since SAF natural areas are intended for permanent reservation, locations that are threatened by expanding communities, recreational development, highways or reservoir construction are to be avoided.

(d) Protection and maintenance

The society seeks primarily to designate areas which have stable ownership in order to ensure long-term protection. Such owners are generally local governments, states, universities, foundations, the federal government, and private owners with long-term interest in forest resources. Relatively few private areas have been designated.[24]

The Society's policy guidelines discovering public use of SAF natural areas,

[21]See Technical Appendix 70.14(g) for a reprint of the articles published as *The Appalachian Natural Areas Directory*, 1976 Revision, Society of American Foresters, Appalachian Section, and Technical Appendix 70.14(h) for samples of the information contained in the directory.

[22]Society of American Foresters, 1972.

[23]The Society of American Foresters, *Forest Cover Types of North America (Exclusive of Mexico)*, Washington, D.C., 1954.

[24]See Technical Appendix 70.14(i) for the lists of private SAF areas.

such as for picnicking, camping, gathering of berries, nuts, or herbs, plant collecting, hunting, fishing, and other activities, as well as the publicity that draws people to SAF natural areas.[25] To discourage prospecting and mining, the Society attempts to get administering agencies to withdraw areas from mineral entry.

Consideration is also given to marking the boundaries of natural areas for the convenience of management and research personnel. Signs which tend to attract sightseers, recreational, and casual visitors are avoided; however, if roads or trails pass along a boundary or through an SAF natural area, limited posting is permitted to minimize encroachments.

SAF natural area boundaries are frequently fenced to protect them from grazing by domestic livestock or other incompatible uses. Physical improvements are limited to unobtrusive trails, fences, and instrument and tool shelters required for scientific and educational work. Existing roads needed to administer contiguous lands or to facilitate research work in the natural area may be maintained; such maintenance, including removal of dead and down timber, is limited to a strip not exceeding 30 feet on either side of the center line of such roads.

Wildfires originating within or adjacent to SAF natural areas are brought under control as quickly as possible. If such a fire burns within a natural area, cleanup, hazard reduction, or reforestation is not undertaken unless the utility of the natural area is so seriously impaired that it will no longer be suitable as a natural area. Forest types and related vegetation which represent particular stages in succession may be maintained or created by such practices as prescribed burning.

Summary

The SAF program is considered to be successful primarily for areas on public lands. While SAF designation only adds another layer of recognition to an existing agency designation, it often serves as a stimulus for an agency to set aside suitable sites either as SAF areas or as comparable land classes within the framework of the agencies' own land classification schemes. For example, of the SAF's 283 areas, 189 have been designated Research Natural Areas by their land management agencies.

Very few private lands have been designated except in the Society's Appalachian Section because taxpaying landowners are cautious about taking land out of production. Transfer or gift of lands to The Nature Conservancy or a public agency is recommended to secure long-term protection.

The Society considers it an indication of some success that only 11 registered sites in all ownership classes have, to its knowledge, been lost.

70.9 Soil Conservation Society of America

(a) History and objectives

The Soil Conservation Society of America (SCSA) was organized in 1945 to advance the science and art of good land use and conservation practices to maintain land productivity. The Society provides a common meeting ground for many specialized interests through an annual meeting, its 145 chapter affiliates, and the *Journal of Soil and Water Conservation*. Membership in the organization is over 15,000, including persons professionally engaged in practicing soil and water conservation, carrying on research or administering programs in the field of soil and water conservation, and individuals in allied fields.

The Society's registry program is administered by the Natural Vegetation Subcommittee of the Plant Resource Conservation Division. This program is designed to aid members and others in becoming acquainted with the value of natural vegetation in conservation work, landscaping, beautification, recreation, and environmental improvement. One phase of the work has been to develop a recognition program for managed natural areas. Areas used for forestry, grazing, wildlife, recreation, watershed protection, or scientific study are ineligible.

[25] See Technical Appendix 70.14(j) for a copy of "SAF Policy for Selection, Protection, and Management of Natural Areas," date unknown.

(b) Protection technique

Local chapters of the Society select, designate, and describe managed natural areas in accordance with the following criteria:

(1) Plant communities should be dominated by native species characteristic of local soil and climate. They need not be presumed climax, but successional trends should be in the direction of the kind of natural plant community best adapted to a particular microenvironmental condition. Cover should be adequate for effective soil protection.

(2) Areas should be large enough to constitute at least a minimum-size management unit for the land use. All otherwise suitable managed natural areas are initially selected by SCSA chapters using criteria established by the SCSA International Natural Vegetation Committee. Selection should be based on consensus judgment of qualified SCSA members and consultants from universities or research institutions.[26]

Regional Natural Vegetation Committees review and screen areas selected by local chapters. The National Natural Vegetation Committee then reviews the area for final selection and designation. The owner or manager of the area subsequently receives a certificate "in recognition of natural plant community management in a wise and judicious manner" from the SCSA.

In December 1973 the SCSA listed 118 managed natural areas that had received certification.[27] The Society periodically updates the listing. By 1976 a total of 180 sites had been listed, ranging in size from 10 to 18,541 acres. Only 6 of these are on private lands.[28] A file on each approved area is kept at the international headquarters, and copies of the data included with the nomination are available upon request.

C. State Programs

70.10 Michigan Natural Areas Council

(a) History

The Michigan Natural Areas Council was created in 1951 to protect and preserve Michigan's outstanding natural features. The idea for the Council developed in 1946 when several botanists located an excellent tract of representative southern Michigan woodland types on state land. As a result of their chance finding, they submitted a recommendation to the Michigan Department of Conservation that the site be retained as a nature reservation. The Department agreed to designate the area and to develop a policy which would emphasize the factors necessary for maintenance of natural conditions.

With this precedent set, the botanists--members of the Michigan Botanical Club--decided to set up a Natural Areas Committee to study and evaluate outstanding areas throughout the state. This committee was backed by the director of the Department of Conservation who stated that a citizens' organization composed of representatives of leading conservation and educational groups in the state could make a very important contribution since the state had neither the funds nor the trained personnel to make detailed studies and evaluations of these areas. He also stated that the natural areas organizations had members with ecological and scientific training fully qualified to carry out surveys on a voluntary basis. He urged that these surveys be undertaken, the findings be incorporated in reports, and recommendations be made to the Department for designation.

The role defined by the director of the Department of Conservation was adopted by the committee and led to the creation of the Michigan Natural Areas Council. A constitution was drawn up defining the types of natural areas to be surveyed and procedures for the study and designation of areas and

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[26]The Soil Conservation Society of America, *Criteria for Managed Natural Areas;* guidelines produced by the Natural Vegetation Technical Committee, unpublished, September 1967.

[27]See Technical Appendix 70.14(k) for a copy of the 1976 listing of sites.

[28]See Technical Appendix 70.14(l) for a copy of the listing of privately owned sites.

selection of survey committees.[29]

While the Council works almost exclusively as an informal advisory and investigatory group to ensure that areas are designated, it is authorized to own land and in one case acquired 80 acres on South Manitou Island when the state was unable to do so.

(b) Structure of the organization

The Council is a private nonprofit organization with IRS 591(c)(3) status. In 1976 it had 30 active volunteers, 200 members, and a total operating budget of $558. Members include private citizens and professors, museum workers and educators, and conservationists at large. Many of these are also members of other conservation groups such as the Michigan Botanical Club, Audubon Society, Sierra Club, The Nature Conservancy, and garden clubs. The low number of members has been the greatest factor limiting the Council in fully realizing its objectives.

(c) Protection technique

Once an area has been nominated for consideration for possessing natural values that are to be investigated (the nomination usually comes about because a member happens to know the area), the Council appoints a reconnaissance committee to make a thorough survey, noting natural features, topography, geology, plant and animal communities, and any desirable scenic features. These findings are incorporated into a report with recommendations for the preservation of any significant areas. If the Council accepts the reconnaissance report and votes to support preservation of the area, the chairman of the Council appoints at least three members of the Council as a site committee and requests in writing that the present or prospective owners or the managing agency appoint at least one, but not more than three, persons to cooperate with the site committee. This committee reviews the findings of the reconnaissance committee, considers any boundary adjustments, attempts to eliminate conflicting uses, and makes a report to the Council. The report is examined by the screening committee of the Council to determine whether the report is adequate or if further field or research work is needed. After passing the screening committee, the report is presented to the Council for approval. Upon acceptance of the report, the chairman of the Council then recommends to the owner or managing agency that the area be designated as a natural area in accordance with the report.

The Council has six designation categories for natural area tracts relating to proposed use: Natural Area Preserve, Nature Study Area, Scenic Site, Nature Reservation, Nature Research Area, and Managed Tracts. A Natural Area Preserve includes one or more native habitats and is administered to achieve maximum protection and minimum disturbance. A Nature Study Area is similar in administration but permits more uses, trails, facilities (including nature museums), and interpretive services. A Scenic Site includes protected scenic features, natural overlooks, and panoramic views. A Nature Reservation is a large area reserved for the protection of natural features and may include one or more of the above tracts within its boundaries. A Nature Research Area is an area designated primarily for scientific research. A Managed Tract is an area managed to preserve certain stages of plant succession, to demonstrate the effect of certain management techniques on vegetation and associated wildlife, or to use in special research programs.[30]

Generally the designation process takes two forms: formal designations of large areas and informal designations of small areas. The formal process takes 2 to 3 years to complete. Steps include preparation of a comprehensive survey and reconnaissance report, working out the designation agreement between the site committee and owner, writing a final report, and designation. Thirty-five areas have been designated by this process.

The informal process has been used for designating 15 areas. It simply

[29]See Technical Appendix 70.14(m) for a copy of the constitution.

[30]Michigan Natural Areas Council, *Scenic Sites, Nature Study Areas, Natural Area Preserves, and other Wildlands*, date unknown.

involves talking with the owner. One or two people examine the site; then the committee writes a very brief description of the area and the owner is asked to sign an agreement with the Council.

As of 1976, the Council had recommended over 100,000 acres on public and private land for designation. In many of the larger state parks, outstanding natural features have been protected, a number of valuable native landscapes have been conserved, and several important wilderness areas have been established.[31] While most of the land which has been designated is in public ownership, 20 natural areas have been protected by agreements between the Council and private groups and individuals.[32]

The Council's success is in part attributable to getting the owner involved in the reconnaissance survey. A Council member walks the ground with the owner, explains its special features, and alerts him to the need for preservation.

Private individuals, excluding developers, have largely been receptive to suggested management considerations. For example, the Huron Mountain Club, a sportsmen's organization, has designated 17,700 acres of its private holdings as a Nature Reservation and Nature Research Area. All the members agreed to commit themselves to the designation and signed an agreement with the Council. The Michigan Nature Association and the Michigan Audubon Society have also signed agreements with the Council to designate some of their holdings for natural area use.

In no instance has an area been lost, and in only one instance has a private individual used the designation for an ulterior purpose. In that case the designation and The Nature Conservancy's interest in the property was used as leverage to get a timber company to agree to an increase in his asking price.

The Council has also been successful in getting several Michigan local governments to set aside Nature Study Areas. The Council has worked with both the Huron-Clinton Metropolitan Authority and Berrien County to designate areas in their jurisdictions.

D. Local Programs

70.11 Pennsylvania Power and Light Company

(a) History

The Pennsylvania Power and Light Company, like many power companies, owns significant parcels of land. The company serves customers in a 10,000 square mile area of Pennsylvania and owns approximately 41,000 acres in the state. As a large landowner, the company has a Real Estate Department to manage its land, which involves the development and operation of recreation areas, farm lands, timber production areas, and wildlife or nature preserves. In 1970 the company instituted a land management program for conservation of natural resources on its holdings, with the help of Richard E. Cary, a forestry-trained recreation planner in the department. Cary was sensitive to the concept of natural areas and had worked on the state Advisory Commission for Natural Areas. He decided to develop a land use plan for company properties and to incorporate natural areas as part of the management program. To date, 18 sites totalling approximately 1,300 acres have been designated in natural areas-type land classifications. Some of these are listed in the *Inventory of Natural Areas in Pennsylvania* published by the Western Pennsylvania Conservancy in 1974.[33]

Major land classifications used by the company to protect scenic and natural values are

I. Unique Natural Areas
   a. Scenic and "Mini-wilderness"
   b. Natural wildlife habitats
   c. Botanical
   d. Geological Natural Areas
II. Natural Environment Areas

[31] See Chapter 36.3 in The Nature Conservancy, *Preserving Our Natural Heritage*, Volume II, State Activities.

[32] See Technical Appendix 70.14(n) for a list of these areas and distribution map.

[33] See Technical Appendix 70.14(o) for a copy of the list of natural area sites.

The unique natural areas classification is used to identify and protect areas of outstanding scenic, geologic, or ecologic importance. These are open to the public, although natural areas important to wildlife may be set aside as refuges closed to hunting and trapping. Natural environment areas are open-space lands not possessing the extraordinary qualities of unique natural areas but which are retained in their natural state for esthetic purposes and recreational activities such as hunting and hiking in a relatively undisturbed environment.[34]

As with most other natural area designation programs, the sites are not legally protected and the designations are not necessarily fully approved or protected from future development by the company. However, the company has taken a tremendous step forward in at least recognizing that some tracts of its land should be protected. The company is also trying to identify locations of other important natural areas throughout its service area so that they can be avoided when planning power line routes or other facilities.

When the company decides to sell a section of land that is important for resource conservation, its current policy is to give a right of first refusal to a conservation organization or government agency. The company recently completed sale of a 113-acre tract to the Lancaster County Conservancy, the first property acquired by that organization since its formation.

In 1972 the company demonstrated its acceptance of the broadened approach to land management by changing the administrative division's names from the Recreation Section to the Conservation and Land Management Section. Although development and operation of public recreation areas is still a primary function of the section, it is now just one facet of an overall program in which the natural arras provide resource protection benefits as well as recreational opportunities.

(b) Protection technique

The company has established a definite program to minimize conflicts and make the best use of its land. The first step is to inventory company land, resources, and conservation needs taking into consideration existing land uses, unique resources, and historic and natural values. Forest vegetation, soil types, geology, wildlife, rare or unusual plants, and other special features are identified and noted. As the inventory is completed, a land use map is developed based on company and public needs, resource capabilities, and ecological limitations. For each land use category or zone, a specific plan for development or management is developed. This plan is prepared for all land areas not only those used directly for utility developments such as power plants.

After lands reserved for generation and transmission or other utility purposes are outlined, the surrounding land is categorized based on its primary function or management objective. Most of the primary resource conservation uses fall into one of the following categories: recreation, protection of scenic and natural values, timber and wildlife, and general agriculture.[35]

(c) Illustrative example: Shenks Ferry Glen

The 30-acre Shenks Ferry Glen area was designated as a wildflower preserve. Located in a 5,500-acre tract of land at the Lake Aldred (Holtwood) hydro-electric project, the designation illustrates the company's concern for natural area protection.

In 1973 a professor of biology at Millersville State College had notified the company of the threat trailbikers posed to the large array of wildflowers in the preserve. He suggested that the company work with the police to protect the area and prosecute violators. For several years the company had been posting the area against trailbikes and other motor vehicles, but this was ineffective.

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[34]See Technical Appendix 70.14(p) for further definition of these land classes.

[35]See Technical Appendix 70.14(q) for a description of management policies for each category of land.

In 1974 the company began an all-out effort to arrest and prosecute the trespassing bike riders. This has been effective in eliminating extensive damage.

In 1976 the company undertook to initiate a cooperative program with the Millersville State College and other individuals and organizations interested in wildflowers to help preserve the area. A meeting was held at Shenks Ferry Glen to discuss mutual interests in the wildflower area. The meeting was attended by company staff, professors from Franklin and Marshall and Millersville State Colleges, the president of the Muhlenberg Botanical Society, staff of the North Museum, and a naturalist from Lancaster County Parks Department. Management problems were discussed, and a consensus reached, that the area should not be overused or overpublicized; that a marked trail be constructed; that limited, guided wildflower walks be instituted; and that visitors be directed to less fragile areas. The company also suggested that the Botanical Society identify important concentrations of flowering plants or rare and endangered species in the glen on a map. This would help the company plan the trail so as to avoid destruction of sensitive areas.

E. Summary Listing of Designated Areas on Privately Owned Land

(a) National Natural Landmarks, owner agreement signed (as of December 1, 1980)

Alabama
- Cathedral Caverns
- Dismals
- Shelta Cave

Alaska
- Walker Lake

Arizona
- Ramsey Canyon
- Barringer Meteor Crater
- Comb Ridge
- Canelo Hills Cienega
- Patagonia-Sonoita Creek Sanctuary

California
- Imperial Sand Hills
- Deep Springs Marsh
- Fish Slough
- Audubon Canyon Ranch
- Elder Creek
- San Andreas Fault
- Pixley Vernal Pools

Colorado
- Indian Springs Trace Fossil Site

Connecticut
- Bartholomew's Cobble
- Beckley Bog

Florida
- Corkscrew Swamp Sanctuary
- Rainbow Springs
- Silver Springs
- Wakulla Springs

Georgia
- Camp E. F. Boyd Natural Area
- Cason J. Callaway Memorial Forest
- Marshall Forest
- Sag Ponds Natural Area
- Wassaw Island

Illinois
- Funks Grove
- Heron Pond-Little Black Slough Natural Area

Indiana
- Beckville Woods
- Fern Cliff
- Kramer Woods
- Meltzer Woods
- Rise at Orangeville
- Tolliver Swallowhole
- Wesley Chapel Gulf

Kansas
- Baker University Wetlands
- Monument Rocks Natural Area
- Rock City

Maine
- Colby-Marston Preserve
- Gulf Hagas
- New Gloucester Black Gum Stand
- Orono Bog
- Passadumkeag Marsh and Boglands
- The Hermitage

Maryland
- Battle Creek Cypress Swamp
- Cranesville Swamp Nature Sanctuary

Massachusetts
- Fannie Stebbins Refuge

Minnesota
- Ancient River Warren Channel
- Cedar Creek Natural History Area-Allison Savanna

Mississippi
- Chestnut Oak Disjunct
- Mississippi Petrified Forest

Missouri
- Golden Prairie
- Maramec Spring
- Mark Twain and Cameron Caves

Marvel Cave
Onondaga Cave
Tucker Prairie
Tumbling Creek Cave
Montana
Glacial Lake Missoula
Hell Creek Fossil Area
Nebraska
Fontenelle Forest
New Hampshire
Floating Island
Pondicherry Wildlife Refuge
New Jersey
Moggy Hollow Natural Area
Stone Harbor Bird Sanctuary
Troy Meadows
New Mexico
Grants Lava Flow
New York
Bear Swamp
Bergen-Byron Swamp
Deer Lick Nature Sanctuary
Fall Brook Gorge
Fossil Coral Reef
Ironsides Island
McLean Bogs
Mianus River Gorge
Moss Lake Bog
Petrified Gardens
Thompson Pond
Zurich Bog
Ohio
Brown's Lake Bog
Buzzardroost Rock-Lynx Prairie-The Wilderness
Holden Natural Areas
Pennsylvania
Ferncliff Wildflower and Wildlife Preserve
Florence Jones Reineman Wildlife Sanctuary
Hawk Mountain Sanctuary
Lake Lacawac
South Carolina
Francis Beidler Forest
South Dakota
Ancient River Warren Channel, Cottonwood Slough-Dry Run
Tennessee
Cumberland Caverns (Higginbotham and Henshaw Caves)
Lost Sea (Craighead Caverns)
McAnulty's Woods
Texas
Caverns of Sonora
Devil's Sinkhole
Ezell's Cave
Natural Bridge Caverns
Washington
Grand Coulee
West Virginia
Lost World Caverns
Wisconsin
Ridges Sanctuary-Toft's Point-Mud Lake Area
Summerton Bog
Wyoming
Bone Cabin Fossil Area

(b) National Natural Landmarks (as of December 1, 1980), no owner agreement signed

Alabama
Mobile-Tensaw River Bottonlands
Newsome Sinks Karst Area
Alaska
Middleton Island
Arizona
Hualapi Valley Joshua Trees
Onyx Cave
California
Amboy Crater
American River Bluffs and Phoenix Park Vernal Pools
Anza-Borrego Desert State Park
Black Chasm Cave
Nipomo Dunes-Point Sal Coastal Area
San Felipe Creek Area
Sharktooth Hill
Tijuana River Estuary
Consumnes River Riparian Woodlands
Colorado
Morrison Fossil Area
Raton Mesa
Russell Lakes
Slumgullion Earthflow
Spanish Peaks
Connecticut
Bingham Pond Bog
Chester Cedar Swamp
McLean Game Refuge Natural Areas
Pachaug-Great Meadow Swamp
Florida
Emeralda Marsh
Paynes Prairie
San Felasco Hammock
Georgia
Ebenezer Creek Swamp
Heggie's Rock
Spooner Springs
Hawaii
Iao Valley
Koolau Range Pali
Makalawena Marsh
North Shore Cliffs

Idaho
- Cassia Silent City of Rocks
- Manan Buttes
- Niagara Springs

Illinois
- Buttonland Swamp

Indiana
- Big Walnut Creek
- Cabin Creek Raised Bog
- Harrison Spring
- Hemmer Woods
- Hoot Woods
- Officers' Woods

Iowa
- Anderson Goose Lake

Kansas
- Baldwin Woods

Kentucky
- Red River Gorge

Maine
- Crystal Bog
- Meddybemps Heath
- Monhegan Island
- Penney Pond-Joe Pond Complex

Maryland
- Belt Woods
- Gilpin's Falls
- Sugar Loaf Mountain

Massachusetts
- Lynnfield Marsh
- Muskeget Island
- North and South Rivers
- Poutwater Pond

Michigan
- Grand Mere Lakes Area
- Warren Woods Natural Area (leased to state)

Missouri
- Carroll Cave
- Greer Spring
- Pickle Springs
- Wegener Woods

Montana
- Cloverly Formation Site
- Middle Fork Canyon
- Square Butte

New Hampshire
- East Inlet Natural Area
- Spruce Hole Bog

New Jersey
- Pigeon Swamp

New Mexico
- Border Hills Structureal Zones
- Bueyeros Shortgrass Plains
- Kilbourne Hole
- Valles Caldera

New York
- Gardiner's Island

North Carolina
- Green Swamp
- Long Hope Creek Spruce Bog
- Nags Head Woods and Jockey Ridge
- Orbicular Diorite

North Dakota
- Fischer Lakes
- Rush Lake
- Sibley Lake

Ohio
- Crall Woods
- Mantua Swamp
- Serpent Mount Cryptoesplosive Structure
- White Pine Bog Forest

Oklahoma
- Devil's Canyon

Pennsylvania
- Tannersville Cranberry Bog
- Titus and Wattsburg Bogs

Rhode Island
- Ell Pond

South Carolina
- Congaree River Swamp

South Dakota
- Bijou Hills
- Mammoth Site of Hot Springs

Tennessee
- Conley Hole
- Dick Cove
- Grassy Cove Karst Area

Texas
- Greenwood Canyon

Vermont
- Battell Biological Preserve
- Cornwall Swamp
- Franklin Bog
- Little Otter Creek Marsh
- Molly Bog
- Mount Mansfield Natural Area

Virginia
- Butler Cave-Breathing Cave
- Grand Caverns
- Luray Caverns
- Rich Hole
- Virginia Coast Reserve

Washington
- Grande Ronde Goosenecks
- Grand Ronde
- Nisqually Delta
- Steptoe and Kamiak Buttes
- Umtanum Ridge Water
- Wallula Gap

West Virginia
- Canaan Valley
- Germany Valley Karst Area
- Greenbrier Caverns
- Greenville Saltpeter Cave
- Sennett-Thorn Mountain Cave System
- Swago Karst Area

Wisconsin
- Baraboo Range

Chiwaukee Prairie	
Spruce Lake Bog	
Wyoming	
Big Hollow	
Como Bluff	
Lance Creek Fossil Area	
Red Canyon	

(c) Society of American Foresters Areas (1977)

Site Name	Acreage
Florida	
Corkscrew Swamp Natural Area	6,020
Corkscrew Swamp Sanctuary	6,080
Georgia	
Sapelo Island No. 1 Natural Area	20
Sapelo Island No. 2 Natural Area	50
Idaho	
Idler's Rest	33
Maine	
Eustis Preserve (ledgewood)	43
Fernalds Neck	285
Flint Island	134
Harkness Grant	5
Laverna Reserve	119
Mark Island	36
Mullen Woods	100
Plummer Point Preserve	70
Round Island	40
Salt Pond Natural Area	78
Stave Island	125
Step Falls	23
The Hermitage	35
Massachusetts	
Hawley Bog Natural Area	63
Nebraska	
Fontenelle Forest	1,200
Ohio	
Browns Lake Bog	80
Cedar Bog Natural Area	200
Cedar Bog Nature Preserve	203
Sigrist Forest Natural Area	30
South Carolina	
Coon Branch Natural Area	15
Virginia	
Roland-Bull Run Mountain Natural Area	22

(d) Managed Natural Areas (1977)

Name of Area	Acreage
Georgia	
Charles Harrold Preserve	72
Iowa	
Hudson Memorial Park	20
Ohio	
Cincinnati Nature Center	--
Gahanna Woods	101.5
South Carolina	
Cherokee Forestry and Nature Study Area	150
Texas	
Central Texas Natural Laboratory	1,150

(e) Michigan Natural Areas Council Areas (1977)

Site Name	Acreage
Michigan	
American Chestnut Forest	11
Beverly Hills Wood	20
Bridge Lake Tract	50
Dexter Mill Creek Outdoor Laboratory	17
Eberwhite Woods	34
Leelanau Tip Dune Tract	50
Levengood Woodland Preserve	60
Rice Creek Tract	33
River Valley Tract	50
Simonds Ravine Tract	100
Southfield Nature Center	25
Sprinkler Lake Natural Science Camp	1,000
Stonebrook Woodland	

(f) Pennsylvania Power and Light Company Areas (1977)

Name of Area	Acreage
Beach Haven Natural Area	200
Council Cup Natural Area	50
Counselman Run Natural Area	40
Kelly Run Natural Area	130
Mountour Waterfowl Area	300
Oakland Run Natural Area	130
Otter Creek Natural Area	260
Pequea Natural Area	70
Shenks Ferry Glen Natural Area	30
Shenks Ferry Glen Wildflower Reserve	--
Wallenpaupack Creek Natural Area	140

(g) State Designated Areas (1977)

Name of Area	Acreage
Arizona	
Ad Wash Canyon	160

Aqua Caliente Mountains	--
Arivaca Cienega	960
Baboquivari Peak	450
Black Mountain	--
Boquillas Ranch	1,500
Cock's Lake	140
Grapevine Ranch	960
Hassayampa River	640
Kaiser Spring Canyon	320
Leslie Canyon	400
Mammoth Mesquite Bosque	600
Military Hills	13,440
Mohawk Sand Dunes	--
New River	126
Red Lake	32,000
Saint David	320
Salt River--91st-115th Avenue	1,120
San Simon Valley	3,200
Sitgreaves Pass	--
Tacna Marsh	--
Tavasci Marsh	640
White Bur Sage	--
Maine	
Little Duck Island	86
Ten Pound Island	27
Missouri	
Clifty Creek Natural Area	230
Dripping Springs	8
Hickory Canyons Natural Area	420
Horseshoe Bend Natural Area	60
Hunkah Prairie (Skreiner-Alyea)	160
Hyer Woods	30
Lily Pond	8
Lichen Glade	28
Mount Vernon Prairie	41
Niawathe Prairie (Orell)	80
Pawhuska Prairie (Hobbs)	77
Piney River Narrows	120
Rocky Hollow Natural Area	191
Tzi-Sho Prairie (Myer)	240
Wah-Kon-Tah Prairie (Thoreson and Roseburgh)	638
Wah-Shin-Peesha Prairie (Thoreson)	240
Wa-Sha-She Prairie (Thomas Tract)	160
Wisconsin	
Baxters Hollow Scientific Area	51
Comstock Marsh Scientific Area	240
Durst Rockshelter Scientific Area	
Endeavor Marsh Scientific Area	40
Fairy Chasm Scientific Area	19
Honey Creek Natural Area	130
Holmboe Conifer Forest Scientific Area	32
Newark Road Prairie Scientific Area	22
Pine Hollow Scientific Area	95
Renek-Polak Maple Beech Woods Scientific Area	6
The Ridges Sanctuary Scientific Area	800
Spring Green Scientific Area	140
Two Creeks Buried Forest Scientific Areas	12

F. Information and Bibliography

70.12 Key information contacts

Keith A. Argow, Chairman
Appalachian Natural Areas Committee-SAF
Division of Forestry and Wildlife
Virginia Polytechnic Institute
Blacksburg, Virginia 24061
(703) 951-6663
(703) 951-6000

John H. Beaman
Department of Botany and Plant Pathology
Michigan State University
East Lansing, Michigan 48824
(517) 355-4696
Re: Michigan Natural Areas Council

Richard E. Cary
Supervisor--Conservation and Land Management
Pennsylvania Power and Light Company
Two North Ninth Street
Allentown, Pennsylvania 18101
(215) 821-5769

M. B. Dickerman
Science Advisor
Society of American Foresters
5400 Grosvenor Lane
Washington, D. C. 20014
(301) 897-8720

D. E. Hutchinson
5717 Baldwin
Lincoln, Nebraska 68507
Re: Soil Conservation Society of America

International Office
Soil Conservation Society of America
7515 N. E. Ankeny Road
Ankeny, Iowa 50021

Dr. Kenneth R. John
Chairman, Biology Department
Franklin and Marshall College
Lancaster, Pennsylvania 17604
Re: Pennsylvania Power and Light Company

Michigan Natural Areas Council
Matthaei Botanical Gardens
1800 North Dixboro Road
Ann Arbor, Michigan 48105
(313) 764-1168

Dr. James C. Parks
Associate Professor of Biology
Millersville State College
Millersville, Pennsylvania 17551
Re: Pennsylvania Power and Light Company

Dr. Robert M. Romancier
Forestry Sciences Lab
3200 Jefferson Way
Corvallis, Oregon 97331
(503) 752-4211, ext. 254
(503) 757-4381
Re: Society of American Foresters

Craig Shaeffer
National Park Service, USDI
1100 "L" Street, N.W.
Washington, D. C. 20240
(202) 523-5051

Paul W. Thompson
Cranbrook Institute of Science
Bloomfield Hills, Michigan 48013
(313) 645-3000
(313) 642-9148
Re: Michigan Natural Areas Council

Frank Ugolini and William Halvorson
National Park Service, USDI
1100 "L" Street, N.W.
Washington, D. C. 20240
(202) 523-5051

Gary Waggoner
National Park Service, Denver Service Center
655 Parfet Street
P. O. Box 25287
Denver, Colorado 80225
(303) 234-3654

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70.14 List of technical appendices

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(b) Letter of Intent and Agreement to Register and Preserve a Track of Land as a Research Natural Area. Natural Area Committee, Kentucky-Tennessee Section, Society of American Foresters: 5400 Grosvenor Lane, Washington, D. C. 20014.

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(k) Michigan Natural Areas Council Constitution as amended through December 19, 1969. Michigan Natural Areas Council: Matthaei Botanical Gardens, 1800 North Disboro Road, Ann Arbor, Michigan 58105.
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(o) Land Management Policy. Pennsylvania Power and Light Company: Two North Ninth Street, Allentown, Pennsylvania 18101, 1976.

70.15 List of other organizations[36]

Alaska
- Alaska Conservation Society
- Denali Citizens Council
- Southeast Alaska Conservation Council

Arizona
- Arizona Wilderness Study Committee

California
- California Natural Area Coordinating Council
- California Trout, Inc.
- Save-the-Redwoods League

Connecticut
- Housatonic Valley Association

District of Columbia
- Society of American Foresters
- The Wilderness Society--Main Office

Illinois
- Illinois Prairie Path

Iowa
- Soil Conservation Society of America

Michigan
- Michigan Natural Areas Council

Missouri
- Missouri Natural Area Survey

Montana
- Allenspur Committee to Save the Upper Yellowstone Valley
- Environmental Action Center
- Montana Wilderness Association

Nebraska
- Nebraska Statewide Arboretum Council

New Jersey
- New Jersey Conservation Foundation

New York
- Orange County Citizens Foundation
- Shawangrenk Valley Conservancy

North Carolina
- Committee for the New River

Oregon
- Oregon High Desert Study Group

Virginia
- The Nature Conservancy National Headquarters

Washington
- North Cascades Conservation Coundil
- The Mountaineers

West Virginia
- Brooks Bird Club

Wyoming
- Wyoming Environmental Institute

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[36] All offices of The Wilderness Society participate in registration/designation type processes. See "Master List of Organizations" for local offices and their addresses.

Chapter Seventy-one

Less-Than-Fee Acquisition--Conservation Easements

A. Introduction

71.1 Overview

Conservation easements are coming to the fore as a means of preserving the natural or undeveloped character or appearance of land. In essence, these easements (also known as conservation restrictions, scenic easements, scenic restrictions, etc.) constitute limitations which an owner of real property can voluntarily place on the uses to which he and his successors may put the property. As a matter of form these limitations are embodied in a document in which the owner undertakes, in favor of a named grantee, not to do specified acts which he would otherwise presumably be entitled to do. In substance the owner conveys specified development rights to the grantee. The easement documents are recorded in the land records in the same manner as are deeds.

The scope and nature of the restrictions can vary according to the particular situation. They may range from comprehensive restrictions requiring that the property be left essentially as wilderness to limited restrictions which can even permit a degree of development, *e.g.*, the building of a few residences which do not destroy esthetic or ecological values.

The great advantage of the easement approach to a property owner is that he can retain ownership of the land and engage in any uses consistent with the easement. For example, an easement can limit disturbance of the land near a stream or body of water while leaving the owner with no major limitations on residing on the land or farming or grazing the rest of it.

When an owner grants an easement in perpetuity or sells one for less than appraised value to governmental bodies or to established, private, charitable organizations, he may receive a significant tax advantage. The value of the gift is currently considered to be a charitable donation for federal income tax purposes. Further, the assessed value of the land for real estate tax purposes may be frozen at, or reduced to, a point which eliminates development potential as a factor for valuation.

While certain generalizations can be made regarding conservation easements, the legal ramifications of executing a grant of easement, particularly the real estate tax consequences, differ from state to state. In all cases, the law of the state in which the land is located governs; therefore, it is always advisable to seek the advice of competent counsel.

There are certain major considerations which should be borne in mind, among them the following:

(1) *Legal*--In most states a conservation easement is probably enforceable[1] if the grantee of the easement owns nearby land which is benefitted by the easement. This is known as an appurtenant easement. The original grantee and his successors in title have the benefit of the easement, the right to enforce it, and the right to transfer it with the land. In some states the easement must be re-recorded at stated intervals if it is to remain binding. An easement held by a grantee who does not own property adjacent to the eased property is known as an easement in gross. There is considerable doubt about the enforceability of such an easement. Some states have enacted legislation specifically validating them; others have validated them only when the easement is granted to a governmental body or a named quasi-governmental conservation organization. In each case the law of the state in which the land is located applies and should be consulted.

(2) *Scope of Restriction*--A conservation easement may be drawn to contain a wide variety of restrictions. The usual clauses involve restrictions on disturbing the natural character of land, dumping, cutting trees, excavation, building structures, etc. These can be tailor-made to suit the particular situation.[2]

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[1]"Enforceable" means that the terms of the easement are binding not only on the original owner of the land subject to the easement, but also on subsequent owners who have been notified of the easement. Notice is usually accomplished by recording the easement in the same way a deed is recorded.

[2]See Technical Appendix 71.9(b) for a sample conservation easement.

(3) *Responsibilities of Grantee*--When a conservation easement is granted there are a number of responsibilities which conceivably could be imputed to the grantee unless specifically covered in the easement document, including:

(a) Responsibility for monitoring the observance of the restrictions and taking enforcement action if the restrictions are violated.

(b) Responsibility for limited management of the affected property. If a third party dumped trash on the property, the owner of the property would not have violated the restrictions; however, if the easement holder had the obligation to enforce anti-littering restrictions, he might be responsible for seeing that the trash was removed.

(c) The grantee theoretically might be liable for real estate taxes if a tax assessor held that the right to limit the use of land was a taxable property interest.

71.2 Illustrative example:

A hypothetical farm

For the purpose of providing an example of how the easement tool might work, it is useful to consider a hypothetical case. A 250-acre farm, owned by the same family for years, abuts a state park. Suburban sprawl has moved into the community, and real property taxes on the farm have started to rise rapidly. (It would not be unusual for a farm which had been appraised for tax purposes at $50 an acre 15 years earlier to be reappraised at $1,000 or more.) As is often the case, the owners of the farm were approached by several developers who wanted to build tract homes. While the family had always told the developers that it had no interest in selling, the rapid increases in assessed valuation induced second thoughts.

In response to this situation, the family contacted the state to see if it had any interest in acquiring the land as an addition to the state park. The state, while it had no desire to expand the park, felt that the development of the farm could have a severe negative impact on present park operations; Therefore, it was very interested in acquiring the farm as buffer land. Since the state did not have any money earmarked for such a purpose, it called in a major nonprofit conservation organization to see if it could work something out.

The organization then asked the owners if they would be willing to give the state a conservation easement on the land. By granting the easement the owners would give up their right to develop the land, but they could still work the farm as long as they wanted. The farm would remain private property and the owners would have control over its use. All the state would have is a right in the land preventing present or future owners from developing it.

The owners agreed to grant the easement, and the state had the development rights appraised. The state then paid the owners for the conservation easement based on the value of the rights.

71.3 Illustrative example:

The Blackfoot River, Montana

An indication of the potential value of conservation easements for certain projects can be seen in a recent pamphlet, "The Blackfoot River, A Conservation Proposal from The Nature Conservancy," excerpted below:

> *The Resource:* The lower reach of the Blackfoot River flows west through Missoula County, creating a diverse riverine ecosystem, important to the economy and the quality of life of the county. Near the county line the river consists of sandy beaches, meandering oxbows flowing through open meadows and prairies, and Douglas fir and Ponderosa pine forests. Downstream, the open panorama shifts to rocky precipices and dramatic box canyons amid forested mountains.
>
> People have lived in harmony with the river for over a century. Once, thousands of board feet of lumber rode the current in spring logging drives. Today, ranchers depend on the Blackfoot for irrigation. The Blackfoot's fishery attracts sportsmen from throughout the state, and few rivers offer a finer family rafting experience.

Still, waterfowl can be found in the numerous sloughs; osprey, bald eagles, and falcons nest nearby, and elk come down from the hills at evening to graze and drink at the Blackfoot.

The economic health of the valley and a good quality of life go hand in hand along the Blackfoot. The Blackfoot is living proof that we can live on the earth in a gentle way and still have nature's riches to enjoy.

The Dangers: There is nothing sadder than a dead stream. Too many rivers have been misused: sewage is dumped, natural vegetation is destroyed, weeds begin to flourish, garbage is left for future users to view for decades. Erosion roils the water. Suddenly, one day, people wake up to find the fish, the wildlife, and the scenic beauty have disappeared.

Once a living ecosystem has been destroyed, it is nearly impossible to put it back together. It is only necessary to drive south from Missoula and look at parts of the Bitterroot to realize what could happen to the Blackfoot.

Stream destruction has stimulated the federal government to undertake a massive Wild and Scenic Rivers program. In many cases this program has stopped the kind of destruction described above, but not without its own costs: forced condemnation of riverine property owners, vastly increased use of the river, and sometimes inappropriate recreational development. The Blackfoot River has been proposed for this federal program, and many people think the cure might be worse than the disease.

A Solution: Local landowners and citizens can make their own decisions; they can protect their own environment: Montana is proof of that. The Nature Conservancy is working with landowners along the Blackfoot, and with interested citizens, as well as with Missoula County, Trout Unlimited, and the Montana Department of Fish and Game, to protect the Blackfoot River forever.

The protection instrument being used is the conservation easement, a type of voluntary agreement between a landowner and a public agency or private conservation organization.

Conservation easements along the Blackfoot will not take land out of private ownership. Ranching, timber harvest and recreational activities will continue. The easements will freeze land use along the Blackfoot at current levels, allowing the landowners to claim charitable deductions on their federal income tax for gifts of easements, and assuring them their land will never be taxed at subdivision rates: *Because their land can never be subdivided.*

One easement has already been taken, and two more are in the process of being gifted now. In order to complete this program, The Nature Conservancy is conducting an inventory of the ecological and esthetic resources along the Blackfoot. The results of this two-year study will help define, in enforceable language, just what is being protected. . . .

B. National Organizations

71.4 The Nature Conservancy

The Nature Conservancy,[3] the nation's largest private landholding conservation organization, has been granted conservation easements on a number of tracts of land and has occasionally solicited easements in selected areas. The Conservancy's specific goal is to protect natural areas of ecological importance, primarily for the protection of natural diversity. The Conservancy has limited resources but feels a strong commitment to protect all land in which it has an interest. The land in question must meet certain standards and the easement document certain conditions. Enforceability of the easement also requires that state law meet certain standards.

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[3]See Chapter 72: Fee Acquisition, 72.3: The Nature Conservancy, for a full description of the Conservancy's activities.

(a) Criteria for acceptance of easements

The land on which an easement may be offered must be significant to the Conservancy. It must be of ecological importance in the sense of furthering the preservation of natural diversity, or it must benefit an existing preserve. The land must be located so that the Conservancy can monitor it to ensure that all restrictions placed on the land are met. No easements are accepted until arrangements have been made for periodic monitoring and responsibility has been assumed by someone to make periodic reports on compliance with any restrictions. An area may also qualify for consideration by being integral to Conservancy efforts to assemble and protect a natural area which will be transferred to a government entity.

An area must have adequate scientific documentation of its ecological importance. Records of its natural state, such as reports, photographs, and maps, must be available so that there will be no question as to what the easement is protecting.[4]

If the land proposed does not fit the Conservancy's program, regional or local field offices may be able to suggest an alternative private conservation organization or government agency to hold the easement.

As a general rule, conservation easements have been accepted only as gifts. Any proposal for purchase or fundraising for purchase is carefully considered on a case-by-case basis.

Before an easement is considered, the enforceability of the easement is weighed. There must be a statute in the state of the proposed area that specifically sanctions easements; or competent counsel in the state must have given the Conservancy an opinion that the easement is probably enforceable, that is, that it will be binding on subsequent owners of the property affected and will accrue to the benefit of the Conservancy, its successors, and assigns.[5] The landowner of the prospective easement should supply the Conservancy with this opinion.

If the aforementioned criteria are met, a document is drawn up that is satisfactory to the Conservancy. It must contain the following:

> (a) A commitment by the property owner for himself and his successors in title to pay any real estate taxes or assessments levied on the land by competent authorities.
>
> (b) A clause relieving the Conservancy of responsibility for maintaining the land and giving the Conservancy the right to determine when and under what circumstances to take legal actions to enforce the restrictions in the easement.
>
> (c) A clause authorizing the Conservancy and its officers and agents to enter the land at times reasonably acceptable to the owner to see that the restrictions are being observed.[6]

Any specific covenants must be drafted to meet the requirements of the situation. If the purpose of the easement is to preserve the rural, undeveloped aspect of the landscape, such uses as grazing of animals or farming may be permitted as long as the ecological integrity of the area is protected.

The Nature Conservancy's general preference for protecting natural areas is to acquire full fee ownership. In some cases there may be considerable doubt about the enforceability of a conservation easement. Possession of an easement also entails a serious obligation to monitor the property, which can be a costly and time-consuming task. The Conservancy views the easement primarily as a valuable supplementary tool, particularly for buffer zones adjacent to natural areas already owned in fee. Decisions on whether or not to accept or to purchase an easement are made on a case-by-case basis. To protect large acreage with complicated management problems, fee acquisition is preferred.

(b) Easements held

Currently the Conservancy has 81 properties under easement agreements in

[4] "Conservation Easements," unpublished paper, The Nature Conservancy, 1975.

[5] *Conservation Easements*, 1976.

[6] *Op. Cit.* See Technical Appendix 71.9(a).

21 states. Many are in Connecticut where, on one 3-mile segment of river, 28 separate easements were donated to the Conservancy in 1962. Other easements are held in Maine in conjunction with the program of the Maine Coast Heritage Trust.

The site of the easements ranges from less than an acre to the 400-acre Las Cruces easement in California. A list of easements is available from the Conservancy which shows the name, county, state, and acreage. Exact locations of easements are usually not given due to the sensitive nature of this information and the possibility of unwarranted visitation. (For this same reason, other groups discussed in this chapter do not list the locations of their easements.)

C. State and Local Organizations

71.5 The Brandywine Conservancy

(a) Goals and objectives

The Brandywine Conservancy of Chadds Ford, Pennsylvania, a nonprofit tax-exempt organization which also operates the Brandywine River Museum, focuses its efforts on the Brandywine Creek and adjacent watersheds in Pennsylvania and Delaware. Its environmental goals are to preserve critical natural areas in these watersheds and to assist other private organizations and units of local government in protecting water quality. The Conservancy promotes the adoption of environmentally sensitive land use and environmental control ordinances by governments in southeastern Pennsylvania, northern Delaware, and southern New Jersey. The Conservancy's programs and actions reflect the philosophy that public or nonprofit ownership of many natural areas should only be undertaken in very limited cases.

(b) Structure of the organization and services

One unique feature of the Conservancy is that 40 percent of its annual income is earned from admission fees to the River Museum, sales of publications, and consulting services. The remainder of its 1977 fiscal year budget of $160,000 came from grants from foundations (35 percent) and private donations (25 percent).

The Conservancy's Environmental Management Center which is responsible for environmental programs has a professional staff of six and has been assisted by both consultants and volunteers. The center offers consulting services to other private groups by providing environmental education staff, land management services, or acquisition assistance for easements or donations. The center also assists local governments on fee simple or easement acquisitions. Another service is a model Environmental Management Handbook program to which almost 45 local governments subscribe. This program offers the latest legal and technical advice on ordinances covering traditional land use controls as well as controls for stormwater, flood plains, ground water aquifers, and historic districts. The center also provides land use planning and zoning assistance on a consultant basis to governments concerned with natural area protection and agricultural preservation.

Recently the center completed a 3-year water quality study of the Brandywine watershed which resulted in an inventory of areas that directly affect the water quality of the river, *e.g.*, wetlands, alluvial soils, steep slopes, aquifers, and ground water recharge areas. Models were developed to predict changes in water quality or flows in response to alterations in land use. The inventory from this study is used as a guide for the Conservancy's easement program.

The Conservancy owns only about 100 acres and acquires additional areas only when all other protective measures fail or are inappropriate. To date it has not had any substantial losses of important areas. Since 1967 the Conservancy has obtained easements on over 3,000 acres in Pennsylvania and Delaware.

(c) Protection technique

The principal natural area preservation device used by the Conservancy is the conservation easement agreement. As indicated above, an inventory of the Brandywine River watershed identified important natural areas. It is these areas on which the easement program concentrates. The basic goal is to protect

water quality in an urbanizing metropolitan area; secondarily it seeks to establish long-range river corridor protection for future recreational use. The areas taken under easement are generally restricted to those demonstrating a clear environmental purpose.

Under the Conservancy's program, landowners with valuable natural areas are identified and meetings are arranged with groups of them in specified areas. The importance of their lands is explained as well as how they can be protected by donated easements. The tax advantages of easements are particularly attractive to many landowners in the Brandywine Valley where a conservation easement may reduce the value of the property by 60 percent. Often one or two individuals who become committed to the easement concept can exert a strong influence on their neighbors to also grant easements.

The Conservancy acts as a consultant to individual landowners on all aspects of the development of an easement agreement (including survey and appraisal). The organization also accepts easements. When a landowner agrees to grant an easement, he must also agree to pay the Conservancy's costs for drawing up and recording the documents. This may involve several thousand dollars.

Enforcement of the easement agreement may be through local conservation organizations or with the assistance of local governments. The Conservancy tries to get viable local conservation organizations to monitor the areas. Another technique is to provide local governments with maps of areas under agreement. The Conservancy attempts to maintain good relations and contacts with local governments in order to be informed of proposed actions that may impact areas under easement.

The donor of an easement may request that an entity other than a unit of local government or a private organization receive the easement. Most, however, prefer a private organization. In the event that the recipient organization changes its purposes or ceases to exist for one reason or another, the easement provides that a court will decide the most suitable conservation group to receive the easement.

71.6 The Maine Coast Heritage Trust

(a) Goals and objectives

The Maine Coast Heritage Trust was set up in 1970 specifically to promote conservation easements, especially on islands off the coast of Maine. While the organization is also working on the mainland, the bulk of its work is concerned with the islands. The Trust promotes the use of easements to protect the rugged beauty of the Maine Coast from incompatible and excessive development. (The purposes of the Trust are set out in the request for incorporation.)[7]

(b) Structure of the organization and services

The Trust has a full-time staff of 4 and operated on a budget of $88,000 in fiscal 1975.[8] It generally uses mailings of information to introduce the concept of easements. Contacts are then followed up either by staff or by board members, cultivating a continuing relationship with the property owner. These personal visits are recognized as an effective means of promoting the easement concept. Once an easement is granted in an area, that information is communicated to surrounding landowners. Oftentimes the first easement creates a snowball effect. The Trust cooperates with local conservation commissions and other private organizations on land conservation projects; additionally, they are working closely with Maine's Critical Areas Program.

(c) Protection technique

The Trust's primary role is to provide cost-free information and advice to landowners about conservation easements. The Trust does not hold easements; rather, it will recommend a suitable

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[7]See Technical Appendix 71.9(d) for a copy of the articles of incorporation.

[8]See Technical Appendix 71.9(c) for a copy of the by-laws.

agency to receive them. Among those recommended in the past have been the Maine Bureau of Parks and Recreation, the Maine Department of Inland Fisheries and Game, town conservation commissions, Acadia National Park, The Nature Conservancy, and the National Audubon Society. The Trust has helped negotiate 154 conservation easement agreements covering a total of about 11,000 acres.

Easements arranged with the assistance of the Maine Coast Heritage Trust range from those which call for a property to be kept forever wild to some which allow a fair amount of development. The size of properties under easements vary from one-quarter to several hundred acres. Easements are tailored to both the character of the area and the interests of the owner and family.

The Trust operates by preparing draft easement agreements with prospective recipient agencies. It recommends that an owner obtain his own attorney to prepare the final document. On occasion the Trust has hired consultant naturalists to study some of the larger properties in order to identify the areas most in need of protection.

The tax benefits of granting conservation easements are often the greatest selling points, particularly in view of high and rising land values on the Maine coast. By restricting the development potential on land through easement agreements, its value for estate tax purposes ordinarily will be reduced. At the time of an owner's death, the government appraises the land to establish an estate tax. The amount of reduction in tax is tied directly to the degree of development limitations in the easement. For income tax purposes, the IRS allows an individual to deduct the value of easements granted to a tax-exempt charitable organization.

An important lesson learned from the Maine Coast Heritage Trust's experience is the need for patience in promoting easements. It may take several years to convince an owner to grant an easement. The Trust's personalized sales approach, coupled with general publicity about the easement program, has helped spread public understanding of the program and, therefore, has increased the chances of acceptance.

(d) Illustrative example: Conservation easements preserve an island on the Maine Coast

The following example of one of the Maine Coast Heritage Trust's projects is taken from the 1974 *Case Studies in Land Conservation, Case No. 4, Conservation Easements Preserve an Island on the Maine Coast,* by Benjamin R. Emory, a project of the New England Natural Resources Center:

> This is the fourth in a series of case studies in actual land conservation. It typifies the open space preservation problems that beset family ownership as individual involvement expands with succeeding generations. Must open space give way to the houses of grandchildren or development to raise funds to meet death taxes that mount yearly as a result of skyrocketing land values? These problems were met and solved by a family on the coast of Maine with aid of the Maine Coast Heritage Trust, a charitable foundation, and through utilization of the conservation restriction technique.
>
> That technique, now in use in many states, has many variants but in common involves a deed of the development rights to a chairty or governmental authority. The consequent separation of the open space retained by the owner from future development rights ensures lasting open space and by lowering the value of the owner's retained interest reduces the pressures of taxation. The conservation restriction gift does not open the land to public use.
>
> The author of the study is Benjamin R. Emory, Field Director of the Maine Coast Heritage Trust located in Bar Harbor, Maine 04609 (207-288-5010). Copies of the conservation restriction employed in this case are available through the New England Natural Resources Center.
>
> CASE NUMBER FOUR
>
> *The Land Conservation Problem:* The wild beauty of the Maine Coast's more than 2,500 spruce-covered, rock-rimmed islands has long awed those

privileged to view them. Until recent years man's encroachment upon them has been minor. The farms of early settlers are mostly gone, the fields giving way to woods, and those islands cut over for their timber have mostly grown back, too. Even the lingering evidence of granite quarrying on some islands now seems more of the nature of historic interest than scenic blight. Rapid, modern transportation has put Maine's islands within easy reach of the great urban areas of the northeast, however, and in the last several decades island property has become highly sought after for summer retreats. More and more cottages dot once-virgin shores, and the green and blue and gray beauty of the Maine Coast is threatened by the very hordes it attracts.

At the beginning of the 1970s the Alexander family on Great Island (all names changed) faced a situation quite typical of that facing many families that have summered on the Maine Coast for years. Six brothers and sisters, now in their fifties and sixties, had inherited a substantial amount of land on Great Island. While they each owned summer houses on the island with their spouses, much of their land remained wild. The undeveloped land, which is known as the Thorne property, included about 60 acres with a mile of shorefront and hill, which is both a lovely landmark from the water and a favorite hike for those wanting a panoramic view of the bay and its many islands. The Alexander brothers and sisters had numerous children and even more grandchildren. How to fairly apportion their property among increasing numbers of heirs was a perplexing problem, and moreover, if the heirs should all build summer cottages on the land rather than sharing existing houses, the consequent overdevelopment would soon destroy those very scenic and natural qualities that drew the Alexanders to Great Island every summer. The monetary value of the property was a problem, too. Maine's island real estate has skyrocketed in price, presenting owners with the difficult problem of how to leave sufficient liquidity in their estates so that heirs will not have to sell treasured land in order to pay death taxes.

The Solution: In 1971 the Alexanders were approached by representatives of the Maine Coast Heritage Trust (MCHT), a private conservation organization which had shortly before begun actively advising Maine property owners about the benefits and technicalities of conservation restrictions. MCHT suggested that the Alexanders consider granting a conservation restriction or easement in which they would place permanent development restrictions on the Thorne property. The particular members of the family with whom MCHT talked then went to their siblings and to the next generation with the proposal that they grant a conservation restriction. A winter of family discussions about wise future plans for the Thorne property ensued. By the spring of 1972 the Alexander family was agreed in principle that a conservation restriction should be granted, and they requested four things of MCHT. They asked for a first draft of a conservation restriction for the Thorne property; they asked that a naturalist evaluate the land, pointing out features worthy of special protection; they asked for a recommendation as to an attorney thoroughly familiar with conservation restrictions; and they asked for initial estimates from the appraiser retained by MCHT as to how different proposed restrictions would affect the market value of the property. All these requests were promptly met.

During the summer of 1972 the final details of the conservation restriction were determined in family discussions and during the meetings with the MCHT staff and the attorney selected by the family. It was decided that the conservation restriction would prohibit all buildings. However, two 2-acre abutting shore lots and one other smaller shore lot would be deleted from the area protected by the conservation restriction. Members of the family planned to build on these lots. A right-of-way for all purposes was also excluded from the restriction-protected land in order that a road and power lines could be run through the property to service the two lots.

The conservation restriction would permit only recreational and conservation activities and would forbid all commercial activity. The cutting of standing timber would be prohibited except that the owners would retain the right to keep the southern slope of Thorne Hill clear of trees and the right to selectively thin trees on the summit of Thorne Hill to prevent obstruction of the 360-degree view from the summit. The family also would retain the right to extract gravel from a gravel pit on the property so long as the affected area did not exceed one acre and would retain the right to build a septic system on the property to service the house lots so long as the septic system in no way affected a swamp on the property.

The conservation restriction would not grant any rights for public use of the Thorne property. However, the property had often been enjoyed by others on the island, and the Alexander family intended to continue to permit this use of the property so long as the privilege was not abused. By not granting any legal right of public use in the conservation restriction, the family would retain the ability to control public use as necessary to prevent damage to the land.

In addition to deciding what specific provisions to include in the conservation restriction, the Alexanders had to select the agency to which to grant the conservation restriction. The recipient would assume the responsibility for occasionally inspecting the property, and, if a violation of the restriction were ever detected, the recipient would have the obligation to stop the violation, by court action if necessary, and ensure that the restrictions were observed. The Maine Legislature in 1970 had enacted a statute authorizing any government agency with authority to accept interests in land to accept conservation restrictions (M.R.S., T.33, sec. 667, 668). Following passage of this statute, Acadia National Park on behalf of the United States had eagerly sought conservation restrictions, and it was to Acadia National Park that the Alexanders decided to grant their restriction.

At the end of the summer of 1972, the conservation restriction was prepared in form ready for signature, and a survey was completed to attach to the deed showing the boundaries of the restriction-protected land, the right-of-way through the land, the location of the gravel pit, and the area on the south side of the hill which could be kept clear of trees. The final document was signed and forwarded to the Superintendent of Acadia National Park, who had the document recorded at the Registry of Deeds and then forwarded it to Washington. There the Secretary of the Interior wrote the Alexanders a letter of formal acceptance. Once granted and accepted, the conservation restriction became a permanent guide to the use of the Thorne property, regardless of who may own it in the future. Change in the provisions of the restriction can only be effected by mutual agreement of the property owners and the United States. The recipient is only likely to agree to a change that is consistent with the original intent of the restriction and necessitated by circumstances unforeseen at the time of the granting of the restriction.

The final step for the property owners was to commission a formal appraisal by a qualified real estate appraiser. The appraiser estimated the value of the restriction-protected land to have been $150,000 before the restriction and $30,000 afterwards. As the amount by which a conservation restriction reduces market value is an allowable federal income tax deduction, the six Alexander brothers and sisters each claimed an income tax deduction of one-sixth of the total $120,000 reduction in value.

The conservation restriction on the Thorne property also appears to have been beneficial in regard to property taxes. In 1973, the year following the granting of the restriction, the town of Great Island revalued the land on the Island, and everyone's taxes went up considerably as assessments came closer to real market value. The Alexanders themselves received much higher tax bills on their houses and other land not

under restriction. However, taxes on the Thorne property, which had always been assessed well below its market value, rose only four dollars. Thus, the town tax assessors did seem to be trying to observe their legal obligation to take into account enforceable restrictions on land (M.R.S., T.36, sec. 701-A). As anticipated, the conservation restriction proved to have a stabilizing influence on property taxes.

The Future: The Thorne property conservation restriction was one of the earlier conservation restrictions granted on the Maine Coast. By early 1974, 67 conservation restrictions protecting approximately 5,000 acres had been granted, and as many more restrictions were in various states of drafting. These easements run to a variety of recipients. In addition to Acadia National Park , the recipients include the Maine Bureau of Parks and Recreation, the Maine Department of Inland Fisheries and Game, The Nature Conservancy, and the National Audubon Society. The Maine Department of Marine Resources has also expressed keen interest in receiving conservation restrictions.

The restrictions that have been granted and the restrictions that are in draft range across a wide spectrum of possible restrictions. Many, like that on the Thorne property, prohibit all development. Others allow for a specified number of additional structures to be built, and some permit certain types of commercial activity, most often agriculture, aquaculture, and selective timbering. One conservation restriction has even been granted by a commercial land subdivider on land being subdivided.

The constantly mounting interest in conservation restrictions in Maine indicates that conservation restrictions are going to play a major role in the conservation of the scenic, natural, and cultural qualities of the Maine Coast. Over 97 percent of Maine's shorefront is in private ownership, and for the private property owner the conservation restriction provides one of the strongest means of ensuring that treasured land is never developed beyond wise limits.

D. Information and Bibliography

71.7 Key information contacts

Benjamin R. Emory
Executive Director
The Maine Coast Heritage Trust
Post Office Box 426
Northeast Harbor, Maine 04662
(207) 276-5156

H. William Sellers, Director
Environmental Programs
The Brandywine Conservancy
Post Office Box 141
Chadds Ford, Pennsylvania 19317
(215) 388-7601

Hardy Wieting, Jr.
Legal Advisor to the Government and State Heritage Programs
The Nature Conservancy
1800 North Kent Street
Arlington, Virginia 22209
(703) 841-5325

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The Nature Conservancy. Questionnaire--Survey of Natural Area Activities, 1976-1977 completed by The Maine Coast Heritage Trust. The Nature Conservancy: 1800 North Kent Street, Arlington, Virginia 22209.

71.9 List of technical appendices

(a) Easements held by The Nature Conservancy. Unpublished list. The Nature Conservancy: 1800 North Kent Street, Arlington, Virginia 22209, 1976.
(b) Sample Conservation Easement. Unpublished document. The Nature Conservancy: 1800 North Kent Street, Arlington, Virginia 22209.
(c) By-laws of Coast Heritage Trust, Inc. Maine Coast Heritage Trust: Northeast Harbor, Maine 04609.
(d) Requests for Incorporation: Coast Heritage Trust. The Maine Coast Heritage Trust: Northeast Harbor, Maine 04609.

71.10 List of other organizations[9]

California
  The Trust for Public Land
Connecticut
  Connecticut Land Trust Service Bureau
Delaware
  Forward Lands, Inc.
Florida
  Collier County Conservancy
Illinois
  Ducks Unlimited, Inc.
Kansas
  Grassland Heritage Foundation
Maryland
  Maryland Environmental Trust
Massachusetts
  Massachusetts Audubon Society
  Nantucket Conservation Foundation, Inc.
New Hampshire
  Audubon Society of New Hampshire
  New Hampshire Natural Resources Council, Inc.
New Hampshire (continued)
  Society for the Protection of New Hampshire Forests
New Jersey
  New Jersey Conservation Foundation
  South Branch Watershed Association
  Upper Raritan Watershed Association
New York
  Group for America's South Fork
  National Audubon Society
  New York-New Jersey Trail Conference, Inc.
  Pound Ridge Land Conservancy
Ohio
  Committee for a Country Common
Pennsylvania
  Bucks County Conservancy
  French and Pickering Creeks Conservation Trust, Inc.
  Lehigh Valley Conservancy
  Western Pennsylvania Conservancy
Rhode Island
  Audubon Society of Rhode Island
  Block Island Conservancy

[9]See "Master List of Organizations," for local chapter field and regional offices able to provide less-than-fee technical assistance.

Chapter Seventy-two

Fee Acquisition

A. Introduction

72.1 Overview

B. National Organizations

72.2 The Nature Conservancy
- (a) Objectives
- (b) History
- (c) Structure of the organization
- (d) Protection technique: Acquisition
  - (1) Entry process
  - (2) Gift
  - (3) Purchase
  - (4) Pre-acquisition: government cooperation
  - (5) Finance
- (e) Use of other protection techniques: government program
- (f) Identification
- (g) Preserve management/stewardship
- (h) Special programs
  - (1) The American Land Trust
  - (2) The International Program
  - (3) Trade Lands Program

72.3 The National Audubon Society
- (a) History
- (b) Objectives
- (c) Structure of the organization
- (d) Protection technique
- (e) Illustrative example: Acquisition of five sanctuaries

C. State and Local Organizations

72.4 Western Pennsylvania Conservancy
- (a) Objectives
- (b) Structure of the organization
- (c) Protection technique
- (d) Illustrative example: Conneaut Marsh

72.5 Acres, Inc.
- (a) Introduction
- (b) History and objectives
- (c) Structure and operation
- (d) Protection technique
- (e) Illustrative example: Ropchan Memorial Nature Reserve

A. Introduction

72.1 Overview

It has been postulated that government must take the leading role in ecosystem protection because of its responsibility for the general welfare of society and because only it possesses the necessary power and resources to ensure protection on a broad scale. However, this does not diminish the role that may be taken by nongovernmental organizations. Private initiative in the realm of natural area acquisition has certain advantages over state or federal governmental action.

Private land acquisition activities are discussed in more detail in section 72.2(d) of this chapter, The Nature Conservancy: Protection Technique. The following section contains some general observations about the advantages which private organizations have in land acquisition as compared with government.

Private organizations have more flexibility and therefore the ability to act quickly. For example, the Illinois Nature Preserves Commission, a State advisory group, said that the state's program of land acquisition was "slow and cumbersome" and often could not protect areas threatened with imminent destruction. Four of the 42 areas which the Commission had recommended for acquisition before 1975 were destroyed or partially destroyed because the state could not act quickly.[1] Contrarily, private organizations in Pennsylvania, The Western Pennsylvania Conservancy and the Philadelphia Conservationists worked together to buy the Segloch Swamp in under two weeks.[2]

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[1]Illinois Nature Preserves Commission, *Illinois Nature Preserves--Two-Year Report*, 1973-1974, p. 1.

[2]Paul G. Wiegman, letter, dated January 27, 1977.

Private organizations are able to exercise a wider range of options with respect to purchasing properties, which allows them to spread scarce resources farther. Many states, for example, Pennsylvania, must offer fair market value. Private organizations may offer many prices and valuations and frequently can provide incentives, such as tax advantages, that encourage donations or bargain sales (see section 72.2(d)(2)).

Under many state and federal natural area or park programs, only areas that have been determined by land use studies or inventories to be of the "greatest" or of nation- and statewide significance can be bought. Many private groups operate at the local level and are able to protect areas of "less" or only local significance. For example, Acres, Inc., a private preservation group in Northeastern Indiana, has suggested that most remaining open spaces are significant in that area and that, if time and money allowed, the group would pursue a program of notification of owners and protection of all such property.[3] The land conservation trust movement also stresses the positive values of operating at a "grassroots" level and protecting areas of local significance.[4]

Large, private national preservation organizations have the flexibility to act quickly at all levels and can save important ecological areas where there are no government, state, or local private groups to act when land comes on the market. The national organization also can help provide funding for local private groups.

Private groups can buy and hold small tracts that may be of only local significance or part of a larger assemblage, whereas governmental programs often stress or require sites of large acreage that protect an entire ecosystem. Another advantage may be that land purchased by private groups can be closed to extensive public use, whereas local, state, and federal government programs face pressure from constituents and others that often require some development for recreational purposes. Such use may detract from the natural qualities of an area and result in the loss of extremely fragile sites.

One potential problem with private natural area ownership is lack of continuity. A small group may fold or change its objectives, which could mean the sale and ultimate loss of a natural area. Some groups and individuals anticipate this by including a reverter clause under which the land would go to a government or national land preservation group such as The Nature Conservancy. For example, The Nature Conservancy holds reverters on some properties donated to Acres early in its existence.

Another problem is that small organizations sometimes lack the technical knowledge to manage an area properly or do not understand the financial and tax consequences of some actions. Some local land trust advocates have recognized this problem. To solve it, The Nature Conservancy's Connecticut Chapter proposed the creation of a Land Trust Service Bureau (see section 72.6[d]).

Lastly, many private organizations scattered across a region may be faced with a lack of coordination among their various actions. As a result, some coalitions of groups involved in statewide natural area activities are forming. An example is the Missouri Natural Area Advisory Council.

The following sections illustrate techniques and experiences in natural area acquisition and management at the national, state, and local levels by private organizations devoted to land preservation.

B. National Organizations

72.2 The Nature Conservancy

(a) Objectives

The Nature Conservancy (TNC) is a national, nonprofit conservation organization devoted to the protection of genetic diversity, primarily through the preservation of natural ecosystems. A large number of federal, state, and private organizations are carrying out portions of this overall goal, but they tend to focus on certain aspects of preservation. For example, protection of bald eagle habitats (the National Wildlife Federation), of redwood trees

[3]See Section 72.5 for a discussion of Acres, Inc.

[4]See Section 72.6 for a discussion of land conservation trusts.

(Save the Redwoods League), of desert pupfish (Desert Pupfish Council), of rangelands (American Society for Range Management), and of forest types (Society of American Foresters). The Conservancy, on the other hand, seeks to ensure that the entire spectrum of endangered species habitats, remnant stands of virgin forest, unique geological features, areas of seasonal faunal concentration, rare ecosystem types, areas demonstrating ecological processes of special interest, environmental baseline areas, and other examples of natural ecological diversity is protected throughout the United States. While recreational, scenic, and open space areas are also included in the Conservancy program,[5] lands which contain rare or endangered ecological conditions are given higher priority.

In general, the Conservancy operates by systematically identifying vital areas and then seeking to protect them by various means. The organization has engaged in natural area inventories at local, state, regional, and national levels throughout the country. In addition, it owns and manages many areas and tries to educate the public concerning the need to preserve vital natural areas.

Through its nationwide organization of regional offices and over 30 local chapters comprising 100,000 members,[6] the Conservancy has long operated a successful program of identifying and preserving individual areas of ecological importance through acquisition by gift, purchase, or other means. Its early operations depended largely on local fundraising. Fundraising still constitutes a major portion of the Conservancy's activities, although more sophisticated means of financing are constantly being developed.

In the past few years the Conservancy has embarked upon several new programs to achieve permanent protection of the nation's endangered ecosystems. These are discussed in the Government, Identification, and Special Programs sections of this chapter, 72.2(e), 72.2(f), and 72.2(h) respectively.

(b) History

The idea of and organization to protect natural areas originated with members of the Ecological Society of America, a society of professional ecologists, in 1917. Recognizing that the nation's natural areas were endangered, they established the Committee for the Preservation of Natural Conditions of the Ecological Society of America to study what could be done and to disseminate information about the problem. The Nature Conservancy traces its roots to this committee of scientists, as well as to its companion Committee for the Study of Plant and Animal Communities. From 1938 to 1946, members of these Committees devoted their efforts to making the first national survey of outstanding natural areas and promoting protection of those areas through publications and education.

In 1946 the Committee for the Preservation of Natural Conditions became a separate entity and was renamed the Ecologists Union. After a few years of operation, during which time the Union was concerned primarily with encouraging other groups to establish natural areas, the membership decided that a direct and active role in natural areas preservation could make the group more effective. Borrowing the name of an established British group, in 1950 the Ecologists Union became The Nature Conservancy. That same year the Conservancy was recognized as a nonprofit association by the Internal Revenue Service. In 1951 it was incorporated in Washington, D. C., as an organization chartered for scientific and educational purposes.[7] At that time it had 342 members.

The new organization spent several years experimenting with various methods of land preservation. In 1953 it undertook its first independent project when a group of residents in Connecticut asked for affiliation with the Conservancy in order to raise money to preserve and protect the Mianus River Gorge

[5]See Technical Appendix 72.9(a) for full statement of Conservancy objectives in "The Nature Conservancy By-laws, Revised, 1976."

[6]See Technical Appendix 72.9(b) for a chapter list and membership profile.

[7]See Section 72.11 for a full listing of the preserves currently owned by the Conservancy.

in Westchester County, New York. A second project that year was the Sunken Forest on Fire Island, Long Island, New York, an area that now consists of 73 acres. Interest in the project was initiated by Richard Pough of the American Museum of Natural History in New York City; The Nature Conservancy assisted in the collection of funds. The area is now owned by an independent organization, Sunken Forest Preserve, Inc.

In 1954 two more projects were added to The Nature Conservancy's list: the Arthur W. Butler Memorial Sanctuary in New York State, which was a gift from Mrs. Anna R. Butler and Corkscrew Swamp in Florida, a project begun and controlled by the National Audubon Society, with fundraising assistance from The Nature Conservancy. The year 1954 also marked an important event: the first contribution to the Conservancy's new Matching and Loan Fund,[8] a gift of $7,000 from the Old Dominion Foundation.

Until that time, the Conservancy's role in land preservation had been somewhat passive. It had only limited funds of its own for land purchases and relied principally on volunteer staff (the total operating budget in 1953-54 amounted to $9,769, as compared with $1,601,292 for 1975). With little expertise in land preservation techniques, its services consisted primarily of assistance in scientific evaluation and fundraising.

In 1961 the Conservancy helped the Conservation Department of the State of New York purchase an area in the Catskills called Rip's Retreat. This project, which was completed at no out-of-pocket expense to the Conservancy (except for travel) and with beneficial results to the state, started a new aspect of the Conservancy's work: cooperation with governmental units in the acquisition of land. This program was expanded after 1969 at which time the Conservancy received a $6 million guaranteed line of credit from the Ford Foundation to include work with other states and all levels of government.

In the early 1970s the Conservancy realized that its efforts had shifted too much to acquiring lands as they became available rather than focusing on the most significant sites and their preservation. As a result, the Conservancy adopted a Long Range Plan. It reaffirmed and reemphasized the Conservancy's original commitment to areas of scientific value and the "acquisition of land of high quality throughout the U. S. with priority for areas which are ecologically significant and threatened." The Plan stated that the Conservancy would improve the quality of acquisitions while maintaining its present rate of acquisition.

The Conservancy's goal for 1982 is to spend 10 percent of the organization's resources on protecting locally important areas and 90 percent on areas of statewide or national ecological significance, although the Conservancy is willing to do a greater number of projects of less than national or statewide significance if they will be transferred out to other landowners. The Conservancy's Board of Governors has approved a policy of retaining only state or nationally significant projects. To accomplish this goal the Conservancy is relying heavily on its identification programs at both the national and state levels.

Although only three decades old, The Nature Conservancy has been active in 2,400 preservation projects comprising 1,504 preserves and involving the acquisition of over 1.7 million acres of land. While many of these acquisitions have been transferred by sale or gift to other organizations, 660 preserves (many composed of a number of individual projects) have been retained and are currently managed by the Conservancy.[9]

The Conservancy is also involved in other types of protection actions including obtaining voluntary landowner agreements and assisting landowners in protecting their land by other means. Voluntary agreements are nonbinding agreements with a landowner to protect the notable elements occurring on his land. Landowner assistance includes getting landowners to register, dedicate, or have land designated into federal, state, or other protection systems.

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[8]This fund has since been replaced by other funding mechanisms which are discussed in 72.2(d)(5): Finance.

[9]See Technical Appendix 72.9(d) for a full listing of the preserves currently owned by the Conservancy.

In the decade 1950 to 1960, the number of Conservancy projects ranged from none to 20 in a given year. A total of 25,586 acres was saved in that period. Membership ranged between 325 and 3,000.

During the Conservancy's second decade, 1960 to 1970, completed projects ranged from 16 to 140, with a total of 200,600 acres saved. Membership increased from 3,000 to 21,400.

Between 1970 and 1980, membership has gone from 21,400 to 100,000, a 467 percent increase. Corporate memberships have risen to 313. Projects, too, have moved from a low of 140 in a given year to a high of 226. The average number of projects per year is 200. To date, the total number of projects saved is 1,768,940.42

(c) Structure of the organization

The Nature Conservancy is governed by a Board of Governors who are elected by members and serve as volunteers. The Board determines all matters of policy not determined by members. Conservancy staff and volunteer units are accountable to it for all actions affecting the welfare of the organization and the accomplishment of objectives.

The Board appoints a President and has delegated to that office primary responsibility for overseeing and directing the operation of the Conservancy. The President, in turn, delegates at his discretion some of his responsibilities to an executive vice-president, department heads, and regional directors so they may carry out and monitor policies and procedures which pertain to their functional areas.

The national office is located in metropolitan Washington, D.C. Its staff of approximately 83 consists of professionals with expertise in the fields of real estate, law, finance, fundraising, public relations, preserve management, ecology, and other aspects of natural area preservation. Specific functions include general administration of all programs, coordination of regional, state, and chapter activities, the conduct of large or unusually complex land projects, and development of special or new programs.

The national office is divided into six divisions: Science (which has responsibility for administering State Natural Heritage Programs and developing standards for preserve selection and design); Protection (primarily land acquisition); Stewardship (management of preserves); Legal (corporate counsel, real property law); Development (fundraising); and Support Services (finance and accounting, membership services, communications, and personnel and administration). There is also a new tradelands program exploring opportunities to accept charitable gifts of developed properties to be traded or sold for significant ecological lands.

Field operations are carried out through a network of regional offices, state offices, and organized volunteer chapters. In addition, 25 State Natural Heritage Programs have been initiated in cooperation with state governments, each with a staff of its own. About half of these have been fully incorporated into state government and the rest are scheduled to be.

There are 4 regional offices: Eastern, in Boston; Southeast, in Leesburg, Virginia; Midwest, in Minneapolis; and Western, in San Francisco.[10] Each is headed by a regional director and is fully staffed with professionals in law, real estate, and natural resources. In general, regional offices are responsible for coordinating activities of field offices and chapters within their region. In addition, certain authority for approval of projects has been delegated to regional directors, along with other responsibilities in the Divisions of Identification, Protection, Stewardship, and Fundraising.

Reporting to the regional offices are 34 full chapters, 1 interim chapter, and 42 field offices. These were created to offer states a local presence and base of support. Field offices are headed by field representatives and essentially function as local protection and land-buying arms of the regional offices.[11]

Volunteers are organized into the three basic volunteer units of the Conservancy: chapters, committees (including the Board of Governors), and affili-

[10]See Technical Appendix 72.9(e) for a full listing of the regional offices and their jurisdiction.

[11]See Technical Appendix 72.9(f) for a full listing of the field offices.

ate organizations. Chapters and committees are part of The Nature Conservancy and derive their authority to exist and act from the Board of Governors. Affiliate organizations are independent organizations which agree to cooperate with the Conservancy. The establishment of chapters, operating committees, and project committees must be approved by the Board or the President, and their procedures must follow those set forth in the bylaws of the corporation, Board of Governor's resolutions, and the Volunteer Handbook.

Chapters are chartered by the Board and operate within designated boundaries. The 34 chapters in 29 states are all volunteer. An increasing number are, however, using a volunteer/staff team in cooperation with state offices to carry out the Conservancy's objectives.

In general, 200 members are required in an area (state or part of state) before a chapter can be created. Members express their interest in forming a chapter to the Board of Governors. Upon Board approval, the group is issued an interim chapter charter which allows it to function for one year. At the end of the year the Board reviews the group's activities and accomplishments to determine if a full chapter charter should be issued. Once granted, a full charter is perpetual unless revoked by the Board. When a chapter is chartered, all Nature Conservancy members living within a chapter's territory are automatically members unless they request otherwise. Membership dues are divided between the national office and the chapter.

Activities of the chapters include project identification and fundraising, stewardship, and membership development. A chapter is, except in rare cases, responsible for the protection and care of all Conservancy preserves within its territory. Chapters are an essential part of the Conservancy "grassroots" effort.[12]

The committee, a second type of volunteer unit, is organized to accomplish specific objectives. The distinction between a chapter and a committee is that the latter does not operate as a membership unit or share dues. Further, there is no requirement for a minimum of 200 members. Finally, the committee may not be permanent, i.e., it may be formed for a special purpose such as fundraising for a project.

Committees are classified in three different categories, according to function, and may be set up by the President, Board of Governors, or a chapter. One type, the operating committee, is assigned a particular territory and functions in a manner similar to a chapter--undertaking projects, stewardship, fundraising, etc. However, it need not be chartered by the Board of Governors, and it does not receive any portion of the dues from members within its territory. Operating committees are established in areas where no chapters exist and may be set up by the President, with ratification by the Board of Governors. Activities of an operating committee are usually coordinated with and approved by the regional director. The Conservancy currently has only one operating committee, in the Adirondacks.

A project committee, the second type, may be formed to undertake fundraising for a project which has been approved or ratified by the Board of Governors. The Conservancy buys the tract of land by borrowing money from its project revolving fund. The project committee agrees to repay this money within no more than three years by fundraising.

When chapters set up project committees, they are responsible for the activities. When the Board of Governors sets up a project committee, as when it approves a project, the appropriate regional office is responsible for providing help and direction to committee members. Examples of several project committees are: the Prairie Grouse Committee in Illinois; the Southern Appalachian Highland Conservancy Committee in Tennessee and North Carolina; and the Rann Preserve Committee in Virginia.

Third is the preserve committee which has responsibility for the care and protection of a preserve. Its responsibilities include preparing a plan for the preserve's use and ensuring that it is used in accordance with the plan. Preserve committees are generally under the guidance of chapters of regional stewardship directors who coordinate the management aspects of Conservancy preserves in non-chapter areas. Examples

[12]See Technical Appendix 72.9(b) for a list of chapters and number of members.

of preserve committees include: Mianus River Gorge Committee, New York; Sandy River Gorge Committee, Oregon; and Devil's Den Committee, Connecticut,

An independent organization having purposes and a structure similar to the Conservancy may affiliate itself with the Conservancy upon approval of the Board of Governors. Affiliate relationships offer benefits to both organizations and prevent competition between the two. The affiliate organization agrees to inform its members of the affiliation and give them the opportunity to become members of the Conservancy. Full documentation of all agreements made between the Conservancy and the affiliate are submitted to the Board of Governors for approval. Only the Society for the Protection of New Hampshire Forests is currently affiliated.

(d) Protection technique: Acquisition

Areas acquired by the Conservancy fall into 4 general categories: (1) those acquired by gift or purchase and retained and managed; (2) those acquired for government agencies and deeded over to them at cost without significant restrictions; (3) those acquired by fundraising or gift and deeded over to agencies, institutions, and sister conservation organizations, with a reverter clause and/or other restrictions; and (4) those acquired by other organizations but in which the Conservancy holds a reverter or other legal interest.[13] In general, approximately one-third of Conservancy projects have been gifts, while from one-fourth to one-third have been cooperative projects with governments.

Conservancy projects have historically been of two major types: ecologically significant lands; and lands preserved for open space, esthetic, recreational, and educational values. While the Conservancy's primary goal currently is to acquire areas needed to ensure that the elements of biological diversity are protected, acquisition of areas of the second type has been important in generating a wide base of support, in buying time until sophisticated resource inventories can be done to substantiate the need for more restrictive preservation of natural values, and in allowing the Conservancy to preserve large areas without expending its own funds.

The Conservancy prefers to receive unrestricted land. There are many people, however, who would like to see their property preserved, but who do not trust either private conservation organizations or government agencies. Thus, if they are going to donate or even sell their land for conservation purposes, they want to place restrictive language in the deed.

The Conservancy has found that most donors of land do not know how to restrict the use of their land properly. Restrictions placed in the deed by a donor are usually very limited in scope and relate to some particular desire of the donor and may or may not be the best way to preserve the property in perpetuity. In addition, the Internal Revenue Service recently indicated a potential tax problem with restrictions.

The Conservancy feels very strongly that its corporate purposes are well-known and that it has a moral obligation to preserve all the land that is given it. For that reason, the Conservancy will, for the most part, only accept unrestricted deeds or deeds that contain the Conservancy's "standard restrictive language."[14] This language has been worked out carefully so that it provides the property with maximum protection in perpetuity, yet gives the Conservancy the flexibility to adjust its management plans should circumstances surrounding the property drastically change at some time in the future.

Another fact that donors of land often do not consider before putting their own restrictions into a deed is that the restrictions will most likely have an adverse effect on the fair market value of the property. When restrictions are placed in deeds, the donor is effectively retaining some rights, and the value of the restrictions must be considered in any appraisal of the land.

Another drawback to restricting land title is its impact on federal matching monies (Land and Water Conservation Fund). If the acquired property is to be used for matching purposes against

[13]See Technical Appendix 72.9(f) for a complete listing of Conservancy acquisitions.

[14]See Technical Appendix 72.9(g).

the Land and Water Conservation Fund or other source of matching dollars, a deed restriction can affect the amount of the match or even the eligibility of the property for matching purposes.

(1) Entry process

A project may be undertaken by a Nature Conservancy chapter, a special project committee, or another conservation organization which requests Conservancy assistance. The natural area in question may have been identified through a systematic inventory, such as a state heritage program inventory, the recommendation of expert scientists, the knowledge of layman naturalists, the interest of local citizens, or the offer of a gift. Once a group recognizes that a particular area--woodland, marsh, prairie, stream, lake, rock outcrop, or whatever--possesses significant natural values which merit permanent protection, it may take action alone or with the assistance of professional Conservancy staff. Regional offices and, in many areas, field offices and chapters are available to offer technical assistance and advice on the ecological significance of particular pieces of land, as well as on research projects, stewardship, real estate negotiations, and publicity.

The regional office or appropriate field office or chapter usually handles the details of a project. It works out an acquisition strategy, enters into negotiations, identifies funding sources, and obtains an option to purchase. The project is reviewed by Conservancy staff (either at the regional or national levels, depending on its size and complexity) in the Legal, Land Stewardship, Volunteer, Planning and Services, Communications, and Finance Divisions. If approved by them, it is presented to the Board of Governors project review committee for consideration. If approved there, it goes to the full Board, which meets several times a year to review all proposed projects.

Proposed projects are essentially evaluated according to the following criteria:

(1) There ecological rating on a 1 to 5 scale.
Rating 1--The property is a "rare ecosystem" or "rare element" and/or is deemed of national significance.
Rating 2--The property has "outstanding natural features" or is "undisturbed land" or forms a "quality addition or assembly" to existing natural areas that are rated (1), will receive this status in the aggregate, and/or is deemed of state significance.
Rating 3--The area is an established "scientific and education area" used for research.
Rating 4--The area is an addition to another preserve or assembly not rated (1).
Rating 5--The area is a "human ecological area;" *i.e.*, is not significant as a representative of biological communities but has value in improving man's relations and appreciation of the natural world.
The Conservancy's Long Range Plan calls for an increase in projects with "1" and "2" ratings.

(2) Their management rating on a 1 to 10 scale. This rating is based on a property's "viability," "diversity," "uniqueness," "freedom from human impact," and "defensibility." The primary factors considered are size, watershed, bufferage, and proximity to human populations, as those factors affect the Conservancy's ability to protect and maintain the integrity of the natural system over time.

(3) Fair market value.

(4) Cost to the Conservancy.

(5) Previous taxes and the amount of taxes the Conservancy would have to pay for assessment and use.

(6) Availability of a management group, chapter, or other entity, where projects are to be retained.

(7) The possibility of transferring the property out to an agency or private group.[15]

Size is not necessarily a significant factor in selection; each property is evaluated on its own merits.

As of this writing the rating system is undergoing major revision.

Before any commitment can be made by anyone to acquire the land or to accept

[15]The Nature Conservancy, Criteria for Acquisition, unpublished guidelines.

funds from donors for an acquisition, formal project authorization must be received. Once authorized and purchased, transfer documents are completed, the deed is recorded, and work on a preliminary inventory and management plan is initiated.

Project revolving funds can be made available to purchase the land. National, regional, and field staff aid the local group in planning and initiating fundraising programs and in developing plans to evaluate, manage, and protect the area in coming years. The active group then raises funds to repay the Conservancy, so that money will be available for other projects across the nation. If at all possible, fundraising is done prior to acquisition.

(2) Gift

People who wish to protect their land in its natural state may donate it to The Nature Conservancy. If the land is judged to be of ecological (environmental, scientific, or educational) value, the Conservancy encourages such a donation for conservation purposes.

Along with the satisfaction of knowing the land will be enjoyed and studied by future generations, there are also substantial tax benefits involved in gifts of land. Through the provisions of the Internal Revenue Code, the federal government encourages donations to publicly supported, nonprofit charitable organizations. Because the Conservancy is such an organization, individuals and corporations may deduct the full value of gifts they make, subject to certain limitations.[16]

There are 4 basic ways to give land. They are:

(1) Outright donation by the execution of a standard deed. Under this method, the owner gives the land to the organization with no strings attached.

(2) Donation by the execution of a standard deed, with the retention of a life estate. This method allows the owner to occupy and use the property during his life (and that of his spouse), provided that the life tenancy is consistent with the conservation purpose of the gift, with possession passing thereafter to the organization. A similar method is to give the land outright and have the receiving organization grant the donor life use. Either of these reservations of rights will be taken into account in determining the tax benefits of the gift.[17]

(3) Donation by the execution of a deed containing the Conservancy's standard restrictive language. The restrictions will have to be taken into consideration in determining tax benefits.

(4) Donation through a will. The bequest may or may not be restricted. Whenever possible, the Conservancy likes to see the applicable section of the will before the donor's death. If there is something wrong with the proposed bequest, it is far easier to work out with the donor than with his estate. A gift by will can reduce estate and inheritance taxes.[18]

(3) Purchase

Under the Conservancy's "private" acquisition program, land acquired is to be retained by the Conservancy or another private organization. Acquisitions are accomplished either with funds already identified or on hand, or through project fundraising after the land has been acquired.

Where an outright gift is not possible, the Conservancy is interested in negotiating as low a price as possible and has been successful over the years in buying land for less than its fair market value. One technique is the "bargain sale." It involves a purchase at a price less than the appraised fair market value, meaning that a part of the value is donated. The Conservancy has also purchased less than fee interests in land.[19] In over half the projects that have been undertaken by the Conservancy, the owner could not, for some reason, donate the land to the Conservancy, and the Conservancy was forced to

[16]For further discussion, see Chapter 78: Tax Incentives.

[17]The advice of an attorney familiar with the changing conditions of these benefits is most important.

[18]See Technical Appendix 72.9(h) for a list of donations to the Conservancy.

[19]See Chapter 71: Less-than-Fee Fee Acquisition.

purchase at either a bargain sale price or at full fair market value.

It is important to point out that when a piece of property is purchased, regardless of whether the price is the full fair market value or bargain sale, an appraisal, survey, and, most important, title insurance are required. Whether the buyer or the seller pays for any or all of these is usually determined by local custom, but they are factors that can be negotiated as part of the agreement. In large acquisitions, an appraisal, a survey, and title insurance can result in a considerable amount of money. For example, in a recent large acquisition by the Conservancy, the appraisal was $30,000; the survey, $60,000; and the title search and insurance, $10,000. Local custom said that the buyer was responsible for these costs, but the Conservancy ended up splitting the total amount of $100,000 with the seller.

If the owner of a piece of property feels that he has to receive some cash for his land, the bargain sale is often an attractive option, especially if he has a low cost basis on the property and a high income. What many people fail to realize is that the sale of appreciated properted can result in a long-term capital gains tax which can have an adverse effect on adjusted gross income. In many instances, however, the long-term capital gains tax allows a seller to put off all of the original cost of the property and 60 percent of the profit from the sale into his pocket, without any taxes. (In larger transactions an additional tax can be imposed on the other 40 percent of the profit.) The other 40 percent of the profit, however, is added to the seller's adjusted gross income, resulting in substantially increased taxes over what the seller paid in previous years, unless he has some sizable charitable or other deductions.[20]

[20]See Technical Appendix 72.9(i).

(4) Pre-acquisition: Government cooperation

The Conservancy's "government coop" program is designed to help governments acquire land. Although in some cases only the Conservancy's professional knowledge and experience are needed to complete a government acquisition project successfully, the organization is able to purchase land, to be held in trust for a governmental body, often at considerable savings to taxpayers. Since governments are generally unable to enter into a formal contract without legislative approval of the funding requirements, acquisition by the Conservancy and the subsequent scheduled repurchase by the government is based on a letter of intent rather than on a contract.

Conservancy assistance is generally requested when a specific area authorized for acquisition becomes available for purchase before the government has the funds. When the agency, usually within the following year, appropriates the necessary funds, the land is conveyed and the Conservancy's costs repaid.

A recent government cooperation project of significance involved the 4,500-acre Joyce Estate in Itasca County, Minnesota. In late 1973 The Nature Conservancy purchased the property from the estate of Mrs. Beatrice Joyce Kean for $2 million. The purchase was made possible through a $1.5 million loan from the Northwestern National Life Insurance Company of Minneapolis. The Conservancy held the land until federal acquisition funds became available in early September of 1975. The Conservancy then sold the property to the U. S. Forest Service as an addition to the Chippewa National Forest.

The following table shows the numbers, acreage, and value of government cooperative projects undertaken by the Conservancy between 1969 and 1980.[21]

[21]See Technical Appendix 72.9(k) for a full listing of government cooperation projects.

Table 73-1
Government Cooperative Projects
Undertaken by The Nature Conservancy
1969-80

Year	Acres	Number of Projects	Fair Market Value
1969	27,203	8	$ 2,246,200
1970	43,139	9	7,447,907
1971	30,771	10	13,673,500
1972	40,297	40	27,122,236
1973	26,163	24	8,499,180
1974	37,159	43	22,259,686
1975	56,975	83	28,959,343
1976	146,253	62	44,403,336
1977	37,466	41	29,847,762
1978	118,465	48	47,818,820
1979	423,694	50	24,640,832
1980	17,441	36	10,120,366
TOTAL	1,005,026	454	$265,739,168

(5) Finance

The Nature Conservancy's resources have primarily been devoted to outright acquisition of natural lands. In 1975, $5,686,273 in privately donated funds were expended for that purpose. (Operating expenditures for that same year [including salaries, rent, supplies, and equipment] totalled $1,601,292. Certain expenditures for preserve management and special programs in 1975 added $144,948 and $708,821 respectively.) Acquisitions are funded by contributions and foundation grants, which also support national operations.

In addition to acquisitions through purchase, The Nature Conservancy receives gifts of land from both private and corporate donors. However, when immediate funds are required for land acquisition, several sources of finance are used (The Nature Conservancy Finance Manual [unpublished]):

The Project Revolving Fund (4.3 million in 1977) provides money temporarily, but quickly, for private purchase of land. Conservancy members organized into a committee or into a chapter may borrow the money needed for immediate acquisition from the Project Revolving Fund after approval of the project by the Board of Governors. Then, while the land is no longer directly threatened, the chapter or committee is responsible for raising the funds to repay the loan within three years. No interest is charged during the first 90 days; thereafter, to encourage prompt repayment so that the funds can be used elsewhere, interest is set at a rate not to exceed five percent.

Established *Lines of Credit* with several banks provide great flexibility to the Conservancy's acquisition program. The lines of credit, generally provided at the prime interest rate and necessitating a compensatory balance , are used primarily for acquisitions on behalf of government agencies. Land acquisition loans are repaid, along with other costs, when the agency obtains funding and purchases the property from the Conservancy. Unsecured credit lines of approximately $7 million are available to the Conservancy for national use through the State Bank of Albany and Manufacturers Hanover Trust Company in New York City. The Conservancy has also received assistance from several other banks and insurance companies in financing specific acquisitions. Recently the organization secured a loan of $8.5 million from Citibank in New York, at the prime rate, to purchase an outstanding tract on Long Island.

The *Guarantee and Income Fund,* a separate fund now at approximately $3.5 million, provides an endowment to the Conservancy and can also be used to guarantee bank loans when the Project Revolving Fund and credit lines are fully used.

The *Land Preservation Fund,* created in 1976, was designed to insure the Conservancy's financial flexibility to preserve major natural areas in the years ahead. The goal was to raise $20 million to be used as a revolving fund for private or governmental land purchases. At the close of 1978 the Land Preservation Fund stood at $18.6 million; by September 1979 the $20 million goal was met; by December 1979 the fund totalled $23 million.

In addition to these sources of financing within the Conservancy, certain federal funding sources should be mentioned.

To help promote the acquisition of significant natural or recreational

areas in the states, the Department of the Interior had several programs that provide matching funds for the acquisition, development, and, in some cases, management of land by states. Undoubtedly the most familiar one is the Land and Water Conservation Fund.[22] If fully funded the Fund would contain $900 million a year, of which as much as $540 million per year would be available to states and local public bodies. The funds are primarily allocated according to population. Thus, each year, Nevada receives the smallest share while California receives the largest.

What makes this program so attractive is that the funds are matched on a 50-50 basis in accordance with the property's fair market value, as established by an approved appraisal. Thus, if a landowner is willing to sell the property for less than its appraised fair market value, the difference between the selling price and the fair market value is considered to be a donation to the governmental agency and can be used as all or part of the governmental body's 50 percent contribution. Given that in many cases landowners can achieve the same after-tax return by selling the property for less than its fair market value and taking the difference as a charitable contribution, the Conservancy has helped many state and local governments use the program to acquire critical lands, even though an agency had little or no money of its own. (Anyone interested in using these funds should contact the state liaison officer in the state where the project is located. There is a great demand for the funds, and the Department of the Interior will not consider any project unless it is submitted and approved by the appropriate state liaison officer.)

Other federal programs administered by the Department of the Interior and used quite extensively are the Pittman-Robertson and the Dingle-Johnson Funds. The monies are available specifically for fish and game management and are used by most states to help cover operating costs. However, they can be used for land acquisition. The funds will match up to 75 percent of the actual cost of the property, but credit will not be given for any donation of value.

(e) Use of other protection techniques: Government Program

In 1970 the Conservancy created a Government Program to keep abreast of legal and administrative matters relative to natural areas and to explore the use and efficacy of other protection planning tools. The Government Program, managed by three staff members, monitors federal and state legislation and administrative actions to determine which affect The Nature Conservancy's objectives. Staff examine, among other things, federal and state legislation involving natural area protection, endangered species protection, land use planning, and the current status of 501(c)(3) organizations with respect to tax exemption.

Early in 1975 the Government Program completed a study for the Department of the Interior on natural area preservation. The report based on the study is entitled *The Preservation of Natural Diversity: A Survey and Recommendations*. The objectives of the study were to determine, to the extent possible, the range and relative effectiveness of existing public and private efforts and techniques to protect the natural heritage, particularly areas possessing outstanding natural values, and to recommend to the Department of the Interior a series of actions that could serve as the basis for coordinated national, state, and local action. Steps are now being taken to encourage implementation of the recommendations at the federal level.

In 1975-76 the Government Program completed two studies for an interagency committee chaired by the Chief Scientist of the National Park Service. These studies, published as Volumes I and II of *Preserving Our Natural Heritage*, systematically examined the roles and efficacy of federal and state agencies and programs in protecting natural areas. They were part of the U. S. contribution to an international effort called for under an Executive Agreement with the Soviet Union on exchange of information about environmental protection.

The Conservancy intends systematically to apply tools other than acquisition in states where reliable inven-

[22]See Chapter Six, section 6.10 in Volume I of the present study for more on the Fund.

tories have been completed. The Conservancy believes that many of these tools can and should be used by government. Thus, a major function of the Government Program is to foster their use in states where the Conservancy has installed Heritage Programs (see section 72.2[f]).

The first task undertaken by the Government Program in Heritage states is the identification of weaknesses in existing protection devices. Using national experience gained from surveys of all state natural area activities, program staff, with help from in-state staff and volunteer experts, produce documents on the types of legislation, regulations, and other tools necessary for the state to protect occurrences of critical ecological elements. The resulting package of protection strategies is presented to the state sponsoring agency for implementation. In the spring of 1976, for example, the state legislature of South Carolina passed a state Natural Heritage Trust Act with provisions for preserving diversity through recognition, dedication, and ownership in trust of the natural areas. The law was based on information provided by the Conservancy. Similarly, the Conservancy recommended that it be given the right to acquire easements and the right to real property tax exemption on its preserves. This legislation was also passed.

(f) Identification

Because of the large number of species and ecosystems facing extinction and the fact that no other private organization or public agency is systematically preserving America's natural diversity, the Conservancy has adopted as its major objectives the identification and protection of elements of natural diversity. These objectives are not easy to fulfill because at present relatively little is known about the overall biological resources of the United States, nor is there a well-accepted classification of terrestrial or aquatic community types in the United States. There are 3 facets of the identification problem, namely (1) identifying all the elements which make up the diversity of the country; (2) finding out which elements already have one or more occurrences on adequately protected public or private lands; and (3) finding out where and how to protect occurrences of elements which are inadequately protected. The Conservancy has been involved in all phases of this task through several inventory programs designed to determine the relative rarity and degree of protection afforded species and communities.

The Conservancy's first inventory was conducted under the chairmanship of S. Charles Kendeigh of the University of Illinois and published as "Nature Sanctuaries in the United States and Canada, A Preliminary Inventory."[23] It was an attempt to compile a list of all worthwhile nature sanctuaries in North America, with a succinct description and scientific evaluation of each. Contained in the inventory are 634 sanctuaries totalling 59,974,548 acres. They include National Parks; National Monuments; state parks; county, city and private parks; wilderness, natural, and "wild natural areas" of state forests; wildlife refuges; university holdings; and protected watersheds.

In 1963 the Conservancy attempted to refine the portion of the above mentioned inventory on university holdings and to determine the adequacy of representation of lands available for scientific research. It prepared a list of 89 areas and their ecosystem components which were then protected. This list was published by the Conservancy in a report entitled *College Natural Areas as Research and Teaching Facilities*.

In 1976 the National Science Foundation contracted with The Nature Conservancy to update existing listings of scientific ecologic reserves and to develop a computerized data management system which would permit continued tracking of the areas and the features they protect. The system would also allow a user to count how many examples of which features are being protected and would thus aid in determining the existence, status, condition, and distribution of significant elements of natural ecological diversity on protected lands. To date approximately 2,500 areas have been stored in the com-

[23] S. Charles Kendeigh. "Nature Sanctuaries in the United States and Canada, A Preliminary Inventory," in *The Living Wilderness*, 15 (35): 1-46, Winter 1950-51.

puter system. They fall into the following categories: Federal Research Natural Areas, Experimental Ecological Reserves, Biological Field Stations, University Affiliated Areas, and sites designated or nominated as natural areas by various survey programs, including those of the Institute of Ecology, the International Biological Program's Conservation of Ecosystems section, and many other federal and state agencies and private groups.

In keeping with its goal of identifying critical natural areas, in 1974 the Conservancy developed its first independent statewide inventory program, the Natural Heritage Program, which was initiated in South Carolina in that year. The state-by-state approach to compiling data on elements of natural diversity has proved extremely effective. Heritage Programs are currently under way in Arizona, Arkansas, California, Colorado, Florida, Indiana, Kentucky, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, New Mexico, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Rhode Island, South Carolina, Tennessee, Virginia, Washington, West Virginia, Wyoming, and in cooperation with the Tennessee Valley Authority. (See section 68.6 for a description of this program.)

(g) Preserve Management/Stewardship

To "acquire" land is not necessarily to "preserve" it, and the Conservancy's goal as stated in its bylaws is to "preserve" land. In order to protect the biological and physical features of preserves retained by the Conservancy, the Conservancy's 1982 Long Range Plan calls for greater emphasis on its stewardship role and administration of the preserve network. (The Conservancy has chosen to use the terms "stewardship" and "steward" rather than "management" and "manager" to emphasize its mission to care for and protect natural areas.) The Conservancy protects properties in 2 ways: (1) by retaining ownership and conducting its own stewardship program; and (2) by transferring management responsibilities to other organizations, usually with protective language in the deed.

Approximately 60 percent of all Conservancy acquisitions are retained for management. Preservation of an area's natural amenities is of the highest priority, but most preserves can accommodate various types of nonconsumptive use. The Conservancy does have a moral obligation to open its preserves to the public to the extent compatible with adequate protection. Usually scientific and education use of Conservancy preserves is not only compatible with preservation, but encouraged. Other uses which have been encouraged include public school tours, resourch by colleges and foundations, trail trips for outdoor groups, hiking, birdwatching, and backpacking. In the master planning process, fragile areas are identified so that procedures can be established which will ensure that they receive special protection. Occasionally public use of the land may jeopardize or destroy natural amenities; in these rare cases, it is excluded.

In some cases land restoration is called for on Conservancy preserves. Land restoration, however, has to date only had limited emphasis because of the cost, the expertise needed, and the fact that the Conservancy has primarily channeled its resources toward acquisition of undisturbed natural areas. However, the Conservancy realizes the importance of the potential of fully reclaiming a disturbed area, and has undertaken experimental programs of restoration on two major types of ecosystems, salt marshes and prairies. In addition, a number of chapters have been involved in land restoration projects. In Connecticut, red pines which died from disease are being removed from preserves and the area restored with endemic species on a limited experimental basis. In Iowa, Illinois, Minnesota, and South Dakota, committees are experimenting with prairie restoration. Illinois is also involved in an extensive land management program to support an endangered bird species. The Long Island Chapter plans a beach stabilization project.

While the Conservancy, as a private organization, is not bound by the terms of the National Environmental Policy Act of 1969 to involve the public in its planning process, the Conservancy's very dependence on volunteers for planning necessitates involvement of large numbers of local citizens and organizations. In a sense the public creates master plans and manages preserves.

Stewardship is the youngest aspect of

The Nature Conservancy's program responsibilities of a professional nature. Between 1953 and 1972, management was carried out entirely by volunteers. Over the years this system worked adequately, and in many cases outstandingly, with very little supervision. Local volunteer preserve stewardship committees still bear the crucial responsibility of safeguarding, for present and future generations, most of the Conservancy's preserves. Effective use of volunteers has been a key to the Conservancy's stewardship success and has allowed it to care for over 660 separate management units with a minimum of financial resources.

However, as the Conservancy began to acquire and retain more and more land, it gradually outgrew the availability of volunteers. As a consequence it developed within its organizational framework a means of providing the necessary stewardship. New staff positions were created within the Conservancy, namely a national director of land stewardship and regional land stewards for each of the regional offices. Their duties are to organize chapter stewardship committees where chapters exist, and local volunteer preserve committees which attend to day-to-day management of individual preserves. On January 1, 1973, the Conservancy hired its first professional land steward; by 1977 there were 5 paid professionals involved in coordinating national and regional stewardship functions. In addition, two Conservancy chapters hired professional land stewards, and 15 preserve managers were hired to care for and develop programs on individual preserves.

The national office is responsible for developing preserve stewardship procedures and policy and reporting through the President to the Board of Governors on the status of the national preserve stewardship operation. Regional land stewards advise the national director of land stewardship of developments in areas which are of national significance.

A paid regional land steward is assigned to each of the four regional offices of the Conservancy. His or her chief function is to assist the 34 Conservancy chapters and 660 individual preserve committees through frequent communication and personal visits. The steward has the day-to-day authority for administering the stewardship program. In those states of geographical areas where no chapter exists, the regional offices fill the function of chapter stewardship committees.

Chapter stewardship committees provide for an overall program of preserve management within a chapter's area. They coordinate the management of specific preserves by ensuring that preserve committees are established for each preserve within a chapter area. They periodically visit preserves to see that they are being adequately maintained, and provide specialized advice on matters requiring professional expertise. They also serve as liaisons with educational and scientific groups in order to promote appropriate use of preserves.

The most vital component of the management system is the preserve committee. It is composed of interested local citizens representing a cross-section of age, vocations, and social backgrounds. Each preserve must be administered by a preserve committee, although one committee may have responsibility for more than one preserve, particularly in areas where separate preserves exist in relatively close proximity to one another.

Preserve committees are fully responsible for preserving the natural ecological integrity of the preserve. To do so they are required to inventory its resources, gather existing data, establish objectives, and incorporate this data into a preserve master plan which spells out suitable uses and necessary preservation.

Approximately 25 percent of the preserves have been inventoried. Plans were to complete this task by 1980. In cases where the committee lacks the background to do inventories, they may contract with universities for student interns.[24] Once the master plan is approved by the regional offices, the committee is responsible for implementing the plan on a day-to-day basis. It has the authority to raise monies to meet costs, *i.e.*, for signs, boundary surveys, educational materials, and even for a salaried pre-

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[24]See Technical Appendix 72.9(k) for the guidelines for preparing the Master Plan, found in the Conservancy's Preserve Management Manual, "The Master Planning Process."

serve director when the preserve has no endowment.

Because the Conservancy is engaged in managing several kinds of areas, including ecological reserves, scientific areas, educational areas, and open space, master plans will naturally differ in scope. As of 1976, all projects of the Conservancy were classified into five broad categories,[25] both for purposes of establishing priorities for acquisition and for general management. The categories were developed in recognition of the fact that Conservancy properties were quite diverse in nature and purpose. The five category approach will facilitate all types of references to the system as a whole.

Conservancy preserves are only protected to the extent that any private land is protected. Many public and semi-public agencies still have the legal power of condemnation. When faced with the threat of condemnation on any of its preserves, the Conservancy has no more legal power to oppose such actions than does any other private landowner. However, by virtue of its position as a national conservation organization, the Conservancy can levy significant public pressure against the agency threatening condemnation. This type of action, combined with the legal remedies available, can be effective.

Many nonprofit organizations like the Conservancy have reached the point where they can no longer adequately manage or retain title to all the land that is being offered them. Very often management expenses are so high that it is impossible for organizations to retain all acquisitions. These organizations feel that they have an obligation to commit their limited resources to identification, acquisition, and management of only the most significant natural areas. Thus, they are transferring the management of some preserves, either by lease or by actual transfer of title, to appropriate government agencies that have the resources to use and protect the land properly.

When the Conservancy transfers titles of land that it owns either to another nonprofit organization or a government agency, it endeavors to ensure that subsequent use of the property will be compatible with the Conservancy's objectives by placing restrictions into the deed and then monitoring the use. Due to the Conservancy's own experience in managing land, it tries to make sure that any restrictions are both realistic and workable. Sometimes, especially when it is dealing with a small local conservation organization, the Conservancy retains a reversionary interest in the property. Should the restrictions ever be violated, the property will automatically return to the Conservancy.

When the Conservancy imposes restrictions on the use of land, it has both a legal and moral obligation to enforce them. However, the old saying that "you can't fight City Hall" holds particularly true when private organizations or an individual tries to enforce restrictions that were placed on property conveyed to a government agency. Legal action can be expensive and time-consuming, with no guarantee of results. In addition, a government agency has the power of eminent domain and can condemn any restrictions on land held by corporations like the Conservancy or individuals in the same manner in which it can condemn the land itself. Nevertheless, while an individual might have a difficult time enforcing the restrictions, the Conservancy has a full-time paid staff supplemented by a national membership that can monitor the use of the lands it conveys to governmental agencies and can exert the pressure of a national conservation organization.

Approximately 40 percent of all Conservancy acquisitions have been transferred by lease or deed to other agencies or organizations for management. The Conservancy inspects these preserves to ensure that use restrictions are being met. A minimum of one inspection tour a year for each reverter property is generally required.

When a property is transferred by sale or lease, the recipient assumes the management expenses. Properties are usually leased for an amount equivalent to all stewardship expenses. In states where the Conservancy does not have real property tax exemption, chapters work toward obtaining exemption or transfer of the properties to universities or other tax-exempt institutions interested in managing the properties for objec-

[25]See Technical Appendix 72.9(1) for land classifications.

tives similar to those of the Conservancy.[26] [27]

(h) Special program

(1) The American Land Trust

Until 1976, private enterprise had not been systematically approached regarding natural area preservation matters. In 1976 a new effort was undertaken in concert with the Conservancy and a group of distinguished business, civic, and conservation leaders of the nation both to sensitize private enterprise to natural area preservation and to generate corporate support for Conservancy objectives. The program, the American Land Trust (ALT), lasted two years and was designed to provide a way for corporations to become involved in land conservation. Through corporate support the trust aimed to preserve at least one significant natural land area of prime ecological importance in each of the 50 states, with a total commitment of at least $200 million worth of natural land.

The ALT program was administered by the Conservancy since the Conservancy had the personnel and experience to handle acquisition as well as the capability to manage the lands after the program's end.

Perhaps the most unique and interesting aspect of the ALT program was the opportunity which it afforded American industry to contribute significantly to the preservation of natural ecosystems. Through this promotional effort corporations were encouraged to channel private resources to public use through donations of land and other assets in return for significant tax advantages and a more favorable corporate image. In addition, many corporate leaders view the contribution of land as a real investment in the nation's future.

The program of the American Land Trust has been adopted by the National Council of State Garden Clubs, which aided in fundraising efforts. Support from additional conservation-related organizations was also sought, with total participation by several million American citizens anticipated. This undertaking is now part of the Conservancy's total program.

(2) The International Program

The Nature Conservancy has recently begun a program to prevent the loss of natural lands outside the United States. The International Program plans a series of carefully selected acquisitions to preserve critical natural areas. Project selection will focus on precedent-setting transactions in the Caribbean, Central and South America, and Canada. The techniques developed by The Nature Conservancy during two decades of land conservation will be made available to other organizations and governments in those regions.

A large and ecologically important tract of tropical rain forest on the Caribbean island of Dominica, about 350 miles southeast of Puerto Rico, has been given to The Nature Conservancy. Called the Middleham Estate, this 950-acre gift by Virginia resident John D. Archbold is valued at more than $1 million. It is the first in which is hoped to be a series of acquisitions throughout the Western Hemisphere.

(3) Trade Lands Program

On December 6, 1980, The Nature Conservancy's Board of Governors formalized and expanded the TNC Trade Lands Program. This action was taken in order to identify new private funding sources to counter double-digit inflation, escalating land costs, a reduction in public funds for land conservation, and greater competition for a comparatively smaller source of charitable funds. It has been estimated that simply to maintain the purchasing power and income generating ability of the Conservancy's $20 million Land Preservation Fund in the face of inflation, $100 million will be needed in this Fund by the year 2000.

Trade Lands, also called Asset Lands and Commodity Lands are defined by TNC as real property with no unique ecological significance. Such property can either be developed real estate, (*e.g.*,

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[26] See Technical Appendix 72.9(m) for a list of the states where the Conservancy is tax-exempt.

[27] See Part Eleven, Chapter 84: Fee Acquisition.

New York City Brownstones) or unimproved land with no ecological value (*e.g.*, crop land, apple orchards, old fields). More recently, oil and gas leases and surplus land acquired with preserves have fallen into this category.

While the Conservancy has been involved in trade land acquisition (usually by gift), and subsequent sales, for many years, these activities have been limited in scope with only a few projects each year. Dollar values have also been small.

The objectives, established in 1980, for the trade lands program are to

(1) acquire and resell trade lands on a national basis to generate $1 million in proceeds by the end of 1982;

(2) apply the proceeds from sales of undeveloped property to natural area acquisition and those of developed property to capital funds unless specified otherwise by the donor;

(3) establish, through the sale of trade lands, a $2 million revolving fund for potential trade land purchases on a bargain sale basis.

72.3 The National Audubon Society

(a) History

The famous artist-naturalist, James Audubon, lived from 1785 to 1851. In the later years of his life he began to observe the widespread destruction of wildlife and the decline of certain species and became quite conservation-minded. His concern was shared by George Bird Grinnell, a pupil of Audubon's wife, and later editor of the magazine *Forest and Stream*. He was also an early leader in the bird protection movement. Throughout much of the 19th century birds especially were being killed in great quantities for commerce and "sport." Game and song birds were hunted for sale to city restaurants as entrees, for their plumes, to stuff as specimens, for ladies' hats, and for oil and fish bait. Almost anything that moved was "fair game" for sport.

In 1886 Grinnell Formed a society for the protection of birds which he called the Audubon Society after the great artist. The Society quickly became national in scope with several thousand members. In 1889 this Audubon Society went out of existence, having no financial support except *Forest and Stream*. It served; however, as the impetus for the Audubon movement and the establishment of many state Audubon Societies, the first in 1896. The Massachusetts Audubon Society and the Audubon Society of New Hampshire were incorporated in 1914, which was also the year the last passenger pigeon died in the Cincinnati zoo.

In 1905 a second national organization, the National Association of Audubon Societies, now the National Audubon Society, was founded and has through the years become a leading organization in many facets of land preservation. With the National Wildlife Federation and others it is in the forefront in reaching a diverse membership and helping them become familiar with the concept of saving habitat and species diversity.

(b) Objectives

The National Audubon Society has, since its founding in 1905, sought to build public awareness of the need to conserve natural resources and the environment. The stated goals of the Society are: "to promote the conservation of wildlife and the natural environment" and "to educate man regarding his relationship with, and his place within, the natural environment as an ecological system." The Society seeks to achieve these goals through the preservation of endangered species, protection of predatory animals, control of polluting pesticides, preservation of areas of ecological significance, and support for national parks, wilderness areas, and wildlife refuges. The other major thrust of the Society is the promotion of environmental education within school systems and the operation of nature centers for teaching environmental values.

(c) Structure of the organization

The Society maintains 10 regional offices throughout the country to coordinate its various activities. Today there are over 350,000 dues-paying members helping to support the Society's programs. More than half the total membership is organized into 375 local chapters. Chapter members pay the $15 annual membership fee to National Audubon, which then

refunds $4 for each membership to the local chapter. Thus, a chapter member is also a member of the National Audubon Society.

Chapters are established according to the specific requirements of the National. Once created, however, they are autonomous and may take positions on specific issues contrary to that of the national organization. Local groups carry out their own programs and acquire wildlife sanctuaries according to local interests.[28]

A number of state Audubon societies have been established in the Northeast which are considered affiliates of National Audubon. These organizations are totally independent, maintaining their own educational and sanctuary protection programs. State Audubon societies exist in Massachusetts, Rhode Island, Connecticut, New Hampshire, Maine, and New Jersey.

As indicated earlier, a major function of the National Audubon Society is to provide educational programs for achieving its goals. Audubon Ecology Workshops provide short training courses for teachers, nature counselors, chapter leaders, and others. Teacher-training techniques are developed and demonstrated at Audubon nature centers. Wildlife films and publications support the educational efforts. The *Audubon* magazine is the voice of the Society; many pages in each issue are devoted to creative photography of the natural world, comments on conservation issues, and reports of threats to the environment.

The Nature Center Planning Division offers professional advice on land use and practical planning services to public or private groups wishing to develop natural lands for educational objectives. Created in 1961 as a result of a merger of Nature Centers for Young America, Inc., and the National Audubon Society, the Division was organized expressly to stimulate nationwide interest in urban green space and natural environments. Operating on a consulting basis, the Division has provided help in establishing nature centers and educational programs in parks and wildlife sanctuaries.

[28]See Section 72.12 for a list of locally-owned sanctuaries.

(d) Protection technique

The other major function of the National Audubon Society is to help protect wildlife habitats and natural areas from encroachment. It accomplishes this in part through management of 64 wildlife sanctuaries located in 18 different states.[29] These preserves range from small offshore islands to a 26,000-acre coastal marsh; in all more than 180,000 acres are under its protection.

Funding for acquisition of natural areas is obtained primarily from private contributions, which constitute approximately 95 percent of its funds. Some additional funds are sought from foundations (5 percent). The acquisition budget has ranged from $100,000 to $1 million a year.[30] Local Audubon chapters may purchase their own sanctuaries independently of the National Audubon.

During the course of a year, 30 staff members may be involved in natural area activities, assisted by 250 volunteers. Overall funding for the National Audubon Society comes from three major sources: membership dues, grants and contributions, and earned income from sales and other services. The total management budget is almost $1 million a year.

More than 90 percent of the National Audubon's areas have been acquired as gifts, with less than 10 percent resulting from outright purchase. Sanctuaries are acquired on the basis of the uniqueness of the flora or fauna and the degree of threat. Additional consideration is given to whether or not an area is close to a metropolitan area, and accessible to a significant number of people, and on the costs of management. Whether or not a potential gift of land has an endowment providing funds for maintaining that property is also an important consideration.

National Audubon sanctuaries are either owned or leased. Leased areas are generally owned by state governments but are managed by local Audubon chapters under cooperative agreements with the National office. Such cooperative agreements are established where a local chapter is able and willing to provide

[29]See Section 72.13 for a list of National Audubon Sanctuaries.

[30]See Technical Appendix 72.9(n) for a 1975 financial report.

the most beneficial management. In the Big Pine Key sanctuary in Florida, 747 acres were purchased by the National Society adjacent to the Key Deer National Wildlife Refuge and were leased without charge to the U. S. Fish and Wildlife Service for management purposes. In operating its sanctuaries, National Audubon considers who is most capable of management.

Many sanctuaries are regularly open for public use, but a few are closed to all visitors because of inaccessibility or the detrimental effects of any human presence (*e.g.*, a nesting area).

(e) Illustrative example: Acquisition of five sanctuaries

The following, taken from the National Audubon Society's *Annual Report Letter*, October 1975, indicates how some sanctuaries were acquired:

> We added five new sanctuaries, one of them--Sydney Island, in the Sabine River on the Texas-Louisiana border--guarded by our first woman warden; it was acquired by lease from the School Land Board of the State of Texas. The other four are Town Islands--Longboat Key, Tampa, Florida, which we acquired by lease (we have a management agreement with the state to protect it); "Bobelain," a gift by the late Robert L. Crandall of Yuba City, California, 430 acres of floodplain along the Feather River in California; Silver Bluff Plantation, a gift of land in South Carolina, by the late Floyd T. Starr and his heirs, where we hope to pioneer ways of harmonizing profitable agriculture and timbering with healthy wildlife and natural beauty; and an island sanctuary off the South Carolina coast named in memory of Alexander Sprunt, Jr., which we have leased from the state of South Carolina and for which a special memorial maintenance fund is being raised.

72.4 *Western Pennsylvania Conservancy*

(a) Objectives

The Western Pennsylvania Conservancy is a citizen's, nonprofit organization supported by contributions. It seeks to preserve land for public use; to teach the importance of conserving water, land, and life systems; and to help individuals and groups with the complex problems of upgrading the environment. Founded in 1931, it is the most active Pennsylvania conservation organization in terms of acquiring lands to protect natural areas. At present the Conservancy owns 10 natural area sites totalling more than 4,500 acres.

The Conservancy focuses its attention on the Western Pennsylvania region and seeks to preserve its sites by

> (a) Acquiring land--over 60,000 acres have been acquired, most of which have been transferred to public agencies for parks, forests, and game lands;
>
> (b) Classifying land--a full-time naturalist works with the Carnegie Museum to inventory natural areas statewide; and
>
> (c) Studying land--two major studies have been completed: one, a major policy study for the Pennsylvania Office of State Planning to develop a land use strategy for the Commonwealth; and the other, an analysis of the carrying capacity of a particularly unique natural area and a proposal for special management practices.

(b) Structure of the organization

The Conservancy's office is located in Pittsburgh. It maintains a core staff of 12, half of whom are professionals, the remaining support personnel. Professional positions are: Chairman, President, Vice President and Counsel, Director of Land Acquisition, Director of the Natural Areas Program, Director of Public Relations, and Administrator of Fallingwater, the Frank Lloyd Wright-designed home now owned by the Conservancy.

The yearly budget ranges from $250,000 to $300,000. About half is raised from membership contributions and responses to an annual fund drive. Membership was estimated to be 7,200 in 1976, although it reaches closer to 25,000 individuals because of family memberships. Approximately 90 percent of the funds used for land acquisition come from private Pittsburgh foundations, mainly those of

the Mellon and Scaife families. The rest comes from private contributions. Operating expenses are met by members dues (one-third), by special individual gifts, grants from corporate foundations, and an annual year-end appeal for funds (one-third), and return on investment of Conservancy Funds (one-third).

The Conservancy conducts surveys every two years to assess attitudes and establish a membership profile. In the 1976 survey, the following demographic profile emerged: median age was 55 years, 50 percent earn $20,000 per year and up, and 77 percent have college or post-graduate college educations. Only 5.7 percent of the membership was under 25 years of age.

The Pennsylvania Land Policy Project, an activity of the Conservancy, was established in 1974 to prepare a report and recommendations for an environmentally sensitive land use policy for the state.[31] The Project received funding from the Department of the Interior's Bureau of Outdoor Recreation and several private foundations and worked directly with the Pennsylvania Office of State Planning and Development. Since completion of the report, the Project has continued to assist the state in its development of a land policy program. It has also been involved in several other activities, most notably a study of Pennsylvania's 10-county Northcentral High Mountain Region

The Conservancy also provides research grants to qualified persons affiliated with colleges, universities, and museums for scientific studies on Conservancy-owned and other designated natural areas.

Its largest special project is Fallingwater, the well-known estate and home designed by Frank Lloyd Wright, which was entrusted to the Conservancy in 1963 by its owner, Edgar Kaufmann, Jr. It is located in the Bear Run Nature Reserve and is open to the public. Admission receipts supply 85 percent of the operating costs of $200,000 per year, while endowments and gift shop receipts supply the balance.

The Conservancy also operates an urban program in the City of Pittsburgh. It seeks to foster amenity and natural beauty by parklet and playground construction, landscaping, and recreation and urban planning grants. Since 1936, over $550,000 has been spent on 85 projects.

(c) Protection technique

The Conservancy uses land acquisition through purchase or donation as its primary means of protecting significant natural areas. Most areas are acquired when the opportunity presents itself, both for natural areas and for land which will eventually be transferred to state or local park systems.

An inventory program of the Conservancy, carried out in conjunction with the Carnegie Museum of Natural History, resulted in the publication in 1974 of "A Preliminary List of Natural Areas in Pennsylvania." It classified over 250 potential and existing natural areas in western Pennsylvania. Of those identified, 34 are completely protected, 13 of which are owned by the Conservancy.[32] The inventory serves as a guide for informally assessing priorities for acquisition. However, opportunity is also an important factor. Through its natural areas inventory, the Conservancy continues to investigate potential sites throughout the state and takes recommendations to public and private agencies.

The following is a sampling of Conservancy projects which indicates the character of the areas and the various means used to ensure protection:

3,000 acres acquired along Muddy Creek in Butler County as a nucleus for Moraine State Park.

300-acre Wildflower Reserve acquired in Raccoon Creek Valley, considered by many as the finest concentration of wildflowers in southwestern Pennsylvania, now under lease to Raccoon Creek State Park.

Over a 7-year period, 10,000 acres acquired along the Youghiogheny River in Fayette County for creation of Ohiopyle State Park.

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[31] *A Land Use Strategy for Pennsylvania: A fair chance for the "faire land" of William Penn,* and other supplementary studies.

[32] See Section 72.14 for a list of Western Pennsylvania Conservancy Preserves.

Final parcels added to Jennings Nature Reserve, now under lease to Slippery Rock State College.
Acquisition of Wattsburg Fen in Erie County, the site of a unique assemblage of rare, wild orchids.
Nine and Fourteen Mile Islands in the Allegheny River donated by the McDonough Corporation.
200-acre Schollard's Run Wetlands in Mercer County and 1,850 acres along the Conemaugh Gorge transferred by the Conservancy to the Pennsylvania Game Commission.
A 16-acre tract in Allegheny County donated to the Conservancy by the Henrici heirs, transferred to the county for use as a nature center.
A 60-mile railroad right-of-way for a hiking and cycling trail planned for donation to the Conservancy by the Western Maryland Railway.

Purchased or donated areas may be transferred to state and local agencies with appropriate management capabilities, leased to other entities such as colleges for scientific research, or retained by the Conservancy for its own programs. Donated areas with no particular natural significance are accepted by the Conservancy unless there are restrictions on future use.

The 10 areas which the Conservancy owns and manages contain examples of representative forest types, bogs, natural vistas and scenic areas, ground cover communities, meadowlands, rare plant communities, and threatened species. The 3,500-acre Bear Run Reserve contains a number of stages of forest regeneration, from abandoned fields to pine plantations and maturing oak forest. Combined with the Ohiopyle State Park, it is one of the largest representative and illustrative natural sites in Western Pennsylvania. The Wildflower Reserve features herbaceous communities in a variety of habitats, from cliffs and dry ridges to perennially wet flood plains. Its botanical uniqueness makes it a natural history laboratory. The 300-acre Jennings Nature Reserve is leased to Slippery Rock State College as a center for environmental education and is also open to the public.

Each area has a master plan, developed by the Conservancy's naturalist, which outlines management guidelines. Only the Fallingwater property has a full-time manager; the other properties are checked occasionally by staff. Volunteers are used sparingly in managing areas.

(d) Illustrative example

The following is an example of how the Western Pennsylvania Conservancy operates. It is taken verbatim from the publication *Conserve,* Vol. 18, No. 2 (July 1976) 1.

Conneaut Marsh

Conneaut Marsh is a 5,324-acre wetland fed by Conneaut Lake in Crawford County. It lies in a glacial-filled valley that begins at the mouth of Conneaut Lake (Pennsylvania's largest natural inland lake), and extends east-southeast about 10 miles to the community of Calvin Corners.

Although the area is named Conneaut Marsh, it is actually a three-part land system composed of marsh, second-growth upland woods, and abandoned farm fields. Because of its varied habitat and plentiful water, the area has a rich diversity of waterfowl, song birds, mammals, amphibians, and vegetation.

Conneaut Marsh was a favorite hunting spot of the late actor Clark Gable. He visited relatives living in the area several times during the late 1930s, and was accompanied by Carole Lombard on one occasion.

The Pennsylvania Game Commission recognized the natural significance of Conneaut Marsh and, by 1972, had acquired the major portion (4,640 acres) which is designated State Game Lands 213.

However, a potential problem in this area came to the Conservancy's attention several years ago. While the Game Lands offered protection to most of the marsh, a 684-acre parcel contiguous to the marsh at the mouth of Conneaut Lake was still privately owned (see map).

This was especially worrisome since the outflow of the lake is the marsh's main source of water. If this section were to be developed into a residential or commercial complex, the ecological balance of the entire marsh would be imperiled.

What transpired over the next years is a classic example of the complexities

our land acquisition people face in many Conservancy projects.

To begin with, the 684-acre parcel was owned by *four* nonresident family members, each with a one-fourth undivided interest in the property. The sheer logistics of meeting with the individuals and their legal counsels was a tedious, time-consuming process. Finally, after months of negotiations, three of the four owners agreed to sell and the Conservancy held a three-fourths interest in the tract.

However, the fourth owner felt the marsh had development potential, so the Conservancy was forced to initiate an "action of partition" in the Crawford County courts. We won't bore you with the legal details, but this is a complicated proceeding wherein the fractional owners bid privately for the purchase of the entire property.

While this was going on, the fourth owner also tried to have the zoning of the property upgraded in order to justify a higher value in the bidding. The battle then moved to the Sadsbury Township Planning Commission.

Conneaut Lake residents who recognized the value of retaining the marsh in its natural state went into action to help preserve its conservation classification. They drummed up support by attending public meetings, writing and calling officials, and generally letting it be known where they stood on the future of the marsh.

Their perseverance paid off. The township supervisors reaffirmed Conneaut Marsh's classification for conservation use. Finally, on Christmas Eve of 1975, the fourth owner came to terms and relinquished his interest in the property. Shortly thereafter, the Conservancy took possession.

Was it worth it?

Because of its location, this newly acquired parcel could best be protected by inclusion in State Game Lands 213. So the land was ultimately conveyed to the Pennsylvania Game Commission at cost.

72.5 Acres, Inc.

(a) Introduction

Indiana has numerous natural features, ranging from the dunes on the southern shore of Lake Michigan, where native jack pine and white pine are found, to the oxbow lakes found in the southwestern corner, where such species as bald cypress and pecan grow and where the Wabash empties into the Ohio River. Tallgrass prairies extend into Indiana in the west, and smaller oak openings are scattered throughout the northern portion of the state. Hardwood forests may be found throughout the state. It has been determined that pre-European settlement vegetation in Indiana consisted of 87 percent forests, 10 percent wetlands, and 3 percent dry prairie.

Indiana, as with much of the rest of the American heartland, has no area to which the term "wilderness" may today be applied. However, the state still contains a number of high-quality natural areas. These were enumerated in the 1969 inventory by Lindsey, Schmelz, and Nichols, *Natural Areas in Indiana and Their Preservation,* which is used as a guide by the state Nature Preserve System and Indiana private preservation organizations, including Acres.[33]

Acres, Inc., a small, local organization that acquires natural areas, retains ownership, and manages the areas acquired, is concerned with nine counties in northeastern Indiana. The land it owns is located in part of the northeastern morainal lake district, which contains over 600 natural lakes.

(b) History and objectives

Acres is a not-for-profit corporation dedicated to the acquisition and preservation of natural lands in northeastern

[33]See also Part II: Academic Institions, Chapter 86: Environmental Analysis.

Indiana. The areas are open to the public for scientific, educational, and outdoor enjoyment. Land acquired during the organization's first years of existence came from donations from interested parties. Only in the last few years have funds been available for purchasing natural areas.

Acres was formed in 1960 by a small group of people from Northeastern Indiana who had been working on the Indiana Dunes National Lakeshore proposal. Although the founders knew that Northeastern Indiana contained neither as large nor as significant areas as the Indiana Dunes, they felt a duty to save areas near home. One prominent organizer, a lawyer, drew up the corporate papers, handled the first transaction, and continues to do most of the legal work. In 1967 he wrote the Indiana Nature Preserves Act. Other organizers were local Soil Conservation Service representatives who helped Acres obtain their first gifts of land because of their knowledge of local people who were interested in preserving their land.

(c) Structure and operation

Acres has approximately 500 members, whose dues cover operating expenses. The organization is governed by a 15-person board of directors, mainly elected by the general membership. The board also contains 3 additional appointed members, one each from The Nature Conservancy, the Indiana Department of Public Instruction, and the Indiana Park and Recreation Association. Representatives from the Carnegie Museum, Purdue University constitute a National Advisory Board.[34]

Acres' net assets were $136,112 in FY 1975-76, including cash, land, and improvements. A land acquisition savings account and a recent memorial gift savings account were part of these assets. Disbursements for that period were $8,402, of which $2,108 was for operating costs and $5,000 for acquisition of land.[35] The anticipated operating budget for FY 1976-77 was $2,720.[36] Staff time was entirely voluntary, with 25 volunteers involved in natural area activities in the past 12 months.

Although Acres' main activity is acquisition of natural areas primarily through donations, other activities include education of membership about natural areas through the publication *Acres Quarterly,* naturalist-guided field trips in the spring and fall, and slides and movies promoting natural area preservation in the winter.

Partly due to its limited territorial involvement, Acres effectively follows local decisions which affect natural areas. A decision by the Noble County Commissioners Drainage Board to channelize three branches of the Elkhart River was reversed through the organization's efforts. Acres argued in a local court that the Drainage Board petitions contained eight deficiencies, among them the absence of the required signatures of 10 percent of the property owners to be affected.

(d) Protection technique

Acres acquires natural areas in order to

(1) offer a preservation opportunity to landowners who welcome a way to perpetuate and salvage a natural area,

(2) provide a way for donors who might want to fund an entire area's purchase as a memorial, and

(3) provide a way for many smaller contributors to participate in preserving natural areas nearby, where they live and work.[37]

Sites are selected to represent a typical natural feature of Northeastern Indiana as, for example, different vegetative cover types found in the area. The organization states that all remaining natural areas or areas reverting to their natural state are significant and a review priority of the organization. Other considerations in site selection are the degree of protection which the site will require and its size. If the land is a gift, the main consideration

[34]See Technical Appendix 72.9(o).
[35]See Technical Appendix 72.9(p).
[36]See Technical Appendix 72.9(q).

[37]The Nature Conservancy Questionnaire, *Survey of Natural Area Activities 1976: Acres, Inc.*, p. 4.

is management capability; other factors are not as strictly considered. If the land is to be purchased, additional considerations must be applied, such as the ability to fund the acquisition, availability of the property, and cooperation of the seller--*e.g.*, whether the seller would consider receiving less than the appraised value and making a gift of the balance. The board has an acquisition committee in charge of this main activity.

Acres manages 13 areas, 3 acquired through donation in late 1976. Ten are owned and managed by the organization. Three are leased at one dollar per year. Acres is slated to receive 2 of these areas in the will of the present owner and has a 10-year lease on the other. Total acreage owned and/or managed is 618.[38]

The largest reserve is the 180-acre Ropchan Wildlife Refuge near Fremont, Indiana, in Steuben County. This was bought with a donation from Sam and Adeline Ropchan, given for the purchase of a reserve to be named for them.[39] The area is wooded with a rolling topography and includes an entire glacial lake, open wetlands, and a tamarack marsh. The smallest area is Hanging Rock Natural Area, a 1-acre geologic reserve consisting of a coral outcrop with herbs and cliffbrake ferns. Other areas run from 7 to 90 acres and include woodlands or sphagnum and tamarack bogs.

Management of the areas involve "work days," formerly held in the spring and fall but now also in the winter. The work consists of clearing trails, painting markers, picking up litter, and sometimes removing dead trees from riverways. The board of directors has a Reserve Management Committee in charge of this. Recently one member accepted the assignment of coordinating the management of all reserves. Board members also have responsibility for a work day at a specific reserve. The organization tries to involve someone who lives near the area in this work, on the theory that this person will take a proprietary interest and watch the reserve at other times. There is often concern in the surrounding community that an area open to the public might be subject to improper use. Other local people have been asked to lend their expertise; for example local farmers have been solicited to help mend fences. The times, dates and contact person for each work day are published in *Acres Quarterly*. All labor is volunteer.

The group maintains a master file on nature reserves, containing maps, trail maintenance material, tasks and dates accomplished, the name of the nearest friendly neighbor, and other basic information. Master plans have not been prepared due to staff limitations.

Acres has working agreements and alliances with several national and local private organizations and the state Division of Nature Preserves, Indiana Department of Natural Resources. Under a strong working agreement with The Nature Conservancy, the Conservancy will pick up land options for the group which Acres later pays for through donations and fundraising. The Conservancy and Acres are currently working on a joint project at Olin Lake for a state nature preserve encompassing an entire northern Indiana lake. Other groups with which Acres maintains working relationships are the Merry Lea Environmental Center, Izaak Walton League, KEEP (Koscuisko County), the Fox Island Alliance, the Crooked Lake Property Owners Association, the Oliver Lake Association, the Steuben Lakes Council, and the local Audubon Society.

The Crooked Lake Property Owners Association is an example of a local private group taking the initiative to raise money to buy a significant area. An auction jointly sponsored with Acres raised enough to pay for an option on the property. The Crooked Lake Association has also raised $75,000 and Acres $25,000 toward the purchase price of $250,000. The groups worked to get $150,000 appropriated in state funding. The area is now held by the state in Indiana's Nature Preserve System.[40]

For added legal protection, Acres has dedicated 6 of its 13 reserves into the State Nature Preserve System. They receive some surveillance and enforce-

[38]See Section 72.15 for a list of Acres, Inc., Reserves.

[39]See Technical Appendix 72.9(p) for the annual report.

[40]See Technical Appendix 72.9(r) for information on Crooked Lake.

ment of rules by state Conservation Officers.[41]

Acres is a local group working with local funds and local volunteer labor. It has the advantage of being familiar to local landowners; members may be trusted friends or neighbors of prospective donors. If additional resources or person-power were available, Acres states that it would be inclined to begin a direct contact program with all owners of remaining open land and speed up preservation efforts by using various techniques of land acquisition, including conservation easements.

(e) Illustrative example: Ropchan Memorial Nature Reserve

The following example of an Acres Nature Reserve is taken from the article, "Indiana Nature Preserves," written by William Barnes, Director of the Indiana Division of Nature Preserves, and reprinted from *Outdoor Indiana*. (This Acres area is a dedicated reserve.)

> Sam and Adeline Ropchan gave these 77 acres in Steuben County as a living memorial for the inspiration and education of all generations under the stewardship of Acres, Inc. It is protected and managed by this private preservation organization.
>
> The diversity of geological features, with morainal ridges, kettle holes, swamps and bogs, contributes to a good floral distribution. Sandy loam ridges surround pockets of muck and peat. These higher and drier portions support associations of Shagbark Hickory, White Oak, Red Oak, Black Oak, Wild Black Cherry and Sassafras, interspersed with occasional clumps of Largetooth Aspen.
>
> Red Maple becomes common, as soil moisture increases in lower slopes, and this tree dominates where water remains on the surface. Tamarack replaces Red Maple in the deeper peat pockets and swamps. A lone native White Pine stands in a boggy area where a long pole, probed through the Sphagnum Moss, never reaches a solid bottom.
>
> The dispersion of soil types results in an understory of Hazelnut, Dogwood, Arrowwood, Gooseberry, Virginia Creeper and Poison Ivy among brambles of Blackberry and Raspberry on dry sites. Prickly Ash, Mapleleaf Viburnum, Bittersweet and Highbush Blueberry become more frequent on lower ground bordering Red Maple swamps that are edged with Winterberry and the rarer Mountain Holly. In places shallow-rooted Red Maples have falled and created hummocks covered with the large spreading fronds of Cinnamon Ferns.
>
> On the sandy upland Bracken Ferns are interspersed with Pointedleaf Tickclover, False Solomon's Seal, Wild Cicely, Wild Geranium, Black Snakeroot, Common Cinquefoil, Wild Sarsaparilla and different Bedstraws. False Rue Anemone, Golden Alexanders, American Vetch, Yellow Pimpernel, White Lettuce, Fox glove, Whorled Loosestrife, Roundlope Hepatica and Rattlesnake Fern reflect increases in soil moisture.
>
> This Nature Preserve may be reached by going 2 miles east of Orland on State Highway 120, then 40 rods north on Steuben County Road 750 West to the parking lot.

72.6 *Land Conservation Trusts*

(a) Introduction

Because of increasing land values and tax assessments, private landowners are finding it difficult to keep their land. Likewise communities often cannot afford to preserve the open space they need. Land conservation trusts have been created in response to this dilemma and offer a constructive solution, according to a *New York Times* article.[42] The author, Mary Anne Guitar, past president of The Redding Land Trust in Connecticut, explains that land conservation trusts are private, nonprofit service corporations organized by local citizens and authorized under federal and state laws to accept and manage gifts of land or easements. They are "public trusts" in that the lands are held for the bene-

[41] See Chapter 73: Dedication.

[42] Mary Anne Guitar, "Land Trusts for Open Spaces," *The New York Times*, February 2, 1969.

fit and enjoyment of the entire community.[43] Because trusts are devoted to educational, scientific, and charitable work, their holdings are exempt from property taxes, and contributions are tax deductible. If the trust can also demonstrate that it is a "publicly supported organization) (according to IRS standards), donors of land or money can enjoy an extra 10 percent charitable deduction and carryover.

In general the trusts are established at a community, village, or town level, with their activities limited to those political jurisdictions. Land trusts became prevalent in the New England region with the "environmental awakening" of the sixties. Within the New York metropolitan area, Connecticut leads the trust movement. The idea drifted down to that state from Massachusetts, where there has been strong sentiment in favor of private preservation efforts. Connecticut has 169 incorporated towns; there are land trusts in 77. Land trusts have also been established in Massachusetts and Rhode Island and have become the model for several private conservation organizations, including the Block Island Conservancy, which in 1972 modeled its articles of association and bylaws after those of the New Canaan Land Conservation Trust established 5 years earlier, with adaptations to meet the special circumstances of Block Island. Several corporations are being formed in New York State to operate as land trusts. In New Jersey the tax structure has so far prevented conservationists from starting land trusts, since that state has no provision for tax abatement on land in the state held by a trust. In the west there are 26 existing land trusts according to a 1980 survey of western land trusts conducted by the Trust for Public Land (TPL). These have primarily been incorporated since 1975.[44]

The land trust has proved to be a flexible instrument for securing open space, meeting the needs of land donors, and providing stewardship over community lands. In Connecticut land trusts have managed to save 12,000 acres for prime open space.[45] Most have been gifts, but in some cases the trusts have raised money to buy the land. The Aspetuck Land Trust bought 13.6 acres in the northwestern corner of Fairfield, Connecticut, a piece which abuts an 8.6-acre woodlot already owned by the town. The trust calls this kind of emergency operation "preventive conservation." Funds came from contributors in all four towns served by Aspetuck--Weston, Westport, Fairfield, and Easton. In New Milford, Connecticut, the Lions Club raised enough money to buy 70 acres on Long Mountain and gave it to the Weontinoge Trust. In the west over 6,500 acres of open space were brought into community control between 1975 and 1980.[46]

In general land trusts rely on gifts of cash from individuals and membership dues for their operating income. A certain amount of fundraising is done to pay for surveys, legal services, and land management educational programs. They depend primarily on donors for their principal asset, land. According to the TPL study the total annual income of western land trusts responding to the questionnaire ranged from $148 to $68,000 (exclusive of donations of in-kind services and interests in land). The Napa County and Sonoma Land Trusts estimated that they had preserved $20 worth of land for every dollar received.[47] Those who manage the trusts are volunteers and receive no financial compensation.

Although trusts are set up to serve the needs of private donors, they have been useful in efforts to implement a town's open space program. Trusts have, in many cases, complemented the work of municipal conservation commissions and other agencies involved in land use. In towns which have an open space provision in their subdivision regulations, according to which developers must donate a portion of their acreage to open space, local trusts are often asked to accept and manage this public land. An example of this, which is cited by Guitar in the

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[43]See Chapter 74: Trust Dedication, for a discussion of a public trust at the state level.

[44]Kirby Ortiz de Montellano, "1980 Survey of Western Land Trusts: Summary Report," prepared for the Trust for Public Land, February 13, 1981, p. 1.

[45]Suzanne C. Wilkins, letter dated March 26, 1981.

[46]*Op. cit.*, Montellano, p. 11.

[47]*Ibid.*, p. 10.

Times article, occurred in Madison, Connecticut, where developers must observe a minimum lot size, but have the option of clustering houses together and donating the remaining acreage to the local land trust for a common green. Industries are sometimes asked to provide a buffer zone of undeveloped land when they settle in suburbia. The land trust can take responsibility for such a greenbelt. "In Westport the Glendinning Company gave the Aspetuck Land Trust approximately 25 acres of river property to use as a nature preserve." This land will also serve as a buffer zone around the company's plant. "The Great Meadows Conservation Trust is dedicated to keeping the meadowland along the banks of the Connecticut River safe from development; it recently received a small tract of meadow from the United Aircraft Corporation."[48]

In many cases, a donor prefers to give open land to a trust rather than to a town. Two reasons are often mentioned. For one, donors cannot be sure the town will accept their gift. Second, justifiably or not, some donors are afraid the town might not keep the land open.

"When a gift is made to a trust, it is off the market forever, and the donor's restrictions on its use or development are strictly observed."[49] A donor may give his land to a trust with the understanding that it be conveyed to the town with a reverter clause.

"Land trusts are usually not in competition with other groups able to buy or accept open space. They tend to supplement the efforts of these groups by giving donors the option of keeping their gifts in local hands. Many landowners are sentimental about their home town and would like to see land donations managed by a local board of trustees." Sometimes, too, the open space lands that trusts may be interested in are of only local significance and would not be of interest to national or state organizations. Thus, they can enrich the preservation work of state and national conservation organizations and can serve as an alternate to the town in managing open space.

Another advantage of trusts is that organizations may have to ask for an endowment to subsidize the expenses of a field staff, while a land trust is able to handle management through volunteer efforts. "In Madison, a "watchdog committee" keeps an eye on some 17 properties scattered throughout the town. Each parcel has its own "watchdog" who lives nearby. Maintenance on most trust parcels consists of keeping trails clean and marked, cutting back the tree line, or planting shrubs for bird food and cover. Matching grants to pay for this kind of management are available from the Soil and Water Conservation Service."[50]

In towns where young people have been brought into the conservation program at an early age there has been little vandalism. Instead, a sense of stewardship is encouraged.

Equally significant are the educational, land management, and community involvement projects undertaken by these organizations. Through these projects land trusts are enriching the cultural and recreational opportunities of the communities they serve while reducing the burdens of government.[51]

The biggest problems facing trusts today seem to be (1) maintaining membership and public interest; (2) investigating and incorporating more active management practices as they deal with their parcels; (3) justifying the value of open space in the face of increasing pressures on local tax revenues; and (4) preventing property misuse.[52]

(b) Illustrative example: New Canaan Land Conservation Trust

(1) History and objectives

One of the most successful land trusts in Connecticut is the New Canaan Land Conservation Trust formed in 1967 by private citizens who wanted to find a way to protect relatively small "chunks of nature" in a town where population growth was threatening remaining open space and wildlife habitats. This privately initiated land preservation organization was started because town governments were reluctant to accept gifts

[48] *Op. cit.*, Guitar.
[49] *Ibid.*
[50] *Ibid.*
[51] *Op. cit.*, Montellano, p. 11
[52] *Op. cit.*, Wilkins.

of land whose volume and size would be difficult to manage. The land trust was set up to acquire lands that would meet New Canaan's need for small areas of natural significance.

According to its brochure entitled "How the land trust can help you protect New Canaan's natural charm . . . ," the trust operates by:

(1) Accepting gifts of land, money, or securities;

(2) Accepting easements or restrictive covenants which prohibit development;

(3) Negotiating agreements between adjoining landowners to restrict development;

(4) Fundraising to finance acquisition of desirable open lands which cannot otherwise be acquired by the land trust; and

(5) Promoting citizen interest in open space preservation.[53]

(2) Structure of the New Canaan Land Conservation Trust

The New Canaan Land Conservation Trust is a corporation founded under the laws of Connecticut. The articles of association provide for a board of directors, to include as an ex-officio member the current chairman of the Conservation Commission of the Town of New Canaan. Membership by a representative of the town Conservation Commission assures liaison and a degree of coordination with a quasi-governmental body with similar interests.[54]

The Trust, a tax-exempt 501(c)(3) organization entitled to the benefits provided under IRS regulations, is primarily volunteer supported. It is also exempt from state and municipal betterment taxes, *e.g.*, taxes for water, sewer lines, streets, and sidewalks, and from the conveyance tax on deeds of gifts of land.

Membership dues are $10 per year. To vote on land trust business, a member must also be a town resident. In 1974 membership consisted of 380 families representing about 1,000 people with a total population of 20,000.

The yearly budget ranges from $4,000 to $5,500. The main expenses are surveys and printing and mailing of printed material. The town of New Canaan has provided the Trust with a permanent office in the Community House.

The president of the Trust serves as legal adviser and spends almost full-time on Trust business.

(3) Protection technique: Acquisition and management by the New Canaan Trust

Acquisition of title to areas through outright gifts is the aim of the Trust. To date it has acquired 33 gifts totaling 137 acres at 28 locations. Almost three-quarters of these sites range from 2 to 5 acres. The largest is 21 acres. The land trust also has under its supervision 9 easements covering 35 acres.[55]

When a donor makes a gift of land, the Trust attempts to hold down the costs of the transaction by asking appraisers and surveyors to contribute their services. An Appraisal and Survey Committee of the land trust works with the donor and his attorney in expediting the gift process.

Donations of land or easements in perpetuity to the tax-exempt Trust qualify as deductions for federal income tax purposes. For easements, the town of New Canaan will reduce tax assessments of the affected property by 50 percent, provided the easement is for at least a 10-year period.

The articles of association also provide for the transfer of Trust-owned property to the town of New Canaan in the event the corporation is terminated. Under this circumstance, should the town refuse to accept the property, ownership would first be offered to The Nature Conservancy and then to the National Audubon Society.[56]

Areas donated to the Trust are held in a natural state with no improvement. Although the New Canaan community may

[53]See also Technical Appendix 72.9(s) for a certificate of incorporation of another trust: the Redding Land Trust.

[54]See Part Twelve, The Role of Local Government, Chapter 90--Notification Education.

[55]See Technical Appendix 72.9(t) for a map of the easements.

[56]See Technical Appendix 72.9(u).

use the areas, access is by permission and under supervised conditions. Donated properties are clearly marked to prevent trespass. A volunteer maintenance committee periodically inspects them.

(c) Illustrative examples: Gift of land to a trust and assemblage of adjoining properties as gifts to a trust

A landowner who felt compelled to sell his 100-acre tract because of tax pressures wanted to preserve the little stream that ran through his property, the bog where wildflowers flourished, and a ridge that commanded a view of the valley. However, he also needed to get back his original investment. A trust suggested that he sell the best land for development which, at today's prices, brought him a healthy profit on his investment. He then gave the conservation acreage to the trust, and this charitable deduction offset profits from the sale. He and his fellow townspeople will benefit because the stream, bog, and ridge will remain unspoiled forever. The owner fulfilled his commitment to conservation and came out ahead both financially and environmentally. While the town lost tax revenues when the trust's share was conveyed, the open space requires no town services and is vitally important for a livable environment.

In another case a gift of an 11-acre parcel to the New Canaan Land Trust resulted when four families decided to give a portion of their adjoining properties. In a long, involved effort, the Trust amalgamated some of the contiguous land and excess land into an 11-acre parcel. Twelve segments of open fields and rolling hills were involved, with nine deeds required to complete the transaction.

(d) The future of land trusts: The Connecticut model

Land trusts have been considered an important tool in offering communities a private grassroots alternative to natural area protection. Former Secretary of the Interior Stewart Udall stressed the importance of citizen participation in natural area preservation when he stated

> Those of us fighting the battle to acquire land and to save it from the seeming inexorable march of the bulldozer and concrete mixer obviously cannot do the whole job. The real work, and the most meaningful in the long run to the citizen where he lives, must be done at the local level by people with imagination and vision.[57]

Connecticut leads the nation with 77 land trusts,[58] through which over 12,000 acres have been protected.

While that record is impressive for a volunteer activity, the record could be improved with increased professionalism and coordination. The Nature Conservancy, in a proposal written in December 1975 for a Land Trust Service Bureau, pointed out two drawbacks to the present land trust movement: the lack of communication among trusts, even in neighboring towns; and the lack of experience of participants in solving highly technical real estate problems. These deficiencies have caused many trusts to "reinvent the wheel" or to turn continually to other private conservation organizations for advice.

The Nature Conservancy, which has been called upon for assistance numerous times, has found that because of its limited resources and narrow focus, *i.e.*, endangered species and habitat, many trusts have lost opportunities to save land due to lack of experience. It found, too, that some have also risked mistakes that could have jeopardized the private land conservation movement across the state. In one situation a local land trust was receiving gifts of money and land without having received its tax exempt status determination from the Internal Revenue Service. Another trust was about to enter a suit which it would have most surely lost and for which it did not have the financial resources. Still another was about to accept a gift of land with restrictions which the trust could not have upheld

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[57] *Op. cit.*, Guitar.

[58] See Technical Appendix 72.9(v) for a list of Connecticut land trusts.

due to its "publicly supported" tax-exempt status.

In other cases land trusts could have been more effective in protecting areas of critical environmental concern if they had known how to identify such areas and had understood the many techniques of acquisition available. In addition, land trusts often do not know how to acquire areas at lower purchase prices or through gifts or bargain sales, nor are they trained in interpreting existing Internal Revenue Service regulations concerning donations to charitable organizations.

As a result, in 1974 The Nature Conservancy decided to meet with a group of land trusts representing every region in the state and to investigate the possibility of setting up a Service Bureau to assist them on a statewide basis. This Service Bureau program, which would train land trust volunteers in the techniques of acquisition and management, was explored by Guitar in visits with Connecticut Trusts throughout 1976. At its annual meeting in May 1977, the Connecticut Chapter of The Nature Conservancy was to consider the possibility of funding such a bureau. It did so and the Connecticut Land Trust Service Bureau, jointly sponsored by The Nature Conservancy and the Conservation Law Foundation of New England, was established in July 1980. The Bureau is funded as a two and a half-year project with a staff of one full-time and one part-time employee. An operating handbook is currently being prepared for land trust use.

D. Information and Bibliography

72.7 Key Information contacts

John M. Anderson, Sanctuaries Director
National Audubon Society
Miles Wildlife Sanctuary
West Cornwall Road
Sharon, Connecticut 06069
(203) 364-0048

Charles H. Callison
Former Executive Vice President
National Audubon Society
950 Third Avenue
New York, New York 10022
(212) 832-3200

Ray Culter, Former Vice President
Stewardship
The Nature Conservancy
1800 North Kent Street
Arlington, Virginia 22209
(703) 841-5351

Jane Dustin, Secretary
Acres, Inc.
1802 Chapman Road
Hunterstown, Indiana 46748
(219) 637-6264

Jennie Gerard, Director
Land Trust Program
The Trust for Public Land
82 Second Street
San Francisco, California 94105
(415) 495-4014

Mary Anne Guitar, Past President
The Redding Land Trust
Old Redding Road
West Redding, Connecticut 06896
(203) 938-2043

Jack D. Gunther, President
New Canaan Land Conservation Trust, Inc.
72 Park Street
New Canaan, Connecticut 06840
(203) 966-4697

Robert E. Jenkins
Vice President, Science
and
David E. Morine
Vice President, Land Acquisition
The Nature Conservancy
1800 North Kent Street
Arlington, Virginia 22209
(703) 841-5300

John C. Oliver, III
Director of Land Operations
and
William L. Randour
Director of Public Relations
Western Pennsylvania Conservancy
316 Fourth Avenue
Pittsburgh, Pennsylvania 15222
(412) 288-2773

Charles L. Scott, II, Director
Southeast Regional Office
The Nature Conservancy
35 South King Street
Leesburg, Virginia 22075
(703) 777-7760
Re: Connecticut Land Trusts

Anthony P. Suppa
Manager, Land Acquisition
and
Joshua C. Whetzel, Jr., President
and
Paul G. Wiegman, Naturalist
Western Pennsylvania Conservancy
316 Fourth Avenue
Pittsburgh, Pennsylvania 15222
(412) 288-2773

Hardy Wieting, Jr., Legal Advisor
Government and State Natural
Heritage Programs
The Nature Conservancy
1800 North Kent Street
Arlington, Virginia 22209
(703) 841-5325

Suzanne C. Wilkins, Director
Connecticut Land Trust Service Bureau
P. O. Box MMM, Wesleyan Station
Middletown, Connecticut 06457
(203) 344-9867

George Wills, Executive Director
American Land Trust
The Nature Conservancy
1800 North Kent Street
Arlington, Virginia 22209
(703) 841-5375

Dennis Wolkoff, Director
Indiana Field Office
The Nature Conservancy
Route 1, Box 155
Nashville, Indiana 47448
(812) 988-7547

Michael Wright, Former Director
International Program
The Nature Conservancy
1800 North Kent Street
Arlington, Virginia 22209
(703) 841-5300

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72.10 List of other organizations which acquire natural areas[59]

Alaska
- Alaska Conservation Society
- National Audubon Society

California
- Big Sur Land Trust
- California Trout, Inc.
- Conservation Associates
- East Orange Open Space Management Corporation
- Hammonds Meadow Preserve
- Humboldt North Coast Land Trust
- Jefferson Land Trust
- The Land Trust of Santa Cruz County
- Marin Agricultural Land Trust
- Napa County Land Trust
- Peninsula Open Space Trust
- Save-the-Redwoods League
- The Sierra Club Foundation
- Sonoma Land Trust
- Trust for Public Land

Colorado
- Colorado Open Land Foundation
- Mesa County Land Conservancy

Connecticut
- Aspetuck Land Trust, Inc.
- Avon Land Trust
- Barkhamsted Land Trust
- Bethany Conservation Trust, Inc.
- Bethel Land Trust, Inc.
- Bethlehem Land Trust
- Branford Land Conservation Trust, Inc.
- Brookfield Open Space Legacy
- Canton Land Conservation Trust, Inc.
- Cheshire Land Trust, Inc.
- Clinton Land Conservation Trust, Inc.
- Connecticut Audubon Society
- Connecticut River Watershed Council, Inc.
- Deep River Conservation Trust
- East Granby Land Conservation Trust, Inc.
- East Haddan Land Trust
- East Lyme Land Conservation Trust, Inc.
- Enfield Land Conservation Trust
- Essex Conservation Trust, Inc.
- Flanders Nature Center
- Farmington Land Trust, Inc.
- Goshen Land Trust, Inc.
- Granby Land Trust, Inc.
- Great Meadows Conservation Trust, Inc.
- Greenwich Land Trust, Inc.
- Guilford Land Conservation Trust, Inc.
- Haddam Land Trust, Inc.
- Hamden Land Conservation Trust, Inc.
- Harwinton Land Conservation Trust, Inc.
- Housatonic Valley Association
- Joshua's Tract Conservation and Historic Trust
- Killingsworth Land Conservation Trust
- Kongsent Land Trust
- Land Conservancy of Ridgefield, Inc.
- Land Trust Division of Greenwich Audubon Society, Inc.
- Land Trust of Darien, Inc.
- Litchfield Conservation Trust, Inc.
- Lyme Land Conservation Trust, Inc.
- Madison Land Conservation Trust, Inc.
- Manchester Land Conservation Trust, Inc.
- Mashantucket Land Trust, Inc.
- Middlebury Land Trust
- Milford Land Conservation Trust
- Monroe Fields and Wood Association, Inc.
- Naromi Land Trust, Inc.
- New Canaan Land Conservation Trust, Inc.
- New Hartford Conservation Trust, Inc.
- Newtown Forest Association, Inc.
- North Branford Land Conservation Trust, Inc.
- North Haven Land Trust, Inc.
- Norwalk Land Conservation Trust
- Old Lyme Conservation Trust
- Orange Land Conservation Trust, Inc.
- Peace Sanctuary Trust, Inc.
- Plymouth Land Trust and Conservancy
- Podunk Land Trust
- Pond Mountain Trust, Inc.
- Pootatuck Land Trust
- Redding Land Trust, Inc.
- Roxbury Land Trust, Inc.
- Salisbury Association
- Saybrook Land Conservancy, Inc.
- Shelton Land Conservation Trust, Inc.
- Simsburg Land Conservation Trust, Inc.
- Sleeping Giant Park Association
- Somers Land Trust
- Southington Land Conservation Trust, Inc.
- Southburg Land Trust, Inc.
- South Windsor Land Conservation Trust
- Stamford Land Conservation Trust, Inc.
- Steep Rock Association, Inc.
- Suffield Land Conservation Trust
- Swampfield Land Trust, Inc.

[59]Since offices of The Nature Conservancy, the largest land trust in the country, may be found in nearly every state, they do not appear here. See "Master List of Organizations," beginning on page 336.

Tolland Land Trust, Inc.
Torrington Heritage Preservation Trust
Trustees of Roseland Park
Wallingford Land Trust, Inc.
Weantinoge Heritage, Inc.
Westbrook Land Conservation Trust, Inc.
West Farms Land Trust, Inc.
West Haven Land Trust
Wilton Land Conservation Trust, Inc.
Woodbridge Conservation Trust, Inc.
Wyndham Land Trust

Delaware
Delaware Nature Education Society
Delaware Wild Lands, Inc.
Forward Lands, Inc.

District of Columbia
America the Beautiful Fund
Defenders of Wildlife
Fund for Animals, Inc.
National Park Foundation
National Wildlife Federation
National Wildlife Federation Endowment
Stronghold, Inc.
World Wildlife Fund

Florida
Collier County Conservancy
Florida Audubon Society
Sanibel Captiva Conservation Foundation, Inc.

Georgia
The Georgia Conservancy, Inc.

Idaho
Idaho Park Foundation, Inc.

Illinois
Eagle Valley Environmentalists, Inc.
Izaak Walton League Illinois Division
Izaak Walton League of America Endowment, Inc.
Natural Land Institute
Prairie Preservation Society of Ogle County, Inc.
The Prairie Club

Indiana
Acres Inc.
Crooked Lake Property Owners' Association
Fox Island Alliance
Izaak Walton League Indiana Division
KEEP
Olin Lake Advisory Council
Society for Preservation and Use of Resources

Iowa
Iowa Heritage Foundation

Kansas
Grassland Heritage Foundation

Maine
Maine Audubon Society
Maine Coast Heritage Trust

Maryland
Chesapeake Bay Foundation

Massachusetts
Action Conservation Trust, Inc.
Andover Village Improvement Society
Berkshire County Land Trust and Conservation Fund
Bolton Conservation Trust, Inc.
Boston Natural Areas Fund, Inc.
Brookline Land Conservation Trust
Carlisle Conservation Foundation
Chatham Conservation Foundation, Inc.
Chelmsford Land Conservation Trust
Cohasset Conservation Trust
The Concord Land Conservation Trust
Connecticut River Watershed Council, Inc.
Dartmouth Natural Resources Trust, Inc.
Dover Land Conservation Trust
Essex County Greenbelt Association
Fenway Community Land Trust
Fund for the Preservation of Wildlife and Natural Areas
Grafton Forest Association, Inc.
Groton Conservation Trust
Harvard Conservation Trust
Hingham Land Conservation Trust
The Kestrel Trust
Land Preservation Society of Norton, Inc.
Lauren Hill Association of Stockbridge
Lincoln Land Conservation Trust
Littleton Conservation Trust
Madaket Conservation Land Trust
Manchester Conservation Trust
Massachusetts Audubon Society, Inc.
Massachusetts Farm and Conservation Land Trust
Mattapoisett Land Trust, Inc.
Middlesex Canal and Preservation of Woburn, Inc.
Nantucket Conservation Foundation, Inc.
Nantucket Land Council, Inc.
Nashoba Conservation Trust
Nashua River Association
Natural Resources Trust of Easton, Inc.
Natural Resources Trust of Mansfield, Inc.
New England Forestry Foundation, Inc.
New England Wildflower Society, Inc.
Newton Conservators, Inc.
Nissitissit River Land Trust
Orleans Conservation Trust
Plymouth County Wildlands Trust
Provinctown Conservation Trust
Reading Open Land Trust
Rural Land Foundation of Lincoln
Salem Land Conservation Trust
Salt Pond Areas Bird Sanctuaries, Inc.

Scituate Land Conservation Trust
Seekonk Land Conservation Trust
Sippican Land Trust
Sheriff's Meadow Foundation
Sudburg Valley Trustees
The Trustees of Reservations
Valley Community Land Trust
Vineyard Conservation Society, Inc.
Vineyard Open Land Foundation
Wellesley Conservation Council, Inc.
Weston Forest and Trails Association, Inc.
Westport Land Conservation Trust, Inc.
White Oak Land Conservation Society, Inc.
Xerces Society

Michigan
Kalamazoo Nature Center
Michigan Audubon Society
Michigan Botanical Club, Inc.
Michigan Natural Areas Council
Michigan Nature Association
Trout Unlimited Michigan Council

Minnesota
Minnesota Ornithologists Union
Minnesota Parks Foundation

Missouri
L-A-D Foundation
Missouri Prairie Foundation

New Hampshire
Audubon Society of New Hampshire
Society for the Protection of New Hampshire Forests

New Jersey
Boy Scouts of America National Council
Closter Nature Center Association
New Jersey Audubon Society
New Jersey Conservation Foundation
Stony Brook Millstone Watershed Association
South Branch Watershed Association
Upper Raritan Watershed Association

New York
Adirondack Mountain Club, Inc.
Bergen Swamp Preservation Society
Group for America's South Fork
Huyck Preserve
National Audubon Society
Orange County Citizens Foundation
Pound Ridge Land Conservancy
Save Open Spaces
Save The County
Shawangrenk Valley Conservancy

North Carolina
Carolina Bird Club, Inc.
Dunes of Dare Garden Club
People to Preserve Jockey's Ridge, Inc.
The Botanical Garden Foundation
The Nature Conservancy Association for the Preservation of Eno River Valley

Ohio
Cincinnati Museum of Natural History
Little Miami, Inc.
The Ohio Historical Society

Oklahoma
Audubon Society Tulsa Chapter

Oregon
Oregon Community Land Trust

Pennsylvania
Berks County Conservancy
Brandywine Conservancy
Brandywine Valley Association
Bucks County Conservancy
Chester County Conservancy
Ferncliff Wildflower and Wildlife Preserve
French and Pickering Creeks Conservancy Trust
Green Valleys Association
Hawk Mountain Sanctuary Association
Lehigh Valley Conservancy
Natural Lands Trust and the Philadelphia Conservationists
Pennypack Watershed Association
The Lancaster County Conservancy
Tyler Arboretum
Western Pennsylvania Conservancy
Wissahickon Valley Watershed Association

Rhode Island
Audubon Society of Rhode Island
Barrington Land Conservation Trust
Block Island Conservancy
East Providence Land Conservation Trust
The Narrow River Preservation Association

South Carolina
National Wild Turkey Federation

Vermont
Merck Forest Foundation, Inc.
Ottauguechee Regional Land Trust
Vermont Natural Resources Council

Virginia
The Nature Conservancy National Headquarters

Washington
Indianola Land Trust
Washington State Parks Foundation
Yakima River Regional Greenway Foundation

West Virginia
Appalachian Trail Conference
Brooks Bird Club

Wisconsin
Madison Audubon
Natural Areas Preservations, Inc.
The Head Foundation
The Ridges Sanctuary, Inc.

Wetlands for Wildlife
Woodland Dunes, Inc.
Wyoming
Jackson Hole Land Trust

72.11 Preserves owned and retained for management by The Nature Conservancy (April 1981)

Name of Area	*Acreage*
Arizona	
Canelo Hills Cienega Sanctuary	205
Patagonia-Sonoita Creek Sanctuary	309
Ramsey Canyon	300
California	
Bennett Juniper Preserve	4
Big Morongo Canyon	80
Bishop Pine Preserve	402
Blanche Hamilton Wildlife Sanctuary	40
Boggs Lake	104
Bunnell Vernal Pool	1
Desert Tortoise Preserve	1,440
Dorland Preserve	300
Edmund C. Jaeger Nature Sanctuary	160
Elkhorn Slough (Lillian D. Hohfeld Preserve)	441
Emerson Preserve	80
Ewing Oak Preserve	55
Fairfield Osbourn Sanctuary	225
Hibberd Property	1,471
Ida Haines Murphy Preserve (Cold Creek Canyon)	535
McCloud River Preserve	2,330
Northern California Coast Range Preserve	3,935
Oasis De Los Osos	160
Paine Wildflower Memorial Preserve	40
Pixley Vernal Pool	40
Sand Ridge Wildflower Preserve	117
San Francisco Bay Project	1,308
South Fork of the Kern	600
Spindrift Point	4
Swartz Canyon	120
Williams Wildlife Sanctuary	40
Colorado	
Bunker Hill Placer	90
Chambers Peaceful Valley	15
Galena Mountain (Mexican Cut) Research Preserve	420
Hunter Creek Preserve	156
Pierce Property	599
Connecticut	
Akeley Nature Preserve	8
Asproom Mountain Preserve	18
Ballyhack Preserve	56
Bantam River	10
Barrett Preserve	54
Beeslick Preserve	103
Bluff Head	75
Bond Natural Area	7
Burnham Brook	174
Buttermilk Falls	13
Byram River Gorge	133
Canfield Island Marsh	1
Cathedral Pines	42
Cauncey Keep Hubbard Nature Preserve	2
Cobble Hill Preserve	30
Cotton Hollow	5
Cottrell Marsh	47
Currie Memorial Sanctuary	79
Delacorte Preserve	8
Delafield Cove	20
Dennis Farm Preserve	382
Duck Pond Hill	12
Farm Creek Complex	4
Folly Brook Natural Area	13
Frank M. Bindloss Sanctuary	3
Frederick C. Walcott Preserve	554
Gan Katan	10
Goodwin Marsh	5
Great Island Marsh	11
Griswold Marsh	18
Griswold Point	21
H. C. Barnes Memorial Nature Center	68
Helen Altschul Preserve	165
Helen Whiting Ferris Salt Marsh	2
Higby Mountain	122
Holly Pond-Darien Marsh	2
Housatonic State Forest	40
Hugh A. Marshall Preserve	
Iron Mountain Reservation	257
John Sargent Woodlands	5
Lieutenant River Marsh	15
Lords Cove	142
Lucius Pond Ordway Preserve--Devils Den	1,584
Meadow Woods Natural Area	97
Messenger Preserve	141
Milo Light Nature Preserve	338
Pattagansett Marshes	48
Phelps Research Area	343
Pike Nature Preserve	158
Rock Spring Wildlife Refuge	437
Silas Hall Pond	109
Spiderweed	157
Squirrel Run	13
Still Pond Preserve	16
St. Johns Ledges	132
Taine Mountain Preserve	186
Turtle Creek Wildlife Sanctuary	93
Weir Nature Preserve	76

White Oak Grove Nature Preserve	6
William and Mary Wood Preserve	17
William Buell Natural Area	84
Wolfpits Nature Preserve	59
Wood Duck Swamp	16
Florida	
Akers Preserve	13
Blowing Rocks Preserve	3
Buttonwood Rookery	47
Carl S. Swisher Memorial Nature Preserve	1,742
Cummer Sanctuary of the Suwannee River	985
Floraglades Sanctuary	75
Honorable Theodore Roosevelt Preserve	603
Janet Butterfield Brooks Preserve	270
John S. Phipps Preserve (Alligator Point)	40
Matanzas Pass	42
Moya Sanctuary	60
Osborn Sanctuary	640
Robert Battey Wildlife Sanctuary	120
Robins Memorial Forest	31
Rookery Bay National Estuarine Sanctuary	3,365
Sea Oats Beach	2
Tiger Creek	2,881
Walk-in-the-Water Creek Nature Preserve	25
Warren Cave	4
Georgia	
Charles Harrold Preserve	72
Marshall Forest	220
Ogeechee River Natural Area	4,235
Hawaii	
Kipahulu Valley	4,748
Iowa	
Behrens Pond and Woodlands	29
Berry Woods	42
Charles and Anna Roggman Boreal Slopes	20
Crossman Prairie	10
Freda Haffner Preserve	110
Retz Memorial Woods	49
Silvers-Smith Woods	20
Williams Prairie	
Idaho	
Birds of Prey Natural Area	1,351
Dautrich Preserve	855
Idlers Rest	33
Silver Creek Preserve	479
Illinois	
Baber Woods Nature Preserve	60
Big Creek Woods Memorial Nature Preserve	40
Burton Cave	78
Carpenters Woods	10
Cave Creek Hill Prairie	25
Cedar Glen Eagle Roost	707
Devils Prop	40
Emma Vance Woods Preserve	29
Grandma Jane Pattons Timber Preserve	14
Marissa Woods	25
Prairie Grouse Sanctuary--	
Butler Tract	160
Chauncey McCormick Tract	140
Donsbach Tract	60
Fuson Farm	136
Galbreath Tract	110
J. and A. McCormack Sanctuary	80
Lacey Sanctuary	180
Loy Tract	180
Perbix Tract	60
Walters Estate	41
Rock Cave	75
Sarah Fenton Hinde Preserve	10
Shaw Woodlands and Prairie	48
Twin Culvert Cave	5
Indiana	
Barker Woods Nature Preserve	31
Big Walnut Natural Area	127
Bitternut Woods	22
Blue Bluff Preserve	32
Cedar Bluffs	23
Fall Creek Gorge	43
German Methodist Cemetery Prairie	2
Kieweg Woods	31
Laketon Bog	31
Orangeville Rise of the Lost River	3
Kansas	
Flint Hills Tallgrass Prairie	2,188
Konza Prairie	8,616
Kentucky	
Boone County Cliffs	46
Kirwin Preserve	24
Spencer Morton Preserve	330
Maine	
Appleton Bog	85
Arthur H. Dayton Natural Area	29
Bald Head	296
Bar Island	13
Barred Island	2
Basket Island	9
Bass Rock Preserve	10
Big Garden Island	25
Big White Island	25
Blackwood Campground	1
Bradbury Island	138
Butler Preserve	6
Crockett Cove Woods	100
Crystal Bog	3,793
Damariscove Island	209
Doughty Point--Doughty Island	42
Douglas Mountain	169

Dram Island	6
East Plummer Island	10
Eustis Preserve (Ledgewood)	43
Fernalds Neck	315
Flint Island	170
Harkness Grant	5
Heron Islands Preserve	9
Indian and Fowl Meadow Islands	32
Indian Point-Blagden Preserve	110
Ketterlinus Preserve (Seal Cove)	21
Lanes Island	43
LaVerna	119
Lewis K. Marshall Memorial Forest	181
Long Porcupine Island	125
Long Island	5
Mark Island	36
Mill Cove Preserve	31
Mill Creek Natural Area	20
Montsweag Preserve	45
Moose River Preserve	82
Morse Mountain Preserve	30
Mullen Woods	100
Musquash Pond Preserve	235
Nash Property	5
Osborn Finch Preserve	11
Plummer Point Preserve	75
Redins Island	8
Round Island	36
Sabra Creeper Hill	65
Salt Pond Natural Area (Rachel Carson Salt Pond)	78
Seboeis River	673
Ship Island	11
Shipstern Island	8
Simonton Corner Quarry	11
Smith Island Preserve	8
St. Clair Tract	252
Step Falls	24
Stone Island	60
Sucker Brook Watershed	33
The Brothers and Hay Ledge	20
The Hermitage	35
Trumpet Island	1
Turtle Island	136
Vaughns Island	48
Maryland	
Battle Creek Cypress Swamp	100
Cranesville Swamp	20
Finzel Swamp	307
Hellen Creek Hemlock Preserve	22
Nanjemoy Creek	260
Nassawango Creek	657
Otwell Woodland	100
Robinson Neck Preserve	920
Third Haven Woods	
Massachusetts	
Beaver Brook Valley	82
Black Pond	81
Crooked Pond	183
Halfway Pond Island	249
McElwain Olsen Preserve	54
Robinson Gilmore Preserve	54
Michigan	
Dayton Wet Prairie	20
Erie Marsh	2,168
Grass Bay Preserve	81
Hoobler Preserve (Pigeon River)	480
Jonathan Woods	144
Kitchel Dunes Preserve	52
Little LaSalle Island	61
Lucia K. Tower Nature Preserve	23
Mosley-Bennett-Barlow Preserve	50
Palmer-Wilcox-Gates	15
Robinson Preserve	80
Minnesota	
Agassiz Dunes Natural Area	417
Anna Gronseth Prairie	760
Audubon Prairie	240
Black Pass Nature Preserve	42
Blazing Star Prairie	160
Bluestem Prairie	1,200
Burntside Islands	58
Caledonia Oaks Preserve	80
Chippewa Prairie	814
Cold Spring Heron Colony Natural Area	62
Compass Prairie Preserve	14
Egret Island	34
Ferndale Marsh	43
Fox home Prairie	280
Frenchmans Bluff	43
Grace Nature Preserve	13
Hardscrabble Woods	23
Helen Allison Savanna	86
Hole-in-the-Mountain Prairie (Lake Benton)	230
Hovland Woods	160
Kasota Prairie	38
Kettledrummer Prairie	160
Laible Woods	40
Lowry Woods Preserve	14
MacDougall Homestead	215
Margaret Gable Tusler Sanctuary	8
Moe Woods	110
Ordway Preserve	581
Ottawa Bluffs	70
Ottertail Prairie	320
Pankratz Memorial Prairie	634
Partch Woods	84
Pembina Trail	1,660
Philip J. England Ecotone	160
Regal Meadow	80
Ripley Esker	220
Rockville Hanging Bog	32
Roscoe Prairie	56
Sandhill Crane Meadows	202
Santee Prairie	448

Schaefer Prairie	160
Seven Sisters Prairie	185
Spearhead Lake	448
Staffanson Prairie	80
Strandness Prairie	37
Susie Island	78
Townhall Prairie	160
Twin Valley Prairie	240
Wabu Woods	100
Wahpeton Prairie	80
Western Prairie	600
Zimmerman Prairie	80
Missouri	
Alma Peterson Memorial Azalea Gardens	18
Dobbins Woodland	40
Hinkson Valley Nature Preserve	64
Hunkah Prairie	160
Hyer Woods	30
Lichen Glade	32
Lily Pond	8
Mo-Ko Prairie	420
Monegaw Prairie	180
Mount Vernon Prairie	41
Niawathe Prairie	80
N. L. Williams Memorial Woods	40
Osage Prairie	1,341
Pawhuska Prairie	76
Silas Dees Azalea and Wildflower Preserve	5
Trice-Dedman Memorial Woods	60
Tzi-Sho Prairie	240
Wah-kon-tah Prairie	638
Wah-sha-she Prairie	160
Mississippi	
Clark Creek	593
Montana	
Blackfoot River--Sullivan Tract	6
Nebraska	
Arapaho Prairie	1,298
Niobrara Prairie	50,417
Willa Cather Memorial Prairie	610
New Hampshire	
Frank Bolles Nature Preserve	247
Ruth C. Warwick Tract	36
Stamp Act Island	100
Wales Preserve	23
Whittemore Island	5
New Jersey	
LaMont Nature Sanctuary	3
Russell Tract, Cape Breton Island	642
New York	
Accabonac Harbor	98
Andrew J. Whitbeck Memorial Grove	27
Archibald Manning Brown Preserve	6
Arthur Ketchum Sanctuary	26
Arthur W. Butler Memorial Sanctuary	372
Atlantic Double Dunes	96
Augustus G. Paine Preserve	16
Barberville Falls	128
Bear Swamp	357
Bentley Woods	22
Bertha and Reginald Rose Wildlife Refuge	15
Big Simonds Pond (South Bay)	5
Black Creek Bog Preserve	15
Butler-Huntington Woods	67
Butternut Brook Wetlands	3
Bye Preserve	24
Canadaway Creek Nature Sanctuary	33
Charles Lathrop Pack Demonstration Forest Natural Area	47
Christman Sanctuary	97
Cordelia Hepburn Cushman Preserve	15
Daniel R. Davis Sanctuary	58
Darwin James Preserve	28
Davenport Sanctuary	8
David Weld Sanctuary	120
Deer Lick Sanctuary	400
Delafield Woods	18
Dome Island Memorial Sanctuary	16
East Farm Preserve	55
Eldorado Beach Preserve	259
Eldridge Wilderness	87
Emmons Pond Bog	150
Eugene and Agnes Meyer Nature Preserve	249
Everton Falls Preserve	530
Fiddlers Green	26
Finlay-Wolf Pond Sanctuary	4
Fox Hollow Preserve	27
Franklin Pond	15
Fulling Mill Farm Preserve	18
Gouinlocks Pond	183
Great Gully	107
Greenfield Center Wild Area	27
Griffith Preserve	16
Halle Ravine	38
Hannacroix Ravine	325
Harbor Hill Sanctuary	4
Hemlock Brook Preserve	14
Henry Morgenthau Preserve	29
Hillside Acres	50
Hollins Preserve	30
Hope Goddard Iselin Nature Preserve	42
Howell Meadow	5
Hunter Goodrich Preserve	3
Husing Pond	22
Ironsides Island	20
John B. Currie Sanctuary	17
Kenrose Sanctuary	392
Lake Julia	837
Limestone Rise Preserve	63
Lisha Kill Natural Area	109

Little Fresh Pond Preserve	4
Little Ram Island Wetlands Preserve	4
Loines Preserve	24
Long Beach Bay	45
Long Pond Preserve	39
Lordsland Conservancy	78
Louis C. Clark Sanctuary	6
Manitoga (Dragon Rock)	80
Maratooka Lake	12
Marian Yarrow Nature Preserve	145
Mashomack	2,100
Matheson Meadows	39
McGregor Pond	44
Meadow Beach Preserve	15
Mecox Dunes	6
Mianus River Gorge Wildlife Refuge and Botanic Preserve	392
Mildred Denton Wildlife and Bird Sanctuary	370
Moccasin Kill	86
Moonbeams Sanctuary	150
Moss Lake Nature Sanctuary	81
Mt. Holly Nature Preserve	48
Mt. Holly Sanctuary	221
Mud Creek	5
Nichols Preserve	81
Oaces Sanctuary	26
Otter Creek	27
Pawling Nature Preserve	1,015
Piney Woods	59
Ruth Wales DuPond Wildlife Sanctuary	32
Sagg Swamp Nature Reserve	76
Saint Johns Pond Sanctuary	14
Saratoga National Historical Park	147
Scallop Pond	55
Schwartz Preserve	8
Scotia Island Conservancy	1
Silver Lake Camp Preserve	61
Stewart Preserve	123
Stuyvesant Wainwright Memorial Wildlife Area	15
T. Decker Orr Preserve	14
Thompson Pond Preserve	309
Thorne Sanctuary	87
Thousand Acre Swamp	185
Turkey Point Preserve	6
Turtle Cove Nature Preserve	1
Tyson Field	32
Uplands Farm Sanctuary	59
Vail Blydenburgh Sanctuary	27
Virginia Viney Smiley Preserve	401
Wading River Marsh Sanctuaries	80
Waitecliff	73
Wellborn Woods Conservancy	98
West Branch Nature Preserve	448
West Hill Preserve	314
White Lake Swamp	26
Wolf Swamp Sanctuary	20
Yonkers Nature Preserve	33
Zoe B. DeRopp Sanctuary	9
North Carolina	
Bluff Mountain	710
Great Dismal Swamp	31,491
Green Swamp	13,850
Henry M. Wright Preserve	22
Nags Head Woods	250
Roan Mountain	2,220
Saddle Mountain	950
Timber Ridge Preserve	20
North Dakota	
F. A. Bean Foundation Property	160
Ohio	
Browns Lake Bog	80
Dupont Marsh	105
Keystone Nature Preserve	30
Pickerington Pond	155
Red Bird Hollow	147
Schwamberger Preserve	26
Stillfork Swamp Preserve	88
Tefft Memorial Nature Sanctuary	155
Upper Chagrin Preserve	151
Van Sickel Woods	39
William E. and Emily P. Benua Preserve	196
Oregon	
Camassia Natural Area	27
Cascade Head	280
Cogswell Foster Preserve	112
Cox Island Preserve	187
Katharine Ordway Sycan Marsh Preserve	22,965
Lawrence Memorial Grasslands Preserve	390
Lower Table Rock	1,680
Metolious River	10
Nesika Beach	36
Rain River Preserve	141
Rockaway Old Growth Forest	50
Rowena Dell Plateau	34
Sandy River Gorge Natural Area	402
Pennsylvania	
Lacawac Sanctuary	382
Tannersville Cranberry Bog	150
Thompson Wetlands	360
Rhode Island	
Ell Pond	133
Fogland Marsh	48
South Carolina	
Francis Beidler Forest	3,516
Peachtree Rock	306
Santee Coastal Reserve	23,777
South Dakota	
Aurora Prairie	30
Clovis Prairie	156
Samuel H. Ordway Memorial Prairie	7,600

Sioux Prairie	200
Vermillion Prairie Preserve	22
Tennessee	
Roan Mountain	269
Taylor Hollow	194
Texas	
Big Thicket Bogs and Pinelands	49
Ezells Cave	2
Gypsum Dunes	226
James Cooke and Mary Randolph Wilson Preserve	43
Marysee Prairie	3
The Mesquite Brushland	683
Red River Refuge	28
Roy E. Larsen Sandyland Sanctuary	2,178
Sheffs Woods	75
Thick-Spiked Tridens Prairie	97
Utah	
Esther Campbell Property	35
Vermont	
Barr Hill Nature Preserve	256
Black Island	10
Franklin Bog	123
Sugar Hollow Natural Area--Lovejoy Addition	31
Virginia	
Alexander Berger Memorial Sanctuary	865
Appalacian Trail	97
Falls Ridge Nature Preserve	864
Fernbrook Natural Area	63
Fraser Preserve	220
Furnace Mountain	29
Helena's Island	57
Lucas Woods	27
Mason Neck	3,256
Mountain Meadow Preserve	39
New Point Comfort Lighthouse Island	50
Virginia Coast Reserve	34,737
Wildcat Mountain	633
Virgin Islands	
Battery Gut Preserve	164
Bugby Hole Preserve	6
Little St. Thomas-Botany Bay Preserve	16
Triton Bay Rookery	11
Washington	
Cyrus Gates Memorial Preserve (Chuckanut Island)	5
Foulweather Bluff	100
Goose and Deadman Islands	5
Moxee Bog	14
Rose Creek Preserve	12
Sentinel Island	15
Skagit River Eagle Preserve	96
Waldron Island Preserve	276
Yellow Island	10
West Virginia	
Appalachian Trail	33
Cranesville Swamp Nature Preserve	294
Greenland Gap	255
Hungry Beech Preserve	120
Murphy Preserve	276
Yankauer Preserve	106
Wisconsin	
Arthur and Albena Snapper Memorial Prairie	30
Baraboo Hills--	
Baxters Hollow	329
Durst Rockshelter	88
Hemlock Draw	580
Leopold Woods	83
Pine Hollow	285
Sumpter Bluffs	100
Decorah Mound	30
Fairy Chasm Scientific Area	19
Falk Woods	58
Gasser Sand Barrens	3
Holmboe Conifer Forest Scientific Area	32
Kurtz Woods	31
Mink River Headwaters	60
Nelson Oak Woods	100
Sacia Memorial Preserve	30
Schluckebier Sand Prairie	23
Spring Green Prickly Pear Prairie	259
Summerton Bog	344
Thousand Rock Prairie	4
Waubesa Wetlands Scientific Area	80
Wyoming	
Natural Corral (Harry C. Barrows Preserve)	500

72.12 List of Audubon sanctuaries owned by local chapters and state affiliates

(a) Sites owned by local Audubon Chapters (1976)

Name of Area	*Acreage*
Arizona	
Audubon Nanini Wildlife Sanctuary	3
California	
Audubon Canyon Ranch	1,000
Fourth Street Overlook	1
Joan Hamann Dole Sanctuary	11
Lost Lake Country Park	
Redbud Audubon Society Area	70

Silverwood Wildlife Sanctuary and Nature Education Center	213
Colorado	
Boulder Audubon Society Area	6
Connecticut	
Baekland Sanctuary	8
Birdcraft Sanctuary and Museum	4
Browning Wildlife Sanctuary	14
Edward Steichen Memorial Wildlife Preserve	44
Field Sanctuary	10
Greenwich Audubon Society Areas	116
Guilford Marsh Sanctuary (Fresh Water)	55
Haddam Wildflower Gorge	4
Henry Helley Sanctuary	35
J. C. Penney Sanctuary	4
Kelly Lowlands Sanctuary	13
Kelly Uplands Sanctuary	23
Litchfield Wild Garden	25
Matzner Addition to Larsen Sanctuary	8
Morgan R. Chaney Memorial Sanctuary	235
Roserock Road Sanctuary	13
Roy and Margo Larsen Wildlife Sanctuary	152
Smith-Richardson Memorial Wildlife Sanctuary	78
Florida	
Audubon House	3
Babson Park Audubon Center	4
Becky Price Sanctuary	6
Cerro Punto Sanctuary and Research Center	7
Chinsegut Refuge and Nature Center	408
Coclough Pond Wildlife Sanctuary	24
Crowley Museum and Nature Center, Inc.	135
Cuyler Lanier Sanctuary	36
Daughtreys Creek	
Doc Thomas Audubon House	3
Egret Island Sanctuary	10
Fred Schultz Memorial	1
Froitzheim Wilderness Sanctuary	10
Grove and Cypress Wildlife Sanctuary	5
Hatton Wildlife Sanctuary	10
J. Russell Errett Wildlife Sanctuary	21
Mary Krune Bird Refuge	2
May Male Wildlife Sanctuary	20
Orange Lake Sanctuary (Bird Island)	36
Perry Boswell, Jr., Wildlife Sanctuary	3
Saddle Creek Sanctuary	
Sawpit Creek Sanctuary	60
Scarborough Sanctuary	10
Sebastian Sanctuaries	70
Smith Island Sanctuary	3
Street Nature Center	40
Illinois	
Illinois Prairie Remnant	
Indiana	
Mary Gray Bird Sanctuary	656
South Bend Audubon Bird Sanctuary	30
Kansas	
Chaplin Nature Center	200
Maine	
The Guy Van Duyn Wildlife Refuge	20
Michigan	
Baker Sanctuary	946
Lew Sarrett Sanctuary	170
Martha Mott Preserve	80
Phyllis Haehnle Memorial Sanctuary	687
Riverbank Sanctuary	23
Sanett Nature Center	300
Seven Ponds Nature Center	250
Voorhees Brothers Wildlife Sanctuary	40
Voorhees Sanctuary	37
Minnesota	
Hawk Ridge Nature Reserve	111
Kallio Preserve	80
Mississippi	
Clytenville Heronry	8
New Hampshire	
Colson Preserve	20
New York	
Allenberg Bog	300
Areskunk Creek	8
Beaver Meadow Wildlife Refuge	250
Bentley Sanctuary	35
Burgeson Wildlife Sanctuary	185
Cameron-Murtfield Sanctuary	6
Chernick Sanctuary	6
Choate Sanctuary	26
Gedney Brook Sanctuary	25
Haas Sanctuary	7
Helen Jahn Memorial	35
Noyes Preserve	90
Pinecliff Sanctuary	7
The Roost	
Ohio	
Warder-Perkins Audubon Sanctuary	26
Oregon	
P. Hock Sanctuary	20
Pennsylvania	
Laura Olsen Sanctuary	50
Titus Bog	80
Todd Sanctuary	160

Rhode Island	
Ell Pond	133
Norman Bird Sanctuary	17
South Carolina	
Island Wildlife Preserve	50
Texas	
Edith L. Moore Sanctuary	17
Langley Island Wildlife Refuge	75
Travis Audubon Society Wildlife Sanctuary	94
Vermont	
Green Mountain Audubon Nature Center	230
Wisconsin	
Audubon Wildlife Refuge	62
Fromm Sanctuary	21
Lake Mills Prairie	130

(b) Sites owned or managed by state affiliates of Audubon (1976)

Name of Area	*Acreage*
Florida	
Reed Wilderness Seashore Sanctuary	320
Illinois	
Barbara Dunham Dole Preserve	31
Maine	
Appalachie Sanctuary	35
Biddeford Pool	20
Cow Island Sanctuary	20
East Point Sanctuary	30
Four River Wildlife Sanctuary	76
Gilsland Farm	70
Gordon Sanctuary	50
Hunters Cove Wildlife Sanctuary	65
Josephine Newman Sanctuary	200
Mast Landing Sanctuary	167
Mary Byers Smith Property	2
Wood and Stage Islands	45
Massachusetts	
Arcadia Wildlife Sanctuary	560
Ashumet Holly Reservation	45
Blue Hills Trailside Museum	
Broadmoor/Little Pond Wildlife Sanctuary	538
Burncoat Pond	125
Cooks Canyon/Wildwood	40
Dead Neck/Sampsons Island	
Drumlin Farm Nature Center	220
Fairhaven	20
Felix Neck Wildlife Sanctuary	250
Great Neck	91
Hardy Property	6
Hemlock Pond	15
High Ledges	400
Ipswich River Wildlife Sanctuary	2,500
Laughing Brook Education Center	84
Laurel Woods	16
Little Pine Island	3
Lynnfield Marsh	540
Maraspin Creek	10
Monomoy Lighthouse	2
Moose Hill Wildlife Sanctuary	227
Normans Woe	26
Norwell Property	13
Outermost House	41
Pepper Lot	2
Pleasant Valley Wildlife Sanctuary	680
Popponesset Sandspit	
Rendezvous Lane Salt Marsh	14
Rutland Brook	98
Stony Brook Wildlife Sanctuary	101
Straitsmouth Island	33
Tern Island	10
Tick Thicket	8
Wareham	
Wachusett Meadow Wildlife Sanctuary	907
Weld Pond	12
Wellfleet Bay Wildlife Sanctuary	700
New Hampshire	
Ashuelot Great Heron Sanctuary	23
Audubon House	16
Bellamy River Sanctuary	
Camp Kabeyun	100
De Pierrefeu-Willard Pond Sanctuary	600
George Burrows Brookside Sanctuary	20
Hampton Salt Marshes	3,500
Paradise Point, Newfound Lake	43
Pondicherry Wildlife Refuge	310
Rhode Island	
Beech Grove	7
Caratunk Wildlife Refuge	159
Cocumscussoc Brook Reserve	16
Davis Memorial Wildlife Refuge	96
Davis Memorial Wildlife Refuge	47
Eldred Wildlife Refuge	18
Emilie Reucker Wildlife Refuge	30
Eppley Wildlife Preserve	1,200
Fayette E. Bartlett Woodland	70
Fort Property	180
Fox Hill Pond Salt Marsh	45
George P. Parker Woodland	450
Gould Island Rookery	5
Grey Craig Overlook	29
Hundred Acre Cove	43
Indian Run Woods	50
John Francis Brown Ravine	6

Kimball Wildlife Refuge	30
Lonesome Swamp	½
Long Pond Woods	115
Marsh Meadows Wildlife Preserve	21
Margaret Robinson Knight Wildlife Refuge	5
Matunuck Hills Woods	35
Moonstone Waterfowl Refuge	115
Norman Bird Sanctuary	350
Occupessatuxet Cove Salt Marsh	3
Ocean Drive Marsh	9
Perry-Trott Wetland	12
Pettaquamscutt River Wildlife Habitat	10
Racquet Road Thicket	19
Ram Island	14
Sheffield Cove Salt Marsh	5
Spectacle Island, Briggs Marsh	4
The Dumpling	½
Third Beach Road Lots	18
Usher Cove Salt Marsh	3
Wesquage Pond	30

72.13 List of National Audubon Society sanctuaries (1976)

Name of Area	*Acreage*
Alaska	
Dauphin Island Sanctuary	164
California	
Bobelaine	430
Richardson Bay Wildlife Sanctuary, Whittell Education Center	900
South San Francisco Bay Sanctuaries	1,800
Starr Ranch Audubon Sanctuary	4,000
Colorado	
Eagle Rock Audubon Sanctuary	15,360
Connecticut	
Audubon Center of Greenwich and Fairchild Wildflower Garden	477
Guilford Salt Meadows Sanctuary	200
Miles Wildlife Sanctuary	751
Sharon Audubon Center	526
Florida	
Big Pine Key	747
Corkscrew Swamp Natural Area	6,020
Corkscrew Swamp Sanctuary	6,080
Cowpens Key	10
Kissimmee Prairie Region	60,000
Kitchen Creek Wildlife Sanctuary	42
Lake Okeechobee	28,250
Lake Worth Islands	100
Rookery Bay Sanctuary	2,897
Tampa Bay	200
Kentucky	
Clyde E. Buckley Sanctuary	200
Jefferson County Forest Audubon Sanctuary	1,800
Vernon-Douglas Wildlife Sanctuary	682
Louisiana	
Rainey Wildlife Sanctuary	26,800
Maine	
Allan D. Cruickshank Wildlife Sanctuary	7
Borestone Mountain Sanctuary	650
Little Duck Island	367
P. W. Sprague Memorial Sanctuary	30
Ten Pound Island	150
Todd Wildlife Sanctuary	345
Western Egg Rock	7
Maryland	
Nanjemoy Marsh Sanctuary	58
Minnesota	
Northwoods Audubon Center	535
Nebraska	
Lillian Annette Rowe Bird Sanctuary	1,074
Nevada	
Whittell Audubon Center	427
New York	
Brinton Brook Sanctuary	129
Constitution Island Marsh Sanctuary	267
Graf Audubon Sanctuary	33
Livingston Marsh Sanctuary	140
Palmer Lewis Sanctuary	24
Ruth Walgreen Franklin, Winifred Fels Audubon Sanctuaries	181
Scully Sanctuary	100
Theodore Roosevelt Sanctuary	10
Ohio	
Aullwood Audubon Center	70
Aullwood Audubon Farm	122
Pennsylvania	
Crosswicks	16
South Carolina	
Four Holes Swamp	3,415
Francis Beidler Forest	3,400

72.14 List of Western Pennsylvania Conservancy Preserves (1980)

Name of Area	*Acreage*
Bear Run Nature Reserve	3,500
Beechwood Farms Nature Reserve	90
Fallingwater	500
14 Mile Island	30
Jennings Environmental Education Center	31
Miller Esker	35
Nicholson Island	45
Pine Swamp	220
Tryon-Weber Woods	84
Wattsburg Fen	32
Wildflower Reserve	300
Wolf Creek Narrows	100

72.15 List of Acres, Inc., Reserves Indiana (1980)

Name of Area	*Acreage*
Ashton Mill Site and the Maumee River Scenic Overlook	1
Acres Along the Wabash	30
Beechwood Nature Reserve	90
Edna W. Spurgeon Woodland Reserve	80
Fogwell Forest	27
Foxfire Woods	7
Hanging Rock Natural Area	1
Lloyd W. Bender Memorial Forest	65
Lonidaw	20
Mengerson Nature Reserve	17
Ropchan Memorial Nature Reserve	80
Ropchan Wildlife Refuge	180
Woodland Bog	20

Chapter Seventy-three

Dedication

A. Introduction

73.1 Overview

Private individuals and conservation organizations have played and continue to play significant roles in the dedication of natural areas. As defined in Part Nine of this study,[1] dedication is similar to a conservation easement; *i.e.*, it is an interest in the land held by a state to keep it in its natural condition in perpetuity. A legally binding agreement called the "articles of dedication" is signed by the landholding parties involved, whether they are state agencies, counties, universities, or private organizations.[2] The articles of dedication and an accompanying master plan contain the exact location of the land and restrictions on both parties. After the articles of dedication are signed, the preserve is included in the state system of preserves. In this manner, it is afforded protection against taking or condemnation for another public purpose and surveillance by state conservation rangers or officers. At least in theory, the state also becomes a partner in controlling outside activities which could affect the preserve. In addition, dedication gives it statewide significance.

As part of the dedication process, private groups and individuals can work to persuade state legislatures to consider and pass laws requiring the state to dedicate lands for natural area purposes. Private interests often play a part in the passage of these laws; lobbying has been a traditional role for private conservation organizations and has been pursued with different coalitions. For example, in Indiana the legal advisor for Acres, Inc., was the author of the Indiana Nature Preserves Act. He has also served as an advisor to other groups in states wishing to pass such laws. The Ohio Chapter of The Nature Conservancy, along with the Ohio Biological Survey and the Ohio Academy of Science, played a prominent role in the passage of the Ohio Natural Areas Act. States which have passed similar legislation include: Arkansas, Connecticut, Georgia, Illinois, Iowa, Kansas, Kentucky, Michigan, North Dakota, Oregon, South Carolina, and Washington.

There are several opportunities for private organization and citizen participation built into the laws providing for dedication. As in laws dealing with other critical areas, such as coastal zones or scenic rivers, organizations may participate through an advisory board or commission. For example, the act (ORCs. 1517.03)[3] creating the Ohio Natural Areas System specifies that an advisory Ohio Natural Areas Council be composed of eight members, with the chief of the state Division of Nature Preserves appointed to serve *ex-officio*. Members are required by law to represent the state's natural history museums, metropolitan park districts, colleges and universities, and outdoor education programs in primary and secondary schools. Some natural area dedication statutes make it mandatory that the governor seek advice in the selection process only from private organizations. The Kentucky Nature Preserves Act, passed in 1976, requires the governor to seek the advice of the Kentucky Audubon Council, the Sierra Club, the Izaak Walton League, The Nature Conservancy, and the Kentucky Ornithological Society (see KRSs. 146.5).

The power, independence, and role of an advisory body vary considerably from state to state. It may do little more than provide public assent to agency actions, or it may actually attempt to include knowledgeable people in the decisionmaking process. Natural area advisory commissions are usually involved in the selection process or approval of natural area sites and also formulate or approve policies concerning the preserves.

Private organizations and individuals may also help ensure that suggestions as to areas which might be included in the system are considered. Most agencies administering state natural area laws

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[1]See Chapter 66: Section 66.4 B(6) Some Tools for the Protection of Natural Diversity.

[2]See Technical Appendix 73.(a) for a sample of such an agreement.

[3]In this chapter legal citations are abbreviated as follows: Ohio Revised Code (ORC), Kentucky Revised Statutes (KRS). Illinois Revised Statutes (IRS), Indiana Code (IC), and Iowa Code (IC).

have procedures for citizen nomination of areas.[4]

Finally, these laws allow the actual dedication of land which is still in private ownership, whether the area is owned by a private conservation organization, an individual, or a corporation. Of the 14 states previously mentioned with some type of natural area dedication system, all except Oregon have a provision for dedication of private land in which the owner retains title to the land. The Illinois Nature Preserves Act states in IRS c.105, s.2b:

> In the case of dedication of land or interest in land as a nature preserve, an area which has been approved by the governor and the Illinois Nature Preserves Commission, whether the fee interest in such land or interest in land is held by the Department (of Conservation) or other public agency or in *private ownership* [emphasis added by author], shall become a nature preserve within the system following such dedication by the owner of such land or interests in land.

Five state programs in Connecticut, Illinois, Indiana, Iowa, and Ohio--contain dedicated nature preserves that are owned by a private entity. In addition to these five, the North Dakota Park Service, the administering agency for that state's new nature preserves law, plans to concentrate on dedicating land owned by private individuals.

Many people envision problems with dedication similar to those with conservation easements. For example, the current private owner living near or on the land may be a very good watchdog for the dedicated property; however, future owners may not live in close proximity or have as great a concern. Dedication can place severe limitations on the sale of the property, and the dedication itself could be in jeopardy if the heirs challenge the restrictions.

The following sections deal with states where dedication of privately owned natural areas has taken place and with the private organizations which have elected to dedicate areas.

[4]See Technical Appendix 73.12(b) for a copy of nomination form.

B. States with Natural Area Dedication Systems and Dedication of Private Land

73.2 Illinois Natural Areas System

Illinois was the first state to establish a natural areas dedication system. Two separate acts were passed in 1963: one established a policy-making body, the Illinois Nature Preserves Commission (IRS c.105, ss. 501-508), the second (IRS c.105, ss. 466-468), established a preserve system with day-to-day implementation to be supervised by the Natural Areas Section in the state Department of Conservation.

The commission has approval authority over acquisition or disposal of nature preserves and the power to formulate policies for their selection, acquisition, and management. It aids other agencies, governmental bodies, and individuals in natural area preservation, evaluation, and management. The commission generally concerns itself with preserves not owned by the state. Its $71,000 budget is part of the 1977-78 budget of the Division of Lands and Historic Sites in the Department of Conservation.

The commission is composed of nine members, most of whom are connected with the state's universities. They are appointed for a given time period and serve without compensation except for travel expenses. Five staff members of the Natural Land Institute, a nonprofit, private land preservation organization, serve as its staff under a contract.

The Institute itself buys ecologically significant land that the state is unable to buy because of budgetary and other restrictions and then later sells the areas to the state. As of early 1977, the Institute owned one small nature prairie (Beach Cemetery Prairie, 2.25 acres) which was dedicated in 1971 as a state nature preserve.

Areas become a part of the system upon dedication by the owner or administering agency, with the approval of the Department of Conservation, the Nature Preserves Commission, and the governor. The suitability of an area is determined by an evaluation of the department and the commission. The goal is to preserve within the system adequate examples of all significant types of natural areas

occurring in the state, including habitats of rare and endangered plant and animal species, unique and unusual natural features, and wilderness remnants.

All areas are managed under the *Rules for Management of the Illinois Nature Preserves*. The commission and staff have outlined six general management procedures,[5] summarized as follows:

(1) Develop a master plan for each area setting forth in detail construction, manipulation, and management procedures to be undertaken and schedules to be followed for surveillance and maintenance.

(2) Assign custody to a knowledgeable, interested, and responsible person who is capable of carrying out his duties as specified in the rules for management of nature preserves and the master plan.

(3) Install specified fences, barriers, signs, and trails.

(4) Terminate adverse activities by quick, firm, and persistent action.

(5) Carry out specified land rehabilitation work, including control of undesirable vegetation, restoration of natural water levels, and removal of trash, old fences, and old buildings.

(6) Schedule adequate and continuing surveillance, patrol and maintenance.

73.3 Dedication of private land in Illinois

In Illinois the only private dedicated natural areas are owned by The Nature Conservancy (4 preserves); the Natural Land Institute (1 preserve); the Forest Park Foundation, Peoria (1 preserve); and a corporation (1 preserve). The total number of preserves is approximately 60, most of which are in state ownership.

The history of several preserves in state ownership shows the involvement of private organizations in acquisition or advocacy of state purchase.

[5] *Two Year Report 1973-74 on Illinois Nature Preserves,* Illinois Nature Preserves Commission, Chicago, Illinois, 1974, p. 11.

(a) The Nature Conservancy

As of January 1977, The Nature Conservancy owned 4 preserves which had been dedicated into the state system: (1) Big Creek Woods Memorial, (2) Baber Woods, (3) Cedar Glenn, and (4) Big Bend Nature Preserve. The following descriptions of these preserves are taken from the Commission's *Two year Report 1973-74 on Illinois Nature Preserves.*

Baber Woods Nature Preserve, Edgar County

Location: Five miles northwest of Westfield. E½ of the NW¼ of the NW¼ and NE¼ of the NW¼, Section 18, T12N, R13W, 2 P.M., Casey Topographic Quadrangle, 15-minute series.

Size: 59 acres.

Date dedicated: September 25, 1974.

Owner and custodian: The Nature Conservancy, Evanston; Eastern Illinois University, Division of Life Sciences, Charleston.

Character: Mesic forest of the Grand Prairie Section of the Grand Prairie Natural Division. A near-virgin forest of white oak, sugar maple, pignut hickory and black oak with a rich herbaceous flora.

Special features: The woods represents a remnant of a much larger forest that once occupied most of the Shelbyville Moraine. Most of the trees are large, with some of the oaks having a diameter exceeding 40 inches.

History of preservation: The woods was donated to The Nature Conservancy by Adin Baber in July 1969. The conveyance was made with the condition that the area ". . . shall be used for a nature preserve for the scientific study and research in the fields of botany and biology and shall be kept entirely in its natural state without any disturbance whatever of habitat, plant or animal populations . . ." The Baber family purchased the land in 1894 and cut some of the timber for fence posts and fuel, but according to Mr. Baber the woods has been left relatively undisturbed and no trees have been cut since 1898 except for the theft of two walnut trees about 5 years ago. The woods was never grazed while owned by the Baber family.

Big Creek Woods Memorial Nature Preserve, Richland County

Location: Two and one-half miles south of Olney on Route 130, SW¼, SE¼ of Section 15, T3N, R10E, 3 P.M., Olney Topographic Quadrangle, 15-minute series.

Size: 40 acres.

Date dedicated: June 25, 1970.

Owner and custodian: Illinois Chapter, The Nature Conservancy, 708 Church Street, Evanston; Olney Central College, Olney.

Character: Ravine forest of the Mt. Vernon Hill Country Section of the Southern Till Plain Division of Illinois. Vegetation is second-growth dry to mesic forest. There is a permanent stream.

History of preservation: The area was a gift to The Nature Conservancy from Dr. Frances A. Cline of Rhinelander, Wisconsin.

Management activities: The preserve is used by Olney Central College as an area for education and research. The college has taken over management of the preserve under a lease agreement. A master plan for the preserve was approved by the commission on January 24, 1972. Construction of a foot bridge across the creek is being planned.

Management problems: Litter along highway must be picked up periodically. Trespass by mushroom hunters and fishermen is a minor problem.

Cedar Glen Nature Preserve, Hancock County

Location: Part of Kibbe Life Science Station, Western Illinois University. One mile east of Warsaw, E½ of Section 2, T4N, R9W, 4 P.M. Warsaw Topographic Quadrangle, 7.5-minute series.

Location: Part of Kibbe Life Science Station, Western Illinois University. One mile east of Warsaw, E1/2 of Section 2, T.4N., R.9W., of the 4 P.M. Warsaw Topographic Quadrangle, 7.5-minute series.

Size: 145 acres; 43-acre buffer.

Date dedicated: February 11, 1975.

Owner and custodian: The Nature Conservancy: Western Illinois University, Macomb.

Character: Forested ravines and bluffs of the Glaciated Section of the Mississippi Border Natural Division of Illinois. Roosting site for wintering bald eagles.

Big Bend Nature Preserve, LaSalle County

Location: On the west side of the Vermillion River, 3 miles south of Oklesby, Sections 6, 7, 8, T32N, R2E, 3 P.M., LaSalle Topographic Quadrangle, 7.5-minute series, 1966.

Location: On the west side of the Vermillion River, 3 miles south of Oklesby, Sections 6, 7, 8, T.32N., R.2E., 3 P.M., LaSalle Topographic Quadrangle, 7.5-minute series, 1966.

Size: 123 acres; 13 buffer.

Date dedicated: June 14, 1976.

Owner and custodian: Illinois Chapter, The Nature Conservancy.

Character: Dry mesic forest, bluffs and bedrock outcrops of the Grand Prairie Section of the Grand Prairie Natural Division.

The Nature Conservancy has been involved in the purchase of several other dedicated areas in Illinois. Among these is an assemblage of preserves in Marion and Jasper Counties, acquired to protect the prairie grouse, an endangered species in Illinois. The properties were transferred to the Department of Conservation. Others include Pine Rock, which was conveyed to Northern Illinois University; Volo Bog,[6] now owned by the Department of Conservation; and Beall Woods, which the Conservancy assisted the state in purchasing.[7]

Some factors which The Nature Conservancy considers when deciding whether to retain ownership of an area are the state Conservancy chapter's management capabilities for the particular site, projected costs of management, and whether The Nature Conservancy has local tax exemption. In some states, a nonprofit organization such as the Conservancy may have statewide tax exemption. while in other states such as Missouri, tax exemption is determined on a county-

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[6]See Chapter 85: Dedication.

[7]See Chapter 72: Fee Acquisition Section 72.3--The Nature Conservancy.

by-county basis. The Conservancy is tax-exempt in Illinois.

A model of land acquisition and management which included dedication was developed by the Conservancy in the late 1960s. The Nature Conservancy would buy an area and lease it to a local university or college with a 5-year renewable lease. For further protection the Conservancy would dedicate the area into the Illinois Nature Preserves System or reserve the right to dedicate it. The university would be an on-site manager. If for some reason the university could not fulfill its management or protection obligations, the lease arrangement (as opposed to a transfer) would allow the Conservancy the option of terminating the lease rather than involving reverter proceedings. Dedication would relieve some of the Conservancy's obligation to protect the area from encroachment. Big Creek Woods, Baber Woods, and Cedar Glen followed this model.[8]

(b) National guidelines for dedication of The Nature Conservancy preserves

The Nature Conservancy is a national organization committed to long-term preservation of significant natural areas. The organization is therefore interested in strengthening state natural area systems with similar goals and obtaining added protection for its own natural areas.

Dedication offers an opportunity to achieve these objectives. It can be used to protect Conservancy areas from condemnation procedures, which usually involve highway or power line rights-of-way. If a stream runs through or is adjacent to the property, it , too, can be protected from condemnation proceedings involving channelization or dams and reservoirs. Such protection can only be achieved through a government interest, such as dedication, or through a lawsuit, which would probably involve too much of the Conservancy's time and money. Further, in government/Conservancy cooperative projects, in which the Conservancy never has ownership but merely assists in the purchase, some protection from adverse and often politically motivated, decisions concerning state land use can be achieved.[9] Thus, from the Conservancy's point of view, dedication is an effective means of controlling the use of preserves it conveys to another organization. The standard reverter clause gives additional protection to areas it has transferred.

The procedures followed by The Conservancy for dedication differ from those applied in standard acquisitions which are retained by the organization. Each proposed dedication is reviewed individually. Generally, dedications must be recommended by the regional office director, reviewed and approved by the national office staff, and reviewed and approved by the national board of governors since dedication is a conveyance of interest in real property owned by The Nature Conservancy to a state. The regional director sometimes submits dedication proposals as part of the original project package or as a resolution amendment.

Several factors are considered in the decisionmaking process concerning dedication. (Not all Conservancy projects, especially in the past, have been candidates for dedication, since the Conservancy has been involved in the preservation of a variety of areas that range from open space to those of national ecological significance.) Some guidelines used by the Conservancy for dedication are:

> (1) Is the area of outstanding ecological significance? Since a dedication is irrevocable, an ecologically unjustifiable preserve may be a weak link in a system of preserves. If the highest and best public use standard can be successfully challenged for one preserve, the preservation of the remaining units could be threatened.
>
> (2) Is the preserve a complete ecological unit? If it contains areas that could be sold or traded for more significant additions, this should be done before dedication.
>
> (3) Does the Conservancy wish to retain permanent ownership? If ownership transfer is to be part of the

[8]See Part Eleven: The Role of Academic Institutions.

[9]Humke, John W., "TNC and Dedicated Nature Preserves," Ecology Forum, *The Nature Conservancy News*, Fall 1973, v. 23, No. 4, The Nature Conservancy, pp. 20-21.

protection strategy, it is usual for the area to be dedicated at the same time as the transfer, or the Conservancy would reserve the right to dedicate the property at a later date. If the group or agency to which the property is to be transferred objects to dedication, the Conservancy would have just cause for reviewing the transfer and preservation commitment of the recipient.

73.4 Indiana Nature Preserves System

The Indiana Nature Preserves Act was passed in 1968 (IC ss. 14-4-5-1 through 14-4-5-15). It provides for the president of the Indiana Academy of Science or his representative to be a member of the natural resources commission, a policy-making body of the state Department of Natural Resources.

State interest in unique natural areas in Indiana may be partly traced to the inception of the state park system in 1911. Parks were chosen for their representative natural area qualities. Many areas within state parks have been dedicated as nature preserves within the system. An example is Dunes Nature Preserve, part of the ecologically significant Indiana Dunes area at the southern tip of Lake Michigan.[10]

73.5 Dedication of private land in Indiana

In Indiana, the state does not attempt to dedicate land in private individual ownership due to inheritance problems. However, two private conservation organizations, Acres, Inc., and The Nature Conservancy, own dedicated land; these organizations are discussed further:

(a) Acres, Inc.

Acres, Inc., was the first private conservation group to dedicate a natural area still in private ownership into the Indiana Nature Preserves System.[11] Beechwood Reserve, a 74-acre area in northeastern Indiana, was dedicated in June 1970. Acres dedicated its preserves for the usual reasons--protection against condemnation and the statewide significance which dedication gives. A state conservation officer has the power of enforcement on all dedicated preserves.

As of January 1977, a total of 6 Acres areas had been dedicated into the state preserve system. Besides the Beechwood Reserve, the five others are (1) the Edna W. Spurgeon Woodland Reserve, 60 acres dedicated in 1971; (2) the Lloyd W. Bender Memorial Forest, 60 acres, 1972; (3) the Woodland Bog, 20 acres, 1972; (4) Acres Along the Wabash, 27 acres, 1972; and (5) the Ropchan Memorial Nature Reserve, 77 acres, 1975.

Beechwood Reserve includes a variety of habitats drained by a small stream that empties into nearby Little Otter Lake. The northeast slope has a second growth of beech-maple. While the muck soil supports a stand of yellow birch, red maple, cork elm, and blue beech, more open areas are occupied by thickets of pale and gray dogwoods, red osier, poison sumac, elderberry, and spice bush.

Edna W. Spurgeon Woodland Reserve is locally identified as "The Knobs," since the county in which it is located has rolling uplands with small kames resulting from glacial deposits. The site varies from old fields to sizable forest stands of beech-maple woods.

Acres Along the Wabash in Wells County borders the north bank of the Wabash River. On the alluvial bank there are scattered large specimens of red oak, bur oak, and sycamore. The west portion has a second growth stand of mixed hardwoods, with high frequencies of sugar maple, black maple, and red elm.

Lloyd W. Bender Memorial Forest Reserve in Noble County was a gift to Acres. The South Branch of the Elkhart River and its flood plain form the north and west boundaries of the Reserve. It is a combination of swamp forest, ponded wetlands, upland ridges, and old fields reverting to woody vegetation. Low

[10] See Chapter 77: Legislative, Legal, and Administrative Fighting--Save the Dunes Council.

[11] See also Chapter 72: Fee Acquisition, Section 72.5--Acres, Inc.

ground trees include silver maple, green and black ash, swamp white oak, American elms, and box elder, while upland morainal ridges primarily support second growth stands of shagbark hickory, red oak, red elm, tulip, and green ash.

Woodland Bog is a former peat bog in Steuben County which has passed through the succession stage into a swamp forest. It is dominated by soft maple, wild black cherry, red elm, pin oak, swamp white oak, and large tooth aspen. Some tamarack trees may still be found, evidence of their former dominance when the site was seasonally ponded with water.

The Ropchan Memorial Nature Reserve has a diversity of geological features, with morainal ridges, kettle holes, swamps, and bogs, all of which contribute to good floral distributions. It is located in Steuben County.[12]

Acres, The Nature Conservancy, the state Division of Nature Preserves, and others, including Purdue University, have cooperated in saving Olin Lake and its shores in northeastern Indiana. Parts of this area have already been dedicated into the preserve system, including 126 acres of state-owned land and a parcel owned by the Purdue Research Foundation. A new Olin Lake Advisory Council has been formed to assist with preserve management, community liaison, and the addition of other land so that the lake habitat can be totally protected.

(b) The Nature Conservancy

As of early 1977, the Nature Conservancy owned and was managing four areas which had been dedicated: Blue Bluff, Bitternut Woods, Orangeville Rise of the Lost River, and Barker Woods.

Blue Bluff, a 32-acre preserve in Morgan County, is part of a range of hills bordering the west fork of the White River. This small preserve has differences in elevation of 220 feet. Red oak is the dominant tree, the remainder being a mixture of hickories, sugar maple, beech, tulip, and ash. Flowering raspberry, found in only five other counties in Indiana, occurs on outwashes of blue siltstone.

Bitternut Woods is a 22-acre preserve in Hamilton County along the banks of the Williams Creek. On the flood plain and adjoining terrace are large specimens of beech, bitternut hickory, sycamore, oak, and blue ash. This preserve is an example of the preservation in an area of a small site with good diversity of natural features.

A test of the condemnation procedure has begun involving Bitternut Woods. The county is attempting to take a small slice at the edge of the preserve to widen a bridge.

The Orangeville Rise of the Lost River is a 3-acre geological area at one of the two rises of the Lost River. Here the river emerges in a semicircular, rock-walled pit measuring 110 feet across. The watershed of the Lost River occupies 355 square miles in five counties of southcentral Indiana. The limestone region is known for its sinkholes, caves, underground streams, and blind fish. This area is also a designated National Natural Landmark.

Barker Woods is a 30-acre preserve in LaPorte County in northwestern Indiana. It is a wooded tract in a low depression bordered by shady slopes. Red oak and red maple are the major trees, while gray and yellow birches grow in peaty deposits. Plantations of scotch, jack, and red pines have been placed on higher ground next to natural stands of white, black, and red oaks, black gum, tulip, beech, and sugar maple.[13]

The Nature Conservancy has been involved in the purchase of at least four areas owned by the state and holds reverters on some of these areas, as well as on three areas owned by Acres and dedicated into the state system.

In Indiana, the Conservancy has generally attempted to dedicate an area before transferring it to the state to avoid possible use of areas by more recreation- or resource-oriented divisions of the Department of Natural Resources. In general the Conservancy attempts to dedicate all acceptable land under its ownership into the Indiana system. However, the state will not allow dedication of some areas where other state or federal uses have been planned, such

[12] Barnes, William, "Indiana Nature Preserves," Department of Natural Resources, Indianapolis, Indiana, 1976.

[13] *Ibid.*, Barnes.

As Fall Creek Gorge, which is in the path of a planned reservoir. Another state consideration in accepting dedication is whether the preserve is near the state capital or other population center, facilitating stewardship, or in an outlying area where it would be harder to supervise.

73.6 Iowa Preserves System

The state preserves system in Iowa was created by the legislature with the passage of the Nature Preserves Act of 1965 (IC c. 111B). The system includes historical as well as natural, archeological, geological, and scenic preserves.

The antecedents of the act include a 25-year Conservation Plan proposed in 1933, which even at that early date recognized the need to distinguish between state preserves and state parks. Approximately 70 preserves were proposed then, and local pressure throughout the 1930s and 1940s prompted the establishment of some. For example, the Dubuque County Conservation Society was formed to aid in the acquisition of White Pine Hollow in that county; the area is now a state-owned nature preserve.[14] Also during that time, the Iowa Academy of Science's Conservation Committee led in the establishment of prairie preserves and was involved in selecting and monitoring the progress of prairie acquisition.[15]

The Nature Preserves Act of 1965 established the Iowa Preserves Board. It is required by law to have seven members, including persons with a demonstrated interest in natural lands, waters, and historic sites. Members are recommended to the governor by the state Conservation Commission, the Conservation Committee of the Iowa Academy of Science, and the State Historical Society. In general, members represent the academic community and state societies in the fields of history and archeology. The board's duties are to set up and maintain registries of possible preserve areas, which it is also to survey; to promote scientific investigations pertaining to preserve areas; to carry on interpretive programs; and to publish and disseminate information relating to the preserves. An area may be condemned only with the concurrence of the state Conservation Commission, Preserves Board chairman, and the governor. The Preserves Board is staffed by one state ecologist within the Department of Conservation.

73.7 Dedication of private land in Iowa

One archeological preserve in northeastern Iowa owned by a private individual has been dedicated. Dedication by private individuals has not been persued actively for two reasons: (1) there may be problems with this type of dedication in terms of liability should someone be injured on the property; and (2) there is no provision for tax exemption in Iowa law, and therefore, no clear-cut advantage for individuals in dedicating their properties. The governor of Iowa asked, while signing statements for the Preserve Board: "Why would anyone dedicate an area as a preserve; what do they gain from it?" The only concrete answer is protection from condemnation due especially to roads and power lines; this may, as previously mentioned, constitute a great advantage.

(a) The Nature Conservancy

In 1974 the Preserves Board approved for inclusion into the state Preserves System six areas owned by The Nature Conservancy. The action was initiated by the Iowa chapter of the Conservancy. The preserves represent prairie, bog, and woodlands.

The dedication of two prairie preserves was finalized in December 1976. One, located in Williams Prairie in Johnson County, is 20 acres of native prairie supporting bunch flower, purple and yellow coneflower, gayfeather, and the unusual bottle gentian. The short-billed marsh wren and the bobolink, which are becoming increasingly rare in Iowa due to the disappearance of wet prairie, are also found there. The other newly dedicated preserve is the Freda

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[14] Edward L. Cawley, "The Iowa State Preserves System: A Progress Report," 1976, p. 9.

[15] Ada Hayden, "The Selection of Prairie Areas in Iowa Which Should be Preserved," 1945, pp. 125-148.

Haffner Preserve of 110 acres. It has kettle hole topography within a relict short grass prairie, as well as small, marshy areas.

The Iowa chapter's original intention was to dedicate two preserves a year. The two dedicated in 1976 are believed by chapter representatives to be the most ecologically significant of the six proposed. The organization's timetable has been delayed because of state staff limitations and the need to gather interpretive information.

The benefits to the Conservancy from dedication are that the state will provide a management plan and ongoing management, surveillance, and sign posting for these two preserves, stewardship functions which can be onerous to a private conservation organization.

73.8 Ohio Natural Areas System

The Ohio Natural Areas Act was passed in 1970. In 1976 the administering agency, the Division of Natural Areas and Preserves, was legislatively established as a division of the Department of Natural Resources. An Ohio Natural Areas Council was set up as the advisory body.

Ohio has developed four categories of preserves which have different restrictions on use. The categories, from most to least restrictive uses, are: scientific, interpretive, ecological research, and scenic preserves (which allow hunting).

Ohio is the only state that exempts all dedicated preserves from property taxes. It would seem that this would be a strong drawing card for private individuals to dedicate land. However, whenever the Division of Natural Areas and Preserves has attempted to negotiate dedication of a site, the owners have been unwilling to give up certain activities on the preserves, such as gathering vegetation or cutting firewood, activities which the division could not accept. In one instance, negotiations for the dedication of land owned by a private individual did result in the owner donating the land to the state as part of the natural area system.

73.9 Dedication of private land in Ohio

(a) The Cleveland Museum of Natural History

One partially privately owned area, Mentor Marsh in northeastern Ohio, was dedicated as an interpretive preserve in 1971. The Cleveland Museum of natural History owns 620 of the 850 acres which constitute the Marsh.

The Department of Natural Resources agreed in the articles of dedication of Mentor Marsh to assume all legal and financial responsibilities, including establishing interpretive facilities on the preserve. At its dedication, it was stated that the preserve would be managed in accordance with the *Policy Bulletin* of The Nature Conservancy. The costs of management fluctuate from year to year, ranging from $2,000 to $4,000.[16]

The Mentor Marsh Management Committee, composed of five museum trustees, five local citizens, and the museum coordinator of natural areas, sets administrative policies.[17] The committee makes most policy decisions and supervises day-to-day operations. Management activities are usually carried out jointly by museum staff, committee members, volunteers, and Division of Natural Areas and Preserves staff. All major management directives are supposed to result from agreements between the committee and the Ohio Natural Areas Council.

Mentor Marsh is located one-half mile south of Lake Erie and occupies the old river bed and floodplain of the Grand River, which dried up naturally 250 to 1,000 years ago. There are 5 broad plant communities within the preserve: (1) American beech-sugar maple forest; (2) mixed oak swamp forest; (3) maple-elm-ash swamp forest, which once was the extensive plant community but now is restricted to a few isolated sites; (4) cattail-phragmites community, now the most extensive community; and (5) buttonbush-willow community.

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[16]"Questionnaire: Survey of Natural Area Activities 1976-77: The Cleveland Museum of Natural History."

[17]See Technical Appendix 73.12(d) for a copy of the by-laws.

C. Conclusions

As may be noted, all states discussed here are in the Midwest. This region has had dedication and natural area systems for some time--from 10 to 17 years. The states provide at least some specific funding for natural areas, and there is a paid staff, from the one full-time ecologist in Iowa to approximately 20 staff members in Ohio's Division of Natural Areas and Preserves. The other states, where laws are new, perhaps still must go through the preliminary stages that other programs have experienced.

All of these Midwest states have little land in public ownership. Natural area protection, therefore, is a pressing issue felt by a populace spread over the countryside. Involvement by private organizations, especially by The Nature Conservancy, has been significant.

Generally, the states provide services and protection to a private conservation program which otherwise would have to be paid for by the organization. Some sort of surveillance by officers who can enforce the law is usually one of the services. Some protection, for example, from condemnation, can be provided only by a government entity. If a state dedication program is run with diligence, money, and citizen participation, it can provide a great deal of protection to dedicated lands.

D. Information and Bibliography

73.10 Key information contacts

Bill Barnes, Director
Jim Keith, Assistant Director
Division of Nature Preserves
Department of Natural Resources
State Office Building
Indianapolis, Indiana 46204
(317) 633-6344

John Bissell
Natural Areas Coordinator
Cleveland Museum of Natural History
Wade Oval, University Circle
Cleveland, Ohio 44106
(216) 231-4600

Ray Culter, Director, Tradelands
The Nature Conservancy
1800 North Kent Street
Arlington, Virginia 22209
(703) 841-5351

Jane Dustin, Secretary
Acres, Inc.
1802 Chapman Road
Huntertown, Indiana 46748
(219) 637-6264

John W. Humke, Director
Midwest Regional Office
The Nature Conservancy
328 East Hennepin Avenue
Minneapolis, Minnesota 55414
(612) 379-2134

Gary Leppart, Director
State Park Service
Fort Lincoln State Park
Mandan, North Dakota 58554
(701) 663-9571

Richard Moseley, Chief
Division of Natural Areas and Preserves
Department of Natural Resources
Fountain Square
Columbus, Ohio 43224
(614) 466-4974

Dean Roosa, State Ecologist
Department of Conservation
East Ninth and Grand
Des Moines, Iowa 50319
(515) 281-5814

Dennis Wolkoff
Indiana Field Representative
The Nature Conservancy
Route 1, Box 115
Nashville, Indiana 47448
(812) 988-7547

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73.12 List of technical appendices

(a) Sample: Ohio articles of Dedication. Unpublished. Division of Natural Areas and Preserves: Fountain Square, Columbus, Ohio 43224, ca. 1976.

(b) Natural Area Proposal Form. Unpublished. Ohio Department of Natural Resources, Division of Natural Areas and Preserves: Fountain Square, Columbus, Ohio 43224, 1976.

(c) By-Laws--Mentor March Committee, Natural Sciences Museum (Revised). Cleveland Museum of Natural History: Wade Oval, University Circle, Cleveland, Ohio 44106, ca. 1975.

(d) List of Preserves Dedicated by The Nature Conservancy. Unpublished list from The Nature Conservancy data bank. The Nature Conservancy: 1800 North Kent Street, Arlington, Virginia 22209, April 1977.

73.13 List of organizations using dedication[18]

District of Columbia
- The Wilderness Society National Office

Illinois
- Committee on the Middle Fork
- Natural Land Institute
- The Nature Conservancy Illinois Chapter

Indiana
- Acres, Inc.
- The Nature Conservancy Indiana Chapter

Michigan
- Michigan Natural Areas Council

Missouri
- L-A-D Foundation

Ohio
- Cleveland Museum of Natural History

Virginia
- The Nature Conservancy National Headquarters

73.14 List of preserves dedicated by The Nature Conservancy as of April 1977

Name of area	Acreage
Iowa	
Freda Haffner Preserve	110
Williams Prairie	20
Illinois	
Baber Woods	59
Bartlett Woods	23
Beall Woods	297
Big Bend Vermillion River	250
Big Creek Memorial Woods	40
Cedar Glen Eagle Roost	559
Pine Rock Nature Preserve	59
Prairie Grouse Sanctuary Project	1,314
Rocky Branch Preserve	130
Volo Bog Nature Preserve	47
Wauconda Bog Nature Preserve	67
Indiana	
Acres Along the Wabash	30
Barker Woods	31
Beechwood Nature Preserve	90
Bender Memorial Forest	65
Bitternut Woods	22
Blue Bluff Preserve	32
Cedar Bluffs	23
Hemlock Bluff	40
Hoosier Prairie	330

[18] All field offices of The Wilderness Society are involved in federal dedication processes. See "Master List of Organizations" for addresses and telephone numbers of these offices.

Chapter
Seventy-four

Trust Dedication

A. Introduction

South Carolina is the only state to combine dedication with trusts in which especially significant natural areas can be placed. The following section describes the recently passed Heritage Trust Act and the added protection the trust may afford a natural area.

B. Trust Dedication Programs

74.1 South Carolina and the Heritage Trust Act

The Heritage Trust Act was drafted to give legal protection in perpetuity to natural areas identified in an inventory conducted by the South Carolina Heritage Program,[1] a joint venture of the state and The Nature Conservancy. South Carolina used the experience and examples of other state systems, such as those described in Chapter Seventy-three, Dedication, to formulate strong legislation that would also meet the particular needs of South Carolina. The proposed act was reviewed by the Heritage Program advisory board and a legal advisory board of local lawyers. During the review, another layer of protection--a special form of dedication of natural areas--was included in the legislation. It involved incorporating a dedicated preserve into a trust. As part of the trust, any proposal for a conversion of the preserve to another use would be decided by a local court acting as the representative of present and future generations, rather than merely by an administrative procedure of state government.

The Heritage Trust Act[2] was passed in mid-1976. It established that natural areas may be obtained for inclusion in the state system of preserves by two methods: acquisition of the fee simple interest in a preserve by the state Wildlife and Marine Resources Commission, or acceptance of less-than-fee interest, whether that interest is in public or private ownership. (An example of the latter method is an acceptance of a conservation or open space easement[3]).

After a "Dedication Agreement," which states duties and restrictions, is recorded with the state Department of Wildlife and Marine Resources, a natural area becomes a state Heritage Preserve. A heritage preserve cannot be taken for another public purpose except with the approval of the Wildlife and Marine Resources Commission and the governor. Any heritage preserve may qualify for the increased protection provided by inclusion in the Heritage Trust.

The management plan for the preserve, in addition to describing its use, should include recommendations as to whether the preserve is significant enough for inclusion in the trust. Under the act, the designated trustee of the program is the Wildlife and Marine Resources Commission. The commission, as trustee, has the power and duty to go to court to enforce the terms of the trust against any person, group, or agency which interferes with its property. The property is protected against conversion to another public use by a provision that a court will decide whether a proposed change of use is in the best interest of the beneficiaries of the trust. In this instance, the beneficiaries are the present and future generations in the state, especially students, teachers, and persons concerned with ecology, history, and archeology.[4]

A heritage preserve is not eligible to become a part of the heritage trust if the previous owner has retained an interest such as a life estate or a reverter.[5] In this case, the owner's (or the owner's successors) permission is needed if the preserve is to be included in the trust.

Once approved by the commission, legal title is conveyed to it, and the beneficial ownership rests with the aforementioned beneficiaries. The intent of the law is to allow either publicly or privately owned heritage preserves to be included in the trust.

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[1]See Chapter 68: Identifying Priorities for Protection.

[2]See Chapter 74.4(a) for a copy of the act; reference until codification is to Act No. 600, *1976 South Carolina Volume of Acts and Resolutions*, p. 1607.

[3]Act No. 600, s.2.

[4]Act No. 600, s.9.

[5]A true reverter, as opposed to the possibility of reverter.

Once included, however, a preserve becomes the property of the trust.

The act provides for a 17-member heritage Trust Advisory Board to review inventories and dedication proposals and assist in maintaining a list of natural areas for possible inclusion in the preserve system. By law, the governor is to choose six members of the board from the general public. These members have been appointed. Appointing the advisory board is the first step in implementing the act.

Influences outside of government were instrumental in getting the act passed. Continued participation by private organizations and individuals is encouraged by the act (including participation through dedication of privately owned areas). However, more time is needed to see if the provisions relating to participation will be fully used.

Three state-owned areas have been dedicated in the trust as of March 1981, including the Tom Yawkey Wildlife Center, 20,000 acres, Stevens Creek Natural Area, 140 acres, and Capers Island, 1,200 acres.

Another state-owned area, The Santee Coastal Reserve, 23,024 acres, including Blake's (or Washo) Preserve, may be dedicated in the future. The Santee came into state ownership in the early development stages of the Heritage Trust Program when The Nature Conservancy, in anticipation of a strong, legislatively established preserve system, donated the property to the state.

(a) Illustrative example: The Santee Coastal Reserve

The Santee Coastal Reserve was transferred by The Nature Conservancy to the State of South Carolina with the intention that this ecologically significant area would eventually receive added protection as part of the South Carolina Heritage Trust. If the conditions of the transfer are ever violated (no alterations to the natural system are permitted), the property would revert to Conservancy ownership. The Conservancy has retained ownership of a section of the Santee called Blake's (or Washo) Reserve, although it has been leased to the state for management purposes, with restrictions and special use protection. A use and management plan was developed by the state in accordance with these restrictions.

The Santee is a 23,024-acre area in Georgetown and Charleston Counties. Around 18,500 acres are freshwater, brackish, and walt marshlands with numerous cypress swamps. Upland timber covers another 4,500 acres. The area was formerly in the ownership of the Santee Club, or the "Santee Gun Club," which was established in the South Carolina lowlands around 1900. Membership in the Santee Club was never more than 30; among the early members was President Grover Cleveland.

Much of the area had previously been planted in rice. One of the most successful early planters was Joseph Blake, who owned much of the land in the lower Santee. Although the Santee Club is a hunting club, some parts of the reserve, including the cypress-bordered Blake's Reserve, were never hunted. The club maintained Blake's Reserve as a wading bird rookery even during the time when the plume trade for ladies' hats was extremely profitable and was threatening many of these birds. The reserve is the oldest known egret rookery.

The Santee area is bordered by other protected areas: on the south by the Cape Romain National Wildlife Refuge, the west by the Francis Marion National Forest, and the north by other shooting preserves such as Kimloch Plantation.

Several rare or endangered species may be found in the Santee, including at least 30 pair of ospreys and 3 pair of southern bald eagles *(Halieatus l. leucocephalus)* which nest within Blake's Reserve. In the early summer, the beach is a nesting place for loggerhead sea turtles (*Caretta caretta*). Other birds found on the beach or near the coast include terns, brown pelicans *(Pelicanus occidentalis carolinensis)*, and wading birds such as least bitterns, herons, egrets, and ibises. Red-cockaded woodpeckers *(Dendrocopos borealis)* may sometimes be found roaming the pine woods around the reserve. Alligators *(Alligator mississippiensis)* wander the marshland area.

C. Information and Bibliography

74.2 Key information contacts

Hardy Wieting, Jr.
Legal Advisor, Government and State Heritage Programs
The Nature Conservancy
1800 North Kent Street
Arlington, Virginia 22209
(703) 841-5325

Thomas S. Kohlsaat
Supervisor for Nongame, Endangered Species and the Heritage Trust Program
South Carolina Wildlife and Marine Resources Department
P. O. Box 167
Columbia, South Carolina 29202
(803) 758-0015

Steve Bennett
South Carolina Heritage Trust Program
South Carolina Wildlife and Marine Resources Department
P. O. Box 167
Columbia, South Carolina 29202
(803) 758-0015

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74.4 List of technical appendices

(a) An Act to Provide for the Establishment of the South Carolina Trust Program. *South Carolina Acts and Resolutions,* Act No. 600 (1976) 1607.

(b) Map of the Santee Coastal Reserve, *The Nature Conservancy News* (The Nature Conservancy: 1800 North Kent Street, Arlington, Virginia 22209), 24, No. 4 (Fall 1974) 14.

Chapter Seventy-five

Environmental Analysis

A. Introduction

The way in which private organizations participate in environmental analyses can be illustrated by examining their involvement in the environmental impact statement process and the review and comment procedures mandated by federal regulation, in particular, the Office of Management and Budget's Circular A-95. As indicated earlier, the National Environmental Policy Act (NEPA) requires environmental impact statements to be prepared and considered for all "major federal actions." Similarly, at least 26 states require impact assessments for state actions.

Most impact statements are for individual, one-time federal actions. Examples of the types of actions for which federal agencies must prepare impact statements include: nuclear power plant licenses, offshore oil leases, and water resource, highway, and housing projects.

In preparing environmental impact statements, federal agencies are required to solicit views of other agencies, including state and local agencies, during the scoping process which precedes preparation of the draft statement. All agencies are required to extend this pre-draft review to the public. It is at this early stage that private citizens and groups may first have access to the assessment process.

A recent Council on Environmental Quality (CEQ) report drew the following conclusions about public involvement in the impact statement process:

> Federal agencies seek some degree of public involvement prior to and during the preparation of the draft environmental impact statement.
>
> Most (but not all) agencies send copies of environmental impact statements to State and/or national environmental organizations.
>
> If a project is of sufficient size and interest, a suitable number of copies of the environmental impact statement are normally available.
>
> All agencies make some attempt to include public hearings in the NEPA process, and the public contribution is incorporated in the environmental impact statements.[1]

These conclusions, however, do not represent a quantitative or qualitative evaluation of agency efforts to involve the public but rather report what agencies say they do to gain public input.

An example of how a federal agency seeks public comment can be seen from the procedures followed by the Fish and Wildlife Service after it published a draft environmental impact statement on the National Wildlife Refuge System. The service held 8 public hearings and received over 200 written comments from federal, state, and local agencies, plus 59 conservation groups, 5 universities, and many private citizens. The final environmental impact statement incorporated changes reflecting the concerns expressed by these groups over major issues such as grazing, hunting and trapping on refuges, and use of chemicals.

One of the continuing issues in the impact statement process is how much information public interest groups need and how much federal agencies are required to release in order to comply with NEPA. Some agencies suggest that private groups demand more than can be supplied. Conversely, many private organizations feel that federal agencies withhold data needed for a proper environmental analysis. At this point, the issue remains unresolved. In surveying state officials involved in the NEPA process, the Council on Environmental Quality found that most considered it an inefficient and problem-plagued process but one that ultimately affords environmental benefits.

Involvement of private conservation organizations, both at a national and local level, appears to be far less systematic and meaningful than was implied in the Council on Environmental Quality's evaluation. The CEQ regulations implementing NEPA require that interested individuals and organizations be notified and given the opportunity to comment on draft impact statements. However, unless private groups have the

[1] "Environmental Impact Statements: An Analysis of Six Years' Experience by Seventy Federal Agencies."

staff and funds to monitor the activities of federal agencies and obtain copies of the statements, they are often unaware of projects which may affect natural areas under their protection. Only a few large national organizations such as the National Wildlife Federation and the Sierra Club have the resources to keep up with the great volume of impact statements. Private state-level programs such as the Heritage Programs sponsored by The Nature Conservancy are increasingly being consulted on a regular basis for their information on species distributions. Local organizations in most instances, however, only participate in the process if they happen to hear about a project at an early stage and are able to force themselves in.

Projects which are highly controversial have the earliest and most visibility; *e.g.*, the Alaskan Pipeline and off-shore leasing on the Outer Continental Shelf. Because of past litigation stirred up by these projects, federal agencies generally seek a high degree of participation during the impact statement review.

Once notification of a draft impact statement for a controversial project is given through the *Federal Register*, the public is given 60 to 90 days to analyze the documents and submit written comments into the record. On projects not considered controversial, this period is limited to 45 days (in some cases it may also be up to 60 days).

Even for national conservation organizations, this may not be long enough. Obtaining adequate ecological data in time for comment is difficult. This problem is, in fact, being solved through improved data management of ecological data and increased centralization of such data in heritage-type programs. Another problem is that copies of the impact statements obtained through proper channels often arrive after much of the review period has elapsed, making it difficult to find willing people with sufficient expertise to review the voluminous documents thoroughly on short notice. Thus, except for the controversial projects, most private groups do not have the time or funds to do an adequate review.

It has been claimed by more than one staff member of several conservation organizations that once a draft impact statement has been completed, it is too late to exert any influence on decisions about particular projects. Staff of the National Wildlife Federation have indicated that in order to halt or alter ill-conceived projects, therefore, early public involvement is imperative.

Private organizations need to be involved before and during the preparation of environmental assessments. Alert, grassroots efforts and good communication can result in local groups learning of projects at an early stage, even one or two years in advance of impact statement preparation.

One clue to future federal (and potentially some state) projects may be found in advertised requests for consultant proposals to do impact statements. These requests for proposals may include a general outline of the content for a particular statement on which the consultant must base his proposal. Knowing where this information is published *(Federal Register, Commerce Business Daily)*, local private organizations may become more cognizant of development activity and, therefore, better able to influence decisions which affect their natural heritage. Local private groups and chapters of national organizations must be diligent if they are to know what is occurring locally.

B. Environmental Impact Statement Review: National Organization

An example of a private national organization which involves itself in reviewing environmental impact statements is the National Wildlife Federation.

75.1 National Wildlife Federation

(a) Objectives

The National Wildlife Federation is a nationwide conservation organization which seeks to achieve its goals through educational means and promotion of public awareness. Its goals pertaining to natural area preservation are

> Preservation of high quality wilderness and natural areas, outstanding wild rivers, scenic trails, and estuarine areas.

Preservation of optimum numbers and variety of wildlife through designation of suitable areas as wildlife refuges, parks, seashores, and lakeshores, recreation centers, and scenic rivers.

Protection of endangered wildlife.[2]

(b) Structure of the Organization

The federation was founded in 1936 as a result of the North American Wildlife Conference called by President Franklin D. Roosevelt "to stimulate public interest in proper management of our natural resources and wildlife." The federation now has over 3,500,000 members who are organized at the national level (called associate members) or at a state level. All state federations are autonomous. There is one in each state and in Guam, Puerto Rico, and the Virgin Islands. These are composed of various local groups--sportsmen's clubs, sometimes Audubon Societies, and Izaak Walton Leagues. They may have substantial differences in focus; *e.g.*, Connecticut is concerned with legal cases and Delaware with duck hunting areas. About 2 million members are involved in the state federations.

There are eight regional federation offices and a national office located in Washington, D. C. The national office is organized into six divisions: Conservation (serves as Liaison with state and federal agencies and produces the *Conservation News* and *Conservation Report*); Outdoor Education; Creative Services; Resource Defense (participates in lawsuits and advises state affiliates on conservation problems); Information; and Wildlife Heritage (a new division coordinating habitat preservation through land acquisition, part of which was formerly called the land heritage program). The federation has an operating budget of about $17 million per year.[3]

Although primarily an education and public consciousness-raising group, the Wildlife Federation uses other methods to obtain its objectives. These include

Using the law, through litigation if necessary, to guard the public interest in wise resource management. Wetlands drainage, destructive Federal highways and dams, ocean pollution, coal development, and public land use, are among fields in which the federation has taken legal action;

Testifying as expert witnesses, when invited, before committees of Congress and State legislatures;

Participating in hearings and proceedings before administrative agencies of government;

Maintaining contact with and disseminating information from Federal and State executive agencies that operate programs affecting natural resources;

Giving individuals a chance to contribute land to perpetuate wildlife and the quality of nature through the NWF and Heritage Program.[4]

The Wildlife Heritage Division seeks to acquire natural areas and easements on valuable wildlife habitats to protect these lands. The federation and the National Wildlife Endowment own about 20 areas. Acquisition of natural areas, however, is a relatively low priority item within the overall context of the organization.[5]

(c) Protection technique: Providing data for and reviewing environmental impact statements

The federation becomes involved in environmental analysis through its Resources Defense Division. The legal staff of this division participate in rule making, administrative proceedings, and lawsuits to protect environmental values. They also advise state affiliate organizations and private citizens on conservation problems.

The division monitors the *Federal Register* to identify environmental impact statements in which it may have an interest. Many federal agencies also solicit the federation's review of

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[2]National Wildlife Federation, "Working for a Better Environment," pamphlet, Washington, D. C., July 1976, p. 5.

[3]See Technical Appendix 75(a).

[4]National Wildlife Federation, *Working for a Better Environment*, July 1976, Washington, D. C., pp. 5-7.

[5]See also Technical Appendix 75(b).

environmental impact statements because it is a large, well-known, private conservation organization with a capability to provide documented comments. It is frequently asked to participate in the environmental impact statement review process on controversial projects with high public visibility. However, the large volume of impact statements and the often inadequate review periods make it difficult for the division to perform adequate reviews. In addition, the federation does not have a systematic ecological inventory readily at its disposal, except for its raptor inventory. It must assemble data on a project-by-project basis.

The division also monitors project applications to build sewage treatment plants under the Environmental Protection Agency's 201 Waste Water Treatment Program. Applications are reviewed to determine what impacts construction of such facilities will have on wetlands. The division is concerned not only with direct impacts but also with the urban growth induced by new treatment plants. Comments on project applications are submitted to the Environmental Protection Agency for consideration in its evaluation of the project.

A new federation project is the Raptor Information Center, begun in early 1977. This center is spearheading work on a major federation concern: the protection of the habitats of the bald eagle and other raptors.[6] Since inventories are an integral part of the environmental analysis process,[7] the Raptor Center's data may be used to identify habitats threatened by federal projects, as required under the National Environmental Policy Act's regulations.

Objectives of the Raptor Information Center are: (1) to identify and protect critical bald eagle habitats; (2) increase communications and serve as a clearinghouse for relevant literature; and (3) identify and encourage the support of priority bald eagle research, including annual censuses. The center will work with the public, scientists, and federal agency personnel to make arrangements for the purchase of bald eagle habitat areas or for agreements with private landowners for an area's protection.[8]

C. The A-95 Review Process: State Organization

The A-95 review process is an important facet of environmental analysis. This process is required under the authority of the Office of Management and Budget Circular A-95, first issued in 1969, which declares that every federal grant application must be sent to state and areawide clearinghouses before formal application to the federal funding agency. There are several aspects of A-95 which are potentially important for environmental analysis:

> Clearinghouses are a designated means by which State and local governments comment upon draft environmental impact statements involving Federal action affecting their jurisdictions;
>
> Clearinghouses allow State and local governments an early opportunity to comment on environmental effects of Federal aid projects;
>
> This established process facilitates and encourages coordination in environmental policy making;
>
> The established procedures encourage State, local and regional agencies to perform environmental assessments of non-Federal projects as well as federally funded projects.

One of the key elements of A-95 is the project notification and review system. The clearinghouse must be notified at least 60 days before applying for funds under more than 150 federal aid programs. During this period, clearinghouses notify all interested state and local agencies, which are then given an opportunity to assess the proposed project. This review, conducted before the formal application is submitted, allows for early identification of potential conflicts and adverse impacts. While the state clearinghouses may not veto a project, all written comments of public

[6] See also Technical Appendix 75(b).

[7] See also Chapter 75, Section 75.2.

[8] "Raptor Information Center Established," *Conservation News*, pp. 12-13.

agencies and interested parties (both adverse and supportive) must be submitted by the applicant to the proper federal agency. The final decision rests with that agency.

A potential weakness in this system is that the Office of Management and Budget does not require the participation of non-governmental organizations; rather, it simply "encourages" clearinghouses to involve private entities. The burden is clearly placed on private individuals and organizations to become familiar with the A-95 process and to make the clearinghouse aware of their interest in participation. Since all comments must be forwarded to the funding agency, even where a particular project has the blessing of state and local government officials, possible citizen opposition must at least be considered. At the minimum, early notification will give private groups more time to influence decisions affecting their interests.

75.2 Tennessee Heritage Program

The Tennessee Heritage Program is an example of an inventory program on natural diversity which serves as an integral part of the A-95 process. The program, housed in the Department of Conservation, involves an ongoing inventory which maintains data on natural diversity. Maps giving the location of occurrences of significant ecological features are prepared as well.

Established to assist in the implementation of the Tennessee Natural Areas Act of 1971, the program was developed with close cooperation between The Nature Conservancy and the State of Tennessee.[9] The Conservancy had contracted with the Tennessee Department of Conservation to establish an inventory and data management process which would locate and evaluate occurrences of significant elements of natural diversity. The project was funded by the state, the federal Land and Water Conservation Fund, and a private foundation.

The program was assigned responsibility for reviewing selected A-95 material. The state clearinghouse sends notification of projects to the Department of Conservation, where Heritage Program staff log in the notification and review those projects likely to have an impact on natural features they have located. Each application is checked against the data files and maps to determine potential impacts.

While many applications do not affect inventoried areas, when it appears that a proposed project will do so, a recommendation is made that the applicant perform an on-site survey. If the survey indicates a potential adverse impact, plans can then often be altered to protect the site. Heritage Program staff comments become the official position of the Department of Conservation in the A-95 review process. The staff has experienced a great deal of cooperation from A-95 applicants.

As more agencies and individuals become aware of the inventory, they have begun to consult with the Heritage Program at an early date, before plans are finalized and too difficult to change. State agencies such as the Department of Transportation now check the inventory on a regular basis. A full-time staff person spends 50 percent of her time on A-95 reviews.

The success of the Heritage Program is the result of having established procedures (A-95) and the inventory data to support the significance of natural areas in Tennessee. Private organizations which maintain inventories to support their other activities may also increase their effectiveness in protecting natural areas by understanding and using the procedures required in environmental assessment.

D. Information and Bibliography

75.3 Key information contacts

Joel Thomas
Tom Bick
Resources Defense Division
The National Wildlife Federation
1412 16th Street, N. W.
Washington, D. C. 20036
(202) 797-6800

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[9]See Chapter 68: Identifying Priorities for Protection, Section 68.6--The Nature Conservancy's State Heritage Program, for a more detailed discussion of Heritage Programs.

Bette Osborne
Tennessee Heritage Program
2611 West End Avenue
Nashville, Tennessee 37203
(615) 741-3852

Gomer Jones
Wildlife Heritage Division
National Wildlife Federation
Laurel Ridge Conservation Center
8925 Leesburg Pike
Vienna, Virginia 22180
(703) 790-4301

Jeffrey L. Lincer, Director
Raptor Information Center
National Wildlife Federation
1412 16th Street, N. W.
Washington, D. C. 20036
(202) 797-6800

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(a) "How Federation 1975 Revenue Was Allocated." *Report to National Wildlife Federation Members* (National Wildlife Federation: 1412 16th Street, N. W.), Washington, D. C. 20036, 1976.

(b) "We Can Save the Eagle." National Wildlife Federation: 1412 16th Street, N. W., Washington, D. C. 20036.

Chapter Seventy-six

Consciousness-raising

A. Introduction

76.1 Overview

All the private conservation organizations mentioned in this study are involved in consciousness-raising in some sense. To accomplish their goals, they must educate their constituencies and, to some extent, the general public as to the need for their existence. It is hard to concretely measure the success of attempts at consciousness-raising. The only indicators of progress are such things as size of membership, contributions, and numbers of participants in programs specifically designed to educate members of the public on the state of the environment or on issues directly related to land preservation or protected lands. Some of these indicators taken alone may be misleading. Membership does not mean active participation, although the fact that a person spent $15 to join suggests concurrence with the objectives of the organization.

National conservation organizations are the most visible and familiar components of the land preservation movement. Combined membership of the 12 largest is over 4.3 million (remembering that an individual may belong to more than one organization). Their combined budget is more than $48 million.[1]

The objectives of many of the organizations include education. For example, one of the purposes of the National Audubon Society, as listed in the 1977 *Conservation Directory,* is to ". . . educate man regarding his relationship with, and his place within, the natural environment as an ecological system."[2] Many other national conservation organizations have programs specifically directed toward education of their membership and the public. The Wilderness Society, for one, holds citizen training programs to create a general awareness of the environment and to mobilize broad-based coalitions of conservation organizations. Its objectives are to (1) give people the ability to work with other people and organize awareness effectively; (2) provide them with a working knowledge of current public issues; and (3) teach them local, state, and national governmental processes. To achieve these objectives the Society holds Washington Seminars; train-the-trainer workshops for other regional, state, and local workshops; regional conferences and workshops; and a youth leadership internship program.

The Wilderness Society believes that a major purpose of its work is to explain the need for wilderness, what the Wilderness Act of 1964 and subsequent national wilderness legislation contains, and how the public may get involved. One topic it addresses is how to define "wilderness" which often differs among federal agencies and conservation organizations. Explanations, upland wilderness proposals are regularly sent to members and published in the Society's magazine and newsletter.[3]

The National Audubon Society (Section 76.2), the Sierra Club (Section 76.3), and the National Wildlife Federation (Section 76.4) play dual roles in educating the public on the complexities and interrelationships of environmental, economic, and social issues, and also educating members and the public as to specific issues. Through their chapter or affiliate structures, these groups may direct considerable funds into education at local as well as national levels.

Other organizations may raise consciousness as a by-product of applying the tools discussed in this study. For example, the mere fact that Acres, Inc., owns and manages local preserves in Indiana makes people aware of natural areas near where they live and work. The organization also leads specifically educational field trips which are on the preserves and presents to local civic groups a slide show on its work. Local groups such as Acres may, however, be

[1] Barney, Gerald O., ed., *The Unfinished Agenda: A Task Force Report,* sponsored by the Rockefeller Brothers Fund, New York: Thomas Y. Corwell Company, 1977.

[2] National Wildlife Federation, *Conservation Directory,* Washington, D. C., 1977, p. 60.

[3] See Chapter 77: Legislative, Legal, and Administrative Fighting, Section 77.2, The Wilderness Society, for a full discussion of the organization's activities.

limited in how much they can do because of their low budgets.

Land acquisition groups such as The Nature Conservancy traditionally have not carried out extensive awareness campaigns on the nature of natural areas and the need for natural diversity. Their success is generally measured by the amount of funds raised and the number and acreage of areas acquired, rather than by numbers of members. This, however, is changing as an increasing amount of land is lost to development and population pressures and as the need for public awareness becomes evident. (For a discussion of the conceptual problems faced by The Nature Conservancy in articulating land preservation goals to the general public, see Section 76.5.)

B. National Organizations

76.2 National Audubon Society

A key objective of the National Audubon Society is to raise the general awareness of society as to the value of natural resources. The Society has 350,000 members who automatically receive many of the Society's publications. The Society is also involved in land acquisition, and its sanctuaries constitute an educational tool.[4]

The National Audubon Society states in its magazine that joining the Society "will help to advance public understanding of the value and need for conservation of our wildlife, its habitat, and all natural resources, and the relationship of such wise use and intelligent treatment to human progress." The magazine lists the Society's basic methods, which are supported by membership fees, that the Society uses in furthering this objective. These include

Audubon sanctuaries, embracing some 44 areas ranging from small offshore islands to a 26,000-acre coastal marshland. Most sanctuaries safeguard areas vital to wildlife, including several rare species, while others protect unique natural environments. All are patrolled by Audubon wardens.

Audubon wildlife films, offering community enrichment through excellent full-color presentations on the world of nature, narrated by outstanding photographer-naturalists. Sixty Audubon lecturers hold more than 1,500 programs each year for sponsoring organizations in 250 cities.

Audubon workshops, which better equip teachers, youth leaders, and other adults to impart an understanding of man's role in nature and the importance of conservation. Summer sessions for adults are conducted at camp facilities in Connecticut, Maine, Wisconsin, and Wyoming. (For information, write the Educational Services Department.)

Audubon Centers, natural areas where children, teachers, and other leaders gain personal experiences with nature which will vitalize their outlook on life and introduce outdoor education as a teaching resource. Owned and operated by the Society are the Audubon Center of Greenwich, in Greenwich, Connecticut; Sharon Audubon Center, in Sharon, Connecticut; Aullwood Audubon Center and Aullwood Audubon Farm, near Dayton, Ohio; Schlitz Audubon Center, near Milwaukee, Wisconsin; and Richardson Bay Wildlife Sanctuary and Education Center, in Tiburon, California.

Audubon Aids in Natural Science, a stimulating variety of educational materials for environmental programs at all grade levels.

Chapters and affiliates of the National Audubon Society, which advance its cause in 600 communities.

Nature Centers Planning Division, promoting the creation of community nature centers by supplying professional advice and technical assistance to local organizations, schools, and officials. Its guidance and inspiration have led to the development of outstanding centers throughout the United States and Canada.

Public information, for the growing number of media, citizens, and agencies who look to the National Audubon Society for accurate information on natural history and for independent appraisals of conservation issues.

Publications: Audubon, sent to all members; *American Birds*, summarizing the status, movements, and distribution of North American birds; and *The Curious Naturalist*, for beginning naturalists of all ages.

Wildlife research, a basic tool of

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[4]See also Chapter 72: Fee Acquisition, 72.3, National Audubon Society.

sound resource management and an expanding activity of the Society. Findings and reports have provided fundamental guidance in the preservation of several endangered species.

76.3 Sierra Club

The Sierra Club's general objectives include publishing scientific and educational studies on all aspects of the environment and the world's natural ecosystems and educating people around the world as to the need to preserve and restore the quality of the environment and the integrity of its ecosystems.[5] Several regular Sierra Club publications seek to raise public consciousness about a variety of complex issues from population to wilderness. The Club has a Books Division which publishes longer treatises on the environment. The Club also sponsors films, exhibits, and conferences. In 1977 its research division was planning to concentrate on the need for biotic diversity.[6]

The Sierra Club believes that member response is the only way to compete with "big money" or special interests in affecting legislation or administrative decisions. To educate and organize its membership for the Club's essential work of promoting sound laws and policies, a Volunteer Training Program was authorized by the Sierra Club Board in the fall of 1975. It is for key volunteer activists and leaders throughout the Club. The first training was held in March 1976.

The Sierra Club has around 200,000 members. Membership has more than doubled since 1969, when the club had 72,000 members. There are 52 chapters and many more local groups. The Club offers wilderness outings, white water trips, skiing, mountaineering, and knapsacking. These activities can serve as opportunities for explaining and demonstrating proper passive or "walking lightly" use of wilderness or other vulnerable land. Sierra Club classes, formal and informal, teach these and other approaches and skills, with an overall theme of safety and respect for the land.

The Club also sponsors wilderness survey trips to gather data needed in lobbying for preservation.[7] Trail maintenance and clean-up trips combine enjoyment and service to the environment. "Inner City Outings" are conducted regularly and may be first-time wilderness experiences for many participants. It is hoped that these will be the beginning of an awareness of the natural world and its proper use.

Internal and issue committees of the Club advise the Board of Directors on policy matters. Issue committees include approximately a dozen Regional Conservation Committees made up of delegates from each chapter in the 10 Sierra Club regions, plus Alaska and Hawaii. These committees deal with regional issues. The other committees specialize in single environmental problems that transcend regional boundaries. Examples are: atmospheric pollution, economics, energy, environmental education, forest practices, international environmental concerns, labor liaison, land use, Native American liaison, population, transportation, wilderness, and wildlife. The committees are appointed by the executive committee of the Sierra Club Board of Directors.

Recent recommendations to help committees meet their objectives included: (1) developing wider participation by members in committee work: (2) making greater use of the talents and knowledge of club members; and (3) fostering greater communication and cohesiveness among committees and club members.[8]

76.4 National Wildlife Federation

The Federation seeks to achieve its goals primarily through educating people about resource and environmental problems and assisting people to participate in their solutions. As its name suggests, a primary Federation concern is the welfare of wildlife, including habitat preservation. Habitat preservation may be accomplished through litigation

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[5]See Technical Appendix 76.8 for bylaws.

[6]Edmund Schofield, personal communication, April 1977.

[7]See also Chapter 79: Watchdogging, or Monitoring Natural Areas.

[8]Irwin, Robert L., "The Observer," *Sierra Club Bulletin*, May 1976, p. 40.

(*e.g.*, the recent case involving the Mississippi sandhill crane habitat), acquisition of land, and issue and environmental education. Separate divisions of the National Wildlife Federation handle each of the above tasks.[9]

The Federation believes that wildlife is valuable not just as a barometer of the well-being of the ecosystem and environment, but also for its own sake. In observing wildlife, a person can become aware of the interconnection of all living things and the responsibility of people to be wise stewards of the earth's resources.

The Federation's environmental education materials and programs are for both adults and children. The Federation publishes *National Wildlife, International Wildlife,* and Ranger Rick's *Nature Magazine*. A teacher's guide has been prepared on the use of Ranger Rick in schools. There are a variety of other publications, slide shows, and audiovisual materials for instructional purposes.[10] The Federation conducts a family nature vacation and environmental education camp, as well as backpack trips for young people. Information on legislative and administrative policy issues may be found in *Conservation News*, a semi-monthly publication, and *Conservation Report*, a weekly digest of environmental legislation.

The Federation has 3.5 million members and has affiliate organizations in Guam and Puerto Rico.

76.5 The Nature Conservancy

(a) Preserving natural diversity

The Nature Conservancy's concern for the preservation of biological diversity and the related objective of protecting natural areas has forced the organization to address a number of problems which involve consciousness-raising and public interpretation of the concept of biological diversity.

The first problem is that protection of natural areas has not received the share of public attention that more pressing or readily observed environmental problems or causes have. Scientists tell of the long-range need to preserve the variety of life forms that have evolved on this planet. Generally, this scientific goal is not well-recognized. Bears, eagles, wolves, and even the Texas blind salamander, for example, have enjoyed a certain public recognition and have, therefore, been protected in various ways. However, the endangered natural area as a whole remains a concept more understood by academicians than voters, more appreciated by scientists than politicians.

Even among conservationists, The Conservancy has found that there is some question as to what constitutes a natural area. For some, it is a stand of 40-year-old oaks; for others, it is an unplowed prairie; for still others, it is best defined in terms of protecting natural diversity. It seems that only natural areas which protect an endangered species and thus are identified as critical habitats have recognizable utility to conservationists and the sympathetic public. They have, therefore, gained status in the eyes of government. However, not all natural areas harbor endangered species and thus may not qualify as habitats important enough to be protected.

(b) Protection technique

The Nature Conservancy has examined a number of ways of communicating its objectives and articulating the goal of preserving ecological diversity. To date, the first call to action and the most readily accepted by other than the cognizant, has been that of "land conservation."

To call for "protecting America's natural land" has its drawback, however. It skirts the issue of clearly defining a natural area and results in a certain amount of protection energy lost through diffusion. People and organizations rush to protect natural land only to discover the object of their efforts is regarded by natural area conservationists as unworthy of protection.

A second and somewhat successful approach has been to include natural area protection within a larger proposal of saving a state's or nation's natural heritage. Frequently, natural heritage

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[9]See also Chapter 75: Environmental Analysis, Section 75.1--National Wildlife Federation.

[10]See Technical Appendix 76.8(b).

needs are combined with cultural heritage to form a more saleable package. Conservancy staff member David E. Morine successfully suggested this heritage approach in initial talks with state officials in Georgia during the early stages of setting up what was to become the Georgia Heritage Trust, precursor to a number of heritage efforts in other states. President Carter's National Heritage Program initiative likewise endorsed this concept.

Conservancy communications staff have worked to incorporate the preservation of ecological diversity as a goal of the natural areas movement. This linkage has made it possible to articulate the reasons for protecting natural areas without actually defining a natural area. One of the operative phrases is: "the natural land and the diversity of life it protects should be safeguarded."

The Nature Conservancy works to promote understanding of natural area protection, by illustrating and, in so doing, defining natural areas in terms of their importance as refuges for elements of diversity. The need to protect the sum total of the diversity of genetic information by safeguarding pieces of natural land which contain relevant gene pools is becoming increasingly understood by the public when explained in terms of economic and social benefits (see Chapter 66.3: Introduction--Rationale for the Preservation of Natural Diversity). Efforts are made in publications, news releases, exhibits, and presentations to stress the unique aspects of natural area projects and, where possible, to describe the natural area as habitat for species present. Special note is made of endangered, threatened, or rare species because the extinction of species or communities is irreversible, and the degree of endangerment grows steadily worse.

The American Land Trust,[11] which worked closely as a special program of The Conservancy, was faced with the problem of producing interesting and descriptive material on the type of land it wanted as gifts and for which it would raise money. Because the American Land Trust's audience was different from that of the Conservancy's traditional audience and had not been approached previously and educated about natural areas, the Conservancy was unsure to what extent it could engender support for the Trust. However, the concept of preserving ecological diversity has been readily accepted by corporate donors and others not expected to be knowledgeable as to the technical definition of natural areas.

The following descriptions were used to define natural areas to this group of potential donors:

(1) habitats safeguarding rare or endangered animal or plant species;

(2) the best remaining examples of unprotected ecosystems--forests, prairies, wetlands, and deserts;

(3) sites of other unique natural features or phenomena, such as exceptional geological areas;

(4) wholly undisturbed lands which still retain the natural character of the landscape of pre-Colonial America; and

(5) important additions to existing preserves, such as national parks and wildlife refuges.

Perhaps the single-most intriguing aspect of natural area preservation consciousness-raising has been the attempts to describe the utility of a natural area in compelling fashion. The challenge is closely linked to the question of the utility of a single species. In most cases, scientists define utility in terms of future possible uses. In some cases, economic values have been placed on operating natural area systems. The price tag to replace what a Louisiana salt marsh does naturally, for example, is $82,000 per acre. However, attempting to assign short-term values to long-term resources may well be a mistake. The idea that *every* natural area has a known economic benefit is faulty, and this thinking could act to work against many natural area types.

Young and Rubicam, the nation's largest advertising agency, has examined in some detail the task of bringing the cause of natural area protection to the public. It felt that the future promise of diversity, to be safeguarded by natural areas, could gain public acceptance, provided compelling examples of the fulfillment of past promises could be forcibly stated. At this writing, the advertising agency continues to work with the Conservancy to seek the factual

[11]See Chapter 72: Fee Acquisition, Section 72.2(h), (g).

basis needed to support claims of future utility.

Clearly, without development of a constituency for natural area protection and without increased awareness of the need to preserve biotic diversity, political safeguards will always be suspect in terms of their permanency. Accordingly, use of traditional protection methods--acquisition and the attendant rights of property--offer the most immediate natural area protection until awareness is greatly increased in both scope and sophistication.

The protection of natural areas may have an old champion that can be reintroduced to the modern public. Noah and the Ark may provide natural areas and diversity with a readily understood symbol. Noah may lead to a personification of the natural area's most important utility--the need to preserve for the sake of preservation, so that parts of this complex system are not lost.

Because of the ambiguity of the term "natural area," the objectives of the "natural areas movement" have often been obscured. The purpose of The Nature Conservancy has been to act as the Noah of the conservation movement by attempting to protect adequate examples of the full array of species, ecological communities, and other natural features and phenomena from extinction or endangerment in the face of pervasive and destructive development. Although not a primary objective of The Nature Conservancy, environmental education is an area which plays an important role in its consciousness-raising efforts. The Conservancy believes that the preservation of natural diversity depends ultimately upon a citizenry that understands and supports this concept and action. Therefore, the Conservancy supports educational uses of its preserves which foster this concept.

An important component of its educational efforts is the integral involvement of other organized interests in the community, such as citizens' clubs, religious organizations, youth groups, government, industry, labor, and media, as well as schools and colleges.

Natural areas can play a key role in implementing a balanced environmental education program in three ways. First, passive recreational or low-key informal educational use of a natural area, such as hiking, cross-country skiing, and birdwatching foster appreciation of the natural environment. Second, the use of natural areas as "outdoor classrooms" or "natural laboratories" imparts, through first-hand experience and investigation, a firm understanding of natural elements and processes. But, most important, the process of preserving a natural area or attempting to defend such a special place is itself a vivid illustration of the action necessary for the maintenance of environmental quality on a grander scale. It is a microcosm which, because it is real rather than theoretical, has tremendous capacity for demonstrating all the basic environmental concepts--closed system, natural ecosystem, human ecosystem, land ethic, population, environmental contamination, environmental quality, and environmental decisionmaking. This concept of using natural areas for education goes well beyond the traditional emphasis of the nature center on the natural environment. Each of the 660 preserves of The Nature Conservancy is, therefore, potentially a focal point or nucleus for a community environmental education program.

The inventory and master planning processes conducted on Conservancy preserves[12] not only benefit the organization in its decisionmaking on appropriate preserve use, but they also serve as rewarding experiences for those involved. A grant has been awarded to provide further funds for the inventory and master planning processes on Conservancy preserves. Student interns will be hired to do the ecological inventories, many receiving college credit for their work. The extensive information from these studies--which cover geology, topography, soils, hydrology, flora, fauna, and climatologic data--will be used to formulate management decisions on each preserve.

A pilot environmental education program has been developed in Ohio as a joint effort of the Conservancy and the Institute for Environmental Education. Researchers have created a manual which will enable volunteers to establish an environmental education program with local schools, using Conservancy preserves as study areas. The project includes preparation of a model kit of

[12] See Part 10, Chapter 72: Fee Acquisition, Section 72.2(g).

educational materials, an instructional manual for volunteers who make up the Conservancy preserve stewardship committees, and selection of schools and teachers to test the program. Contingent upon results of this pilot project, the program may be provided to volunteer preserve managers nationally to help them build effective environmental education programs.

C. Information and Bibliography

76.6 Key information contacts

Jack Lynn
Director, Communications
The Nature Conservancy
1800 North Kent Street
Arlington, Virginia 22209
(703) 841-5346

Edmund Schofield
Research Director
The Sierra Club
530 Bush Street
San Francisco, California 94108
(415) 981-8634

Jack Fauntleroy, Director
Outdoor Education Division
National Wildlife Federation
1412 16th Street, N.W.
Washington, D. C. 20036
(202) 797-6800

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Sierra Club, *Sierra Club Bulletin* (Sierra Club: 530 Bush Street, San Francisco, California 94108), May 1976.

76.8 List of technical appendices

(a) "Bylaws of the Sierra Club." Sierra Club: 530 Bush Street, San Francisco, California 94108, April 1975.

(b) "Conservation Education Publications," The National Wildlife Federation: 1412 16th Street, N.W., Washington, D. C. 20036, ca. 1977.

76.9 List of other organizations[13]

Alabama
- Alabama Ornithological Society
- Bass Anglers Sportsman Society

Alaska
- Alaska Conservation Society

Arizona
- Arizona Conservation Council

Arkansas
- Whooping Crane Conservation Association

California
- California Native Plant Society
- Committee for the Preservation of Tule Elk
- Desert Bighorn Council
- Desert Fishes Council
- Environmental Defense Fund
- Friends of the Sea Otter
- Mono Lake Committee
- Natural Resources Defense Council
- Sierra Club
- Western Society of Malacologists

[13]Local offices of the following national organizations involved on consciousness-raising do not appear here, but can be found in the "Master List of Organizations": Audubon Society, Izaak Walton League of America, Inc., Sierra Club, The Nature Conservancy, The Wilderness Society, and Trout Unlimited.

Colorado
- Colorado Mountain Club
- Colorado Open Space Council
- Environmental Defense Fund
- Rocky Mountain Bighorn Society
- Wilson Ornithological Society

Connecticut
- Connecticut Forest and Park Association, Inc.
- Connecticut Land Trust Service Bureau

Delaware
- Delaware Nature Education Society, Inc.
- Delmarva Ornithological Society

District of Columbia
- American Scenic Rivers Conservation Council
- Barrier Islands Workshop
- Center for Environmental Education
- Defenders of Wildlife
- Environmental Action
- Environmental Action Foundation
- Environmental Defense Fund
- Environmental Law Institute
- Environmental Policy Center
- Fund for Animals, Inc.
- Friends of Animals
- Humane Society of the United States
- League of Conservation Voters
- Monitor, Inc.
- National Parks and Conservation Association
- National Wildlife Federation
- The Conservation Foundation
- The Wilderness Society
- Wildlife Management Institute
- Wildlife Society
- World Wildlife Fund

Florida
- Collier County Conservancy
- Environmental Information Center
- Florida Defenders of the Environment, Inc.

Georgia
- Georgia Environmental Council
- Save America's Vital Environment
- The Georgia Conservancy, Inc.

Hawaii
- Hawaiian Botanical Society

Idaho
- Idaho Conservation League
- Hells Canyon Preservation Council
- Idaho Environmental Council

Illinois
- Ducks Unlimited, Inc.
- Illinois Dunesland Preservation Society
- Illinois Environmental Council
- Natural Land Institute
- Open Lands Project
- Prairie Preservation Society of Ogle County, Inc.
- The Prairie Club

Indiana
- Acres, Inc.
- Fox Island Alliance
- Indiana Audubon Society, Inc.
- Indiana Public Interest Research Group
- Merry Lea Environmental Center
- Olin Lake Advisory Council
- Save the Dunes Council

Iowa
- Iowa Academy of Science
- Iowa Conservation Education Council, Inc.
- Iowa Ornithologists Union

Kansas
- Kansas Advisory Council for Environmental Education
- Kansas Ornithological Society

Maine
- Maine Coast Heritage Trust

Maryland
- Chesapeake Bay Foundation, Inc.
- Conservation Education Council of Maryland
- Maryland Environmental Trust
- Maryland Ornithological Society, Inc.

Massachusetts
- Conservation Law Foundation of New England, Inc.
- Land Preservation Society of Norton, Inc.
- Northeastern Bird Banding Association, Inc.
- New England Wildflower Society

Michigan
- Michigan Botanical Club, Inc.

Minnesota
- Friends of the Boundary Waters Wilderness
- Minnesota Ornithologists Union
- Minnesota Public Interest Research Group
- Quetico Superior Foundation

Mississippi
- Committee for Leaving the Environment of America Natural

Missouri
- Missouri Prairie Foundation

Montana
- Allenspur Committee to Save the Upper Yellowstone Valley
- Center for the Public Interest
- Environmental Action Center
- Environmental Information Center
- Montana Land Reliance
- Montana Wilderness Association
- Northern Rockies Action Group, Inc.

Nebraska
  Nebraska Ornithologists Union, Inc.
New Hampshire
  New Hampshire Association of Conservation Commissions
New Jersey
  American Littoral Society
  New Jersey Conservation Foundation
New Mexico
  New Mexico Conservation Coordinating Council
  New Mexico Wilderness Study Committee
New York
  Adirondack Mountain Club, Inc.
  Environmental Defense Fund
  Environmental Planning Lobby
  Garden Club of America
  Group for America's South Fork
  Long Island Environmental Council
  Long Island Marine Environmental Council
  Miner Institute
  National Audubon Society
  Natural Resources Defense Council
  Onondaga Nature Centers, Inc.
  Pound Ridge Land Conservancy
North Carolina
  Beaucatcher Mountain Defense Association
  Conservation Council of North Carolina
  Committee for the New River
  Dunes of Dare Garden Club
  People to Preserve Jockey's Ridge, Inc.
Ohio
  Little Miami, Inc.
  Ohio Biological Survey
  Ohio Environmental Council, Inc.
  Rivers Unlimited
  The Darby Greek Association
Oklahoma
  Oklahoma Academy of Science Endangered Species Committee
  Oklahoma Ornithological Society
Oregon
  Oregon Shores Conservation Coalition
Pennsylvania
  Brandywine Conservancy, Inc.
  Northern Allegheny Conservation Association
Rhode Island
  Block Island Conservancy
South Carolina
  National Wild Turkey Federation
  Sierra Club Joseph LeConte Chapter
South Dakota
  Dakota Environmental Council
  South Dakota Environmental Council
  South Dakota Ornithologists' Union
Tennessee
  Association of Southeastern Biologists
  Tennessee Citizens for Wilderness Planning
  Tennessee Environmental Council
Texas
  Houston Sportsmen's Club
  Texas Coastal and Marine Council
  Texas Committee on Natural Resources
  Texas Conservation Council, Inc.
  Texas Organization for Endangered Species
Utah
  Defenders of the Outdoor Heritage
  Utah Nature Study Society
Vermont
  Vermont Natural Resources Council
Virginia
  Boone and Crockett Club
  Izaak Walton League of America, Inc.
  National Recreation and Park Association
  Virginia Society of Ornithology
Washington
  North Cascades Conservation Council
  Olympic Parks Associates
  The Mountaineers
  Washington Environmental Council
West Virginia
  Appalachian Research and Defense Fund
    West Virginia Environmental Clearinghouse
  Appalachian Trail Conference
Wisconsin
  Society of Tympanuchus Cupido Pinnatus
  Wisconsin Society for Ornithology, Inc.
Wyoming
  Wyoming Environmental Institute
  Wyoming Outdoor Council, Inc.

Chapter Seventy-seven

Legislative, Legal, and Administrative Fighting

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B. Legislative and Administrative Action

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77.7 Sierra Club Legal Defense Fund
(a) History, objectives, and structure
(b) Protection technique

A. Introduction

71.1 Overview

The primary role of many private conservation organizations is to help establish sound conservation policy. They do so by working to pass laws, seeing the laws are implemented, and establishing sound policy and precedents for future decisions. These groups use a number of methods to achieve their goals, including legal action, public and decision-maker education, testimony at public hearings, and use of their knowledge of and access to the proper administrative process, be it that of a federal agency (such as the Forest Service) or a state or local entity. The organizations are involved in issues ranging from air and water pollution control to those more directly related to habitat preservation and species diversity.

Rather arbitrarily, this chapter will concentrate on laws, policies, and procedures affecting federal wilderness lands, other natural areas, water resources and wetlands, and endangered species. This does not mean to imply that these issues are the most important, but simply that they are most directly related to the actual process of natural area and habitat preservation. The argument can be made that all these issues are interconnected. Pollution control is necessary for a natural area to exist as such. For example, an endangered species such as the brown pelican or bald eagle is not able to reproduce after picking up critical levels of DDT, whatever amount of habitat it has left.

The federal laws mentioned or discussed here--which these groups often helped to pass and now use as their tools--are the Wilderness Act of 1964, the Endangered and Threatened Species Act of 1973, the National Environmental Policy Act of 1969 (NEPA), and others. Counterparts of these laws have been enacted in some states as tools of habitat preservation at that level. Procedures of federal agencies mentioned in this chapter are those of the U. S. Forest Service, the Soil Conservation Service, the Bureau of Land Management, and the U. S. Army Corps of Engineers.

Many groups focus primarily on research and education. National organizations in this category include the

Sierra Club, the Izaak Walton League, Friends of the Earth, the Wilderness Society, the National Parks and Conservation Association, and others. Some groups emphasize preservation of wildlife and wildlife habitat, such as the National Wildlife Federation and Defenders of Wildlife. Others focus on more species-specific issues and are composed primarily of members of the academic community. An example is the American Malacological Union, which helps save shell-bearing invertebrates.

Many of the above national groups maintain regional offices around the country. Local citizens may belong to affiliates of the national groups or local chapters which are more closely allied with the parent organization.[1]

Some chapters may deal solely with lobbying and/or advocacy on selected issues that are broad in scope. One such organization is the Environmental Policy Center in Washington, D. C., which in 1976 concentrated primarily on energy issues but in the past has been a prominent actor in water resources policy, helping achieve the deauthorization of many obsolete U. S. Army Corps of Engineers projects. Another is Environmental Action, also centered in Washington, D. C. It deals primarily with pollution control but also monitors and lobbies for federal legislation dealing with wilderness. In addition, the organization mounts election year campaigns against 12 Senators and Congressmen with poor environmental voting records; this action is called the "Dirty Dozen" campaign. Funding for the Environmental Policy Center comes from foundations and contributions, while funding for Environmental Action comes mainly from membership and donations. The Environmental Action Foundation is the education/research arm for Environmental Action, and contributions are tax deductible. Neither of these groups has regional offices.

Because of tax status problems, many groups have been restrained from "lobbying" or using a major portion of their funds for this purpose. This situation may change with the new 1976 tax code, which states that nonprofit groups may elect to do a specified amount of lobbying and still keep their tax status.[2]

Groups discussed in this chapter often form working coalitions to place the full force of different constituencies behind chosen issues. Selection of issues in a membership organization often involves some form of participation by members. In the Izaak Walton League, for example, a chapter, state division, or individual may nominate an issue. Its Resource Committee (elected at the prior year's convention) gathers these policy area recommendations. They are presented at the national convention, at which time recommendations are also accepted from the floor. Approximately 15 issues are voted on, which are published as resolutions in the League's monthly publication, *Outdoor America*.

Which resolutions are passed or which issues the groups decide to focus on may depend on several variables, such as the general purpose of the organization, historical areas of expertise, and regional strength. For example, the Izaak Walton League was formed in 1922 in Chicago by writers on the out-of-doors. It has traditionally been involved in certain geographic areas, including the upper Midwest. The League has been actively involved in protecting the integrity of the Boundary Waters Canoe Area and the creation of Voyageurs National Park in the upper Midwest.

The Sierra Club was founded in San Francisco in 1892 by nine men, including John Muir, to save Yosemite Valley from destruction. Today it is still headquartered in San Francisco, but has chapters across the country and is one of the prominent voices in the West.

The situation at the state level often varies with the strength of a national organization in that region. For example, the only paid environmental lobbyist operating at the state level in Indiana is the executive director of the Indiana Division of the Izaak Walton League. Another factor in state level conservation education and awareness is the existence of federations of chapters

[1]See the full description of the National Audubon Society (Chapter 72, Section 72.3), The Nature Conservancy (Chapter 72, Section 72.2), and subsequent discussion of the Wilderness Society (Section 77.2 of this chapter) for a more complete picture of the structure of each organization.

[2]P. L. 94-455, 90 Stat., 1720-1729.

and local organizations operating in the state, such as the environmental councils in Illinois, Oregon, Washington, and Ohio.

At the local level, citizen groups often form to achieve protection of a certain area near their home. In the West they may try to get federal wilderness designation or national recreation area status for public lands. In the Midwest, the Save the Dunes Council in Indiana helped to get Congress to establish and then extend the boundaries of the Indiana Dunes National Lakeshore. Similar victories have been achieved in the East and the South. It should be pointed out, however, that action to preserve an area often consists of influencing a state or local government rather than the federal government.

Many wilderness areas, state natural areas, and parks have benefitted from involvement of groups at all levels, including local citizen groups, state groups, and national groups which have worked to secure and continue their protection. Groups at all of these levels are often needed to counter a threat. Each plays a necessary role: the local group ensures that a decision is not being imposed from outside; a state group represents a statewide significance; and national support gives expertise and publicity of the most comprehensive type.

Legal defense is often undertaken by coalitions of environmental groups and environmental legal defense funds; they provide the necessary money and expertise on both law and environmental issues. At the national level, two of the prominent environmental legal defense funds--which are entities separate from national conservation groups--are the Natural Resources Defense Council and the Environmental Defense Fund. Many national conservation groups also have legal divisions, defense funds, or legal and research arms. Examples are the National Wildlife Federation, Friends of the Earth, and the Izaak Walton League. Depending on whether a particular case might set a valuable precedent or whether the case possesses national significance, such groups may lend money and expertise to other conservation groups at the state or local level.

Other public interest law firms sometimes deal with environmental issues or lend a hand in case preparation. Among these are the Center for Law and Social Policy, Washington, D. C.; the Nader-affiliate Public Citizen Litigation Group, Washington, D. C.; and the Center for Law in the Public Interest, Los Angeles, California. Some private law firms take environmental *pro bono* cases.

At the state and regional levels, examples of ongoing organizations concerned primarily with legal defense of the environment are Project Environment in Minneapolis, the Conservation Law Foundation of New England, the Montana Wilderness Association Legal and Education Fund, and the Northwest Fund for the Environment in Washington.

At the local level, many groups thinking of entering into litigation over an environmental controversy collect a legal defense fund. Sometimes a national fund will hold money for a local group until or if it needs it, an example being the Sierra Club Legal Defense Fund, which held funds for the Committee to Save French Pete in Eugene, Oregon. Many local legal defense committees spring up to meet a single crisis, such as stopping a dam or preventing channelization of a local stream. Examples are the Red River Gorge Legal Defense Fund, which was incorporated in Lexington, Kentucky, to stop a Corps of Engineers dam, and CLEAN, a local organization in Mississippi established to stop the Tennessee-Tombigbee Waterway. Local groups may also form to change or enforce administrative procedures of federal, state, or local government agencies. After administrative procedures are exhausted, these groups sometimes find that litigation is the only answer. It is also used to get bulldozers off property or to stop immediate threats.

The key to understanding the functions of private environmental groups is realizing that litigation is rarely the only remedy considered. Usually it is a last resort, after administrative or advocacy tools are used. Litigation is expensive. In addition, it may achieve only a delay, without changing the outcome, despite the expenditure of a great deal of time and money.

B. Legislative and Administrative Action

National Organizations

77.2 The Wilderness Society

(a) History and objectives

The Wilderness Society is one of several organizations which tries to educate its membership and the public on issues which affect land preservation. However, its main focus is protection of wilderness resources, specifically preservation of wildlands.

To accomplish this goal, the society has supported local and national governmental programs for protection and restoration of air and water resources and has helped fight the battles to establish and to preserve park and wildlife refuge systems from encroachment by commercial development, highways, etc. The society is in the forefront of protecting public lands, including those controlled by the U. S. Forest Service, Bureau of Land Management, Fish and Wildlife Service, and National Park Service.

The Wilderness Society was founded in 1935 by eight individuals who constituted the organizing committee: Robert Marshall, Aldo Leopold, Benton Mackaye, Robert Sterling Yard, Harvey Broome, Ernest C. Oberholtzer, Bernard Frank, and Harold Anderson. Four of these men were foresters and involved with Forest Service wilderness policy; one had helped establish the Appalachian Trail and was an officer of the Appalachian Trail Conference, and one had explored much of the northern United States and Canada by canoe. All of these men saw the need for an organization with a broader preservation program than those which existed. The goal of the organization was stated in February 1930 by Robert Marshall in an article entitled, "The Problem of the Wilderness":

> There is one hope of repulsing the tyrannical ambition of civilization to conquer every niche on the whole earth. That hope is the organization of spirited people who will fight for the freedom of the wilderness.[3]

A primary vehicle for preservation, discussed in greater depth later in this chapter, is the National Wilderness Preservation System. The society played a major role in the struggle to establish this system and was involved from the introduction of the Wilderness Act in 1956 to its passage in 1964. It has remained active since in influencing the act's implementation. It has also been involved in programs to survey roadless areas in national forests in the West and to review Eastern national forest lands as possible wilderness areas in response to a requirement in the act that areas to be included in the system be identified. With the passage of the Bureau of Land Management Organic Act in 1976, it will also be active in programs surveying wilderness areas mandated by that act.

There had been controversy about whether there was such a thing as "wilderness" in the East, but much land had for 40 to 50 years been undergoing a process of renewal which was restoring it to near-pristine conditions. The Wilderness Act calls only for the works of man to be "substantially unnoticeable," and many conservationists felt that Eastern areas could be included.

A final outcome of the controversy was the passage of the Eastern Wilderness Act of 1974 and the entrance into the National Wilderness Preservation System of 16 Forest Service areas. The act designated 17 study areas in the Eastern national forests.

(b) Structure and operation

The Wilderness Society is registered as an educational, nonprofit, national conservation organization in the District of Columbia. In 1977 the total number of society supporters was about 100,000, with paid membership around 70,000.

The society has a 25-member Governing Council. The number of terms for each council member is now limited. Due to the way the society was organized, the council had tended in the past to have a

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[3] "The American Wilderness," The Wilderness Society, Washington, D.C., p. 6.

self-perpetuating membership. A 5-member executive committee can act between council sessions.

There is some interaction among council, staff, and membership on the focus of selected issues. In July 1976 the executive director sent out a letter listing 9 issues of primary concern and asked the membership to comment. The issues were (1) fulfilling the 1964 Wilderness Act mandate; (2) preserving Alaskan wilderness; (3) saving Forest Service and Bureau of Land Management roadless areas; (4) protecting Eastern wilderness; (5) controlling mining on public lands; (6) conserving river and trail corridors; (7) representing all ecosystems within the Wilderness System; (8) saving nonfederal lands; and (9) building wilderness leadership.[4]

Recommendations of the staff and comments of the membership were presented to the council in late 1976. It then decided the basic issues for the coming year. However, the organization still maintains flexibility to add other wilderness-related issues as they may arise in Congress or within the administrative agencies.

Total staff is approximately 50. About 20 people work on issue advocacy. These individuals work on congressional matters, issue monitoring, and research, resource policy research, and regional representation. Five additional staff work indirectly on issues and edit the major quarterly publication, *The Living Wilderness*. Other society publications include the monthly *Wilderness Report* and periodic *Wilderness Alerts*.

The total approved budget for FY 1981-82 was approximately $2.2 million.

In late 1976 the society expanded the number of regional offices so there is now a more equal distribution of representatives nationwide. Regions which have regional representatives include (1) The Alaska Region--Alaska; (2) The Western Region--California and Nevada; (3) The Southwest Region--Colorado, Utah, Arizona, New Mexico, and Texas; (4) The Northern Rockies Region--Montana, Wyoming, and Idaho; (5) The Southeast Region--Georgia south to the Virgin Islands and west to Texas; (6) The District of Columbia Region. The Wilderness Society has no official affiliates nor a chapter structure.

(c) Protection technique: Advocacy and coordination of wilderness preservation issues

At the national level the Wilderness Society attempts to provide information from the conservationists' viewpoint to decisionmakers in Congress and the federal agencies. Since 1964 the society has attempted to locate and propose wilderness areas that fit the definition established in the Wilderness Preservation Act. In addition, it has been involved in the areas mandated by the act for study and possible inclusion in the system.

The Wilderness Society maintains a working relationship with the National Audubon Society, the Sierra Club, and Friends of the Earth. These groups consult regularly about the issue priorities of each group, since the number of organizations working on wilderness issues is small and none can afford to duplicate another's efforts. The society also joins coalitions of organizations which center around a specific area or issue. It plays a major role in some coalitions such as the Alaska Coalition, since the society's major organizational purpose is to protect public lands. The Alaska Coalition is attempting to get as much Alaskan federal land as possible designated as wilderness. In other issue coalitions, such as the Protection of Wetlands Coalition (which addresses Section 404 regulations of the Federal Water Pollution Control Act Amendments), the society maintains a lower profile.

The Wilderness Society often joins or initiates coalitions with state or local citizen organizations to achieve common goals. It works closely with such state organizations as the Montana Wilderness Association and the New Mexico Wilderness Study Committee.

The society thinks that, in association with its advocacy task, an important part of its work is to help groups identify wilderness areas in their own localities. Local people walk the land, get to know local agency personnel involved in land management, meet to draft statements of their views, conduct public information campaigns, and are able, because they know the area, to

[4]See Technical Appendix 77.13(a).

take into account the present and future needs of people in the region. In addition, they write letters and speak at public hearings. The Wilderness Society can help these groups by providing data on the area as well as the legal knowledge useful in approaching government officials.

Selected general issues with which the Wilderness Society has been involved during the last 10 years are, by region:

New England and New York State. The Storm King Power Plant Decision on the Hudson River; the wilderness studies of the Moosehorn and Monomoy National Wildlife Refuges.

Mid-Atlantic States. The defeat of proposals to use the Great Swamp National Wildlife Refuge as a jet port; and advocacy of public involvement in Forest Service procedures, especially with respect to the Monongahela National Forest.

The Great Plains. Establishment of the Big Thicket National Monument in Texas; assistance to local groups in preserving the wilderness of the Wichita Mountains Wildlife Refuge, Theodore Roosevelt National Memorial Park (North Dakota), and Badlands National Monument (South Dakota); and establishment of wildlife refuges in the Dakotas and Nebraska.

Rocky Mountain States. Opposition to dams which would have flooded part of the Grand Canyon and the Gila Wilderness Area of New Mexico; participation in field hearings for wilderness proposals concerning Craters of the Moon, Yellowstone, Grand Teton, Bryce Canyon, and Petrified Forest National Parks; and advocacy of the creation of Hells Canyon National Recreation Area and a combination of wilderness and recreation areas in the Sawtooth Mountains.

Pacific Coast States. Mobilization of conservationists in the area and nationwide to bring wilderness areas of California, Oregon, and Washington into the National Wilderness System, such as several recently established National Park Service areas in California: Pinnacles, Point Reyes, and Joshua Tree.

Southeast. Opposition to (1) a new transmountain highway across the Great Smokies; (2) the Cross-Florida Barge Canal; (3) siting of a jet port near the Everglades; and (4) channelization of Southern rivers; support for proposals to create Gulf Island and Cumberland Island National Seashores, to include the Okefenokee National Wildlife Refuge in the Wilderness System, and to preserve Big Cypress and Pelican Island; and, in a local issue which became national, opposition to a highway threatening Memphis's Overton Park.

Midwest. Advocacy of wilderness designations within Isle Royale National Park and within Seney, Huron Islands, Michigan Islands, and Wisconsin Islands National Wildlife Refuges, and support for proposals for the Indiana Dunes, Sleeping Bear Dunes, and Apostle Islands National Lake Shores and efforts to create Voyageurs National Park.

Alaska. Advocacy of the Conservationist Omnibus Bill to safeguard more than 106 million acres of Alaska's wildlands and cause unit boundaries to be drawn to preserve complete ecosystems.

(d) Illustrative example: The Wilderness Society and the National Wilderness Preservation System

It became increasingly clear in the years after the Wilderness Society was founded in 1935 that federal agency designations (for example, Forest Service primitive areas) could be changed at will by agency administrators. Since the agencies were dealing with the production of natural resources as well as conservation, agency administrators had to answer to other special interests, particularly timber and mining industries. The society and other organizations saw the need for a federal planning process which was open to effective public involvement and would result in the permanent designation of wilderness areas that could not be encroached on by special interests. To this end, in 1956 the society and other conservation organizations helped introduce the bill for the Wilderness Act. In 1964 the act passed. It was the first major public land law which gave citizens access to decisionmaking processes affecting those lands. It mandated that certain areas be reviewed, and it provided for a new category of dedicated land of a relatively large and undisturbed nature, called "wilderness." It is this category with which the Wilderness Society concerns itself.

The act gave the Forest Service 10 years to report and recommend primitive

areas to be included in the Wilderness Preservation System. The Department of the Interior also had 10 years to review roadless areas in the National Parks and the National Wildlife Refuges and game ranges.

The Forest Service also conducted a review of roadless areas within its holdings. The surveys have now been completed, and the Forest Service has recommended approximately 12,000,000 acres for study as potential wilderness areas. The Wilderness Society and other organizations have suggested that 44,000,000 additional acres are *de facto* wilderness areas worthy of inclusion.

The Bureau of Land Management Organic Act of 1976 gave that bureau 15 years to review its roadless areas, which amounted to as much as 322,000,000 acres. By 1980 the bureau was required to evaluate and recommend primitive and previously designated natural areas for inclusion in the Wilderness System.

The Eastern Wilderness Act of 1974 designated 17 additional Forest Service areas in the East as wilderness study areas. The President is required to make recommendations to Congress within 5 years about the inclusion into the system of these wilderness study areas.

The act provides for three general points at which the public can become involved in influencing the inclusion of areas within the Wilderness Preservation System.

The first opportunity is in the field review phase, during which agency field studies terminate with local public hearings on a preliminary wilderness proposal. Sometimes private conservation groups may also do their own surveys to make sure the most comprehensive wilderness designation is achieved, A group may also do its own survey to gain wilderness study area status for an area.

To achieve local conservationist participation in public hearings, private conservation groups announce the time, date, and place of the hearings. Wilderness Society members receive notice of all local public hearings in their region.

On occasion there is a joint announcement by many local groups, other national groups, and the Wilderness Society. Such was the case with the wilderness hearings for the Brigantine National Wildlife Refuge, held August 11, 1971, in Absecon, New Jersey. Cosponsors of this alert were the American Littoral Society, Atlantic County Citizens for the Environment, Federation of Conservationist United Societies, Inc., 4-H Leaders Association, Joint Council of Taxpayers of Seven Ocean Counties, the Montclair Bird Club, the New Jersey Audubon Society, the New Jersey League for Conservation Legislation, the North Jersey (now New Jersey) Conservation Foundation, the Pine Barren Conservationists, the Sierra Club--Atlantic Chapter, Friends of the Earth, and the Wilderness Society. This list exemplifies the many diverse organizations found in the East which sometimes form coalitions around wilderness designations. Brigantine, 6,603 acres, became part of the Wilderness System in 1974 as part of the Eastern Wilderness Act. The acreage is not as large as the 16,000 acres supported by conservationists but larger than the U. S. Fish and Wildlife Service's proposal of 4,250 acres.

Second is the executive review phase, where the records of public hearings, including testimony by private conservation groups, are reviewed by the agencies. This review culminates in recommendations by the Secretary of the Interior or the Secretary of Agriculture to the President, who then makes recommendations to Congress. During this and other phases, the Wilderness Society attempts to review agency land use practices to make sure a potential wilderness area does not incur damage through timber cutting, mining, or road cutting.

Finally there is the review phase by Congress, since only the Congress can incorporate an area into the National Wilderness System. The Wilderness Society has a standing invitation to testify before major congressional committees dealing with public lands in order to inform committee members of conservationists' views.

The 94th Congress (1975-76) approved 36 new wilderness areas totaling 2,166,830 acres. Declassification of private and non-contiguous acres in Vermont's Bristol Cliffs lessened the total wilderness acreage by 2,750. Previously, 25 wilderness areas had been designated, for a total of 12,647,808 acres. Thus, total acreage at the beginning of 1977 was 14,811,888 acres. By April 1981

total acreage stood at 79,793,846. Approximately 70 percent of this total is located in Alaska. See Table 77.1 below.[5]

Table 77.2

Acreage in National Wilderness Preservation System as of April 1981

Agency	Lower 49 States		Alaska		Sub-Totals	
	Units	Acres	Units	Acres	Units	Acres
Fish and Wildlife Service	52	771,328	13	18,560,000	65	19,331,328
U. S. Forest Service	144	19,753,678	14	5,361,899	158	25,115,577
National Park Service	26	2,979,482	8	32,355,000	34	35,334,482
Bureau of Land Management	3	12,459	--	--	3	12,459
TOTALS	225	23,516,947	35	56,276,899	260	79,793,846

State and Local Organizations

77.3 Illinois Environmental Council

(a) History and objectives

The Illinois Environmental Council (IEC) is a coalition of citizen groups and individuals formed to coordinate activities on important issues at the state level. Supporting organizations include various state chapters of the Sierra Club and the National Audubon Society, the Illinois Natural Areas Coalition, the Open Lands Project, the Society for the Protection of Endangered Wildlife, and student environmental organizations.[6]

According to a council publication, its major purposes are to

> (1) lobby for effective environmental legislation in Illinois;
> (2) increase the influence of the environmental movement by coordinating activities of environmentalists throughout the state;
> (3) keep the citizens informed about environmental issues and the actions of their representatives; and
> (4) research and investigage environmental problems.[7]

The council is the only full-time environmental lobby in the state capital, Springfield. The organization's Springfield office opened in January 1975; a second office was opened in Chicago in May 1976.

(b) Structure and Operation

The Illinois Environmental Council is a registered lobbyist under the relevant Illinois law and is a 501(c)(4) organization under the Internal Revenue Code. It has an eight-member Board of Directors which meets annually and makes major policy decisions and sets priorities. The Springfield office consists of a full-time staff of three, including a director, with periodic additions of students and other volunteers. The Chicago office consists of one staff person and volunteers. A fundraiser was employed in the Chicago area who headed a team of paid canvassers seeking contributions from June to September 1976. Money was raised to support the Chicago office through 1976 and into 1977.

The council is supported by memberships, contributions, and grants. Each supporting organization pays a membership fee. Expenses for 1976 totaled $25,669, while income was $29,585. Total assets as of February 1977 were $15,544.[8]

The organization maintains two separate funds, one for education, the other for passage of a bill to make all beverage containers returnable (the "bottle bill" fund). Contributions to the bottle bill fund are not tax deductible since they are for lobbying, but contributions to the education fund are. The council received two grants in 1976 for educa-

[5]See Technical Appendix 77.13(b).

[6]See Technical Appendix 77.13(c).

[7]"The Environment and the Candidates, An Analysis of Candidate Positions and Voting Records," Illinois Environmental Council, p. 8.

[8]See Technical Appendix 77.13(c) for a copy of the 1976 Annual Report.

tional work: one for the U. S. Department of Health, Education, and Welfare's Office of Environmental Education, and another from the Illinois Humanities Council.

(c) Protection technique

There are 315 registered lobbyists in Illinois representing business, labor, industry, agriculture, and other special interests. As stated previously, the only full-time environmental lobby in the state capital is the council.

The council, like many advocacy groups at the national level, deals with the gamut of environmental issues, including energy, land use, strip-mining, natural areas, recreation, transportation, and air and water pollution. However, it attempts to concentrate on a few issues. It prepares grassroots campaigns district by district. As part of the work of organizing and coordinating the campaigns, it provides background information to state legislators and agencies. The council publishes the *IEC News*, which analyzes important bills and lists all environmentally related bills before the state legislature, as well as times and locations for hearings and meetings. To keep the public aware of how legislators vote, the *News* also publishes the record of each on selected issues. In 1976 the council rated legislators on the basis of their votes and published this along with answers to a questionnaire sent to legislators before the November election. The questionnaire asked legislators, among other things, if they favored such natural area-related issues in Illinois as implementation of a natural rivers and wetlands system, the expansion of the Illinois Nature Preserves Commission, and development of a river corridor park on the Middle Fork of the Vermillion River. They also tried to gauge opposition to construction of the Cross-Wabash Barge Canal, an authorized project of the U. S. Army Corps of Engineers.

Major activities of the council in 1976 were advocating state control of stripmining, opposing an act which would greatly reduce state clean air standards, and saving the river ecosystem of the Middle Fork of the Vermillion River. Priorities in 1977 were passage of the "bottle bill"; permanent protection of the Middle Fork of the Vermillion River as Illinois' first river corridor park; preservation of the Illinois Beach State Park in its natural state; and presentation of an Illinois Energy Platform.

Other issues which drew the council's attention in 1976 included the Illinois Department of Conservation's operating and capital development appropriations. Both budgets were cut, although the council opposed this. However, there was no change from the $71,000 requested by the Illinois Nature Preserves Commission.

77.4 Save the Dunes Council

Save the Dunes Council is an example of an organization originally set up locally to preserve a particular area of ecological significance which was faced with immediate and long-range threats--the Indiana dunes in Northwestern Indiana on the shores of the southern tip of Lake Michigan. Over the years the group has gained national support and solicits funds nationally.

(a) History and objectives

A group of concerned scientists and conservationists organized the Save the Dunes Council in 1952 when they saw that continued industrial expansion was threatening the dunes. The dunes are near Gary, Indiana, and its steel mills, and are in an area of urban and industrial growth. They are a complex of beaches, moving dunes, dune ridges, blowouts, marshes, woodlands, and bogs. Over 1,300 identified species of plants exist there, as well as 40 different kinds of animals.

Nearly 13,000 acres covering 20 to 25 miles of shoreline were proposed for a federal park in 1917, partly based on ecological studies by Dr. Henry Cowles at the turn of the century. In 1923 the Indiana Dunes State Park was established, consisting of only 2,182 acres and 3 miles of shoreline. In 1977, 1,530 acres of the original state park area were included as a nature preserve in the Indiana Nature Preserve System.[9] It has also been designated a National Natural Landmark by the U. S. Department

[9]See also Chapter 73, Dedication.

of the Interior. The people who organized the council saw the need for action to expand park protection to preserve existing unspoiled areas by including the Indiana Dunes Area in the National Park System.

(b) Structure and operation

The council is a membership organization which, over the years, has turned increasingly to lobbying to accomplish its aims. It is classified under the Internal Revenue Service Code as 501(c)(4); thus, contributions are not tax deductible (this has not always been its status).[10] The council solicits funds nationally. It has a part-time staff member who handles all council activities out of an office in Beverly Shores, Indiana. Until late 1976 the council has a Washington representative who pressed primarily--and successfully--for passage of National Lakeshore legislation by the U. S. Congress.[11]

(c) Protection technique

The council used the technique of effecting passage of federal legislation to preserve the Indiana Dunes as a unit of the National Park System. Between 1952 and 1966, when the Indiana Dunes National Lakeshore was first authorized by Congress, several national groups such as the Izaak Walton League and the Wilderness Society had joined in the fight for federal protection. In 1966, 5,800 acres and 10 miles of shoreline were added to what already was under state protection. However, key tracts within the Dunes area were left unprotected--omitted, according to the council--due to political pressure from special interests. These areas amounted to almost half the acreage originally proposed (11,000 acres). In 1971 bills were introduced in the U. S. Congress to add an additional 5,328 acres including areas left out in the 1966 Lakeshore Act. Federal legislation passed in 1976 finally authorized enlargement of the National Lakeshore by 3,660 acres and realized a major portion of the council's goal. During 1978 the council worked to add three more key tracts totaling 800 acres.

Council members receive a regular newsletter which explains the latest developments in Washington and threats to the integrity of the property in Indiana. Council members are regularly informed of how to contact legislators and government officials to influence policy decisions. Members may attend two dinners each year, which serve as general membership meetings and highlight specific features of the Dunes battle. Monthly council meetings are also open to all members.

During the protracted struggle, it became increasingly apparent that there was a need to acquire additional key tracts rapidly, beyond those under federal or state protection. The Indiana Dunes National Lakeshore Trust was created for this purpose in the early 1970s. The trust raised money by donations, solicited mainly from members, to purchase land within the Indiana Dunes National Lakeshore. The land was then donated to the federal government. Funds in the trust were used to pay property taxes on the land to facilitate their donation. The trust was able to buy lands at tax sales at which the federal government could not buy directly.[12]

The trust was set up for a limited amount of time and has expired. Since the land was being donated to the government instead of being sold, no revolving fund was created, and the trust literally spent itself out of existence.

The council has contributed approximately $4,000 to the Northwest Indiana Conservancy, a project committee of the Indiana chapter of The Nature Conservancy, and raised nearly $2,400 for a special Past President's Fund with The Nature Conservancy, to be used only for purchasing dunelands near the National Lakeshore. The Northwest Indiana Conservancy continues to buy fragile natural areas in Lake, Porter, and LaPorte

[10]The council lost its tax deductible status shortly after Congress passed legislation to establish the Indiana Dunes National Lakeshore in 1966.

[11]See Technical Appendix 77.13(d).

[12]Recent legislation has broadened National Park Service authority in this regard.

Counties. It works only through willing buyer and seller agreements.[13]

C. Legal Action

National Organizations

77.5 Natural Resources Defense Council

(a) History and objectives

The Natural Resources Defense Council (NRDC) was formed to protect the environment for the general welfare of the public by collecting relevant information on environmental protection, making this information available to the public, and taking whatever legal steps were necessary to secure protection. The conservationists and lawyers who founded the organization in 1970 perceived that it was needed in order to change an unbalanced situation in which powerful interests exploiting natural resources could easily hire lawyers and experts to back their claims, while citizens' groups were unorganized and poorly funded. NRDC decided a technical staff of scientists and lawyers was needed to study and substantiate environmentalists' positions.

Major areas of interest are land use (especially in California and New York, and including public lands); coastal protection; air, water, solid waste, and noise pollution; nuclear safety and energy production; transportation; environmental carcinogens; and protection of wilderness and wildlife. Only the NRDC programs involving forestry, stream channelization, NEPA, and the scope of environmental public interest law will be discussed here.

The NRDC's programs have been wide-ranging. The Forestry Project works to ensure that federal laws designated to protect the National Forests are enforced. It monitors the Department of Agriculture's Forest Service, as well as the impact of various state laws on forest stands and timber harvesting. Litigation is another activity (selectively described later in this section). A further activity has been detailed criticism of Forest Service environmental impact statements on wilderness designations. The council has also submitted comments on Forest Service regulations, particularly those implementing the National Environmental Policy Act. It has participated in administrative appeals of individual Forest Service decisions, such as those permitting the logging of sensitive areas. The NRDC also contributed its expertise to a model forest practices law submitted to the Council of State Governments by the Environmental Protection Agency.

NRDC is a national research, education, and legal organization. It provides legal representation for the environmental movement not only by taking action in its own right, but also by assisting groups without access to legal expertise or those which do not ordinarily employ litigation as a major method.

(b) Structure of the organization

NRDC is a membership organization with approximately 30,000 members. The council is advised by an active 100-member technical advisory board; policy is set by a 13-member Board of Trustees. The NRDC has offices in New York City, Washington, D.C., and Palo Alto, California. In January 1977 the professional staff consisted of approximately 30 attorneys and scientists; total staff was around 55.

Funding comes primarily from foundation grants (in the beginning mainly from a Ford Foundation grant). In 1977 total funds for the council were $2.25 million.[14]

(c) Protection technique

The staff of the Natural Resources Defense Council is currently involved in about 75 cases. The Natural Resources Defense Council has played a role in several decisions involving forestry, including the landmark case prohibiting clearcutting in the Monongahela National Forest (see *West Virginia Division of IzaaK Walton League, NRDC, et al. vs. Butz*, 522 F.2d 945 [4th Circuit, 1975]).

[13]See Technical Appendix 77.13(e).

[14]See Technical Appendix 77.13(f).

Another case was *NRDC vs. Butz*, 4ELR 20226 (U. S. District Court, D.C.), in which environmental groups sued to require the Forest Service to prepare environmental impact statement discussing the effects of their planning decisions and proposed alternatives. In June 1972 the council and other conservation groups filed suit attacking the Forest Service's review of approximately 55 million acres of roadless areas to be surveyed for possible inclusion in the National Wilderness Preservation System (*Sierra Club, NRDC, et al. vs. Butz*, 3ELR 20071 [N.D. Cal. 1972]). *Wyoming Outdoor Coordinating Council, NRDC et al. vs. Butz*, 484 F.2d 1844 (10th Cir. 1973), was a case in which NRDC and others sued the Forest Service for failure to prepare impact statements on two timber sale contracts involving a previously undeveloped area of the Teton National Forest in Wyoming in which timber sales contracts had been made prior to July 1, 1972, the cutoff date established by the Forest Service in settling NRDC's previous wilderness area lawsuit (see *Sierra Club, NRDC, et al. vs. Butz)*. The U. S. Court of Appeals upheld NRDC's position that environmental impact statements must be prepared on all timber sales which would have the effect of destroying *de facto* wilderness areas.[15]

Project Streams was begun by NRDC in April 1971 to study and alert the public to the environmental effects of the stream channelization program promoted by the Soil Conservation Service, U. S. Department of Agriculture. Among the effects of the program is the drastic reduction of fish and wildlife populations. *NRDC vs. Grant*, 341 F. Supp. 356 and 355 F. Supp. 280 (E.D. N.C. 1972 and 1973) was filed in November 1971 to stop the proposed stream channelization of 66 miles of Chicod Creek and its tributaries in North Carolina. The channelization, according to NRDC, would have destroyed the highly productive stream-swamp ecosystem in the Carolina low country. The complaint argued that the Soil Conservation Service had not adequately evaluated the environmental consequences of the project. In addition, the benefits of the project did not exceed its true cost. In March 1972 the court granted a preliminary injunction to NRDC, while the Soil Conservation Service prepared an environmental impact statement. NRDC found the statement to be inadequate and asked for a second injunction. Project construction was finally halted in February 1973 when the court upheld NRDC's position.[16]

One of the reasons public interest law may be so expensive is the requirement that the plaintiff post bond to stop construction projects. Often this bond may be too high for citizens' groups. In *NRDC vs. Grant* the Fourth Circuit Court of Appeals struck down a lower court's imposition of a $75,000 bond on the plaintiffs. The decision stated that NRDC and the public interest litigants should be considered as "private attorneys general" that performed a public watchdog function which the government is unwilling or unable to perform itself.

77.6 Environmental Defense Fund

(a) History and objectives

Organized in 1967, the Environmental Defense Fund (EDF) is the oldest of the primarily legal action environmental organizations. It is a coalition of scientists, economists, lawyers, and citizens. Its primary purposes are legal action in the areas of environmental quality, energy, health, and consumer welfare, as well as education of the public. EDF's main technique is litigation based on sound scientific evidence.

(b) Structure of the organization

The Environmental Defense Fund consists of a 25-member board of trustees, in-

[15]"NRDC: Summary of Legal Actions and Related Activities (as of May 1, 1975)," Natural Resources Defense Council, Inc., New York, New York, pp. 2-8.

[16]Another law which has been used to stop channelization in recent years has been the Endangered Species Act of 1973. This act requires that the Soil Conservation Service and all other federal agencies issue environmental impact statements such as recent SCS statements on the preservation of the bayou and slackwater darters before channelizing the Cypress Creek Watershed in Alabama.

cluding a 7-member executive committee, a 700-member Scientific Advisory Committee, a Legal Advisory Committee, staff in four offices around the country, volunteers, and public membership. As of January 1979, EDF had a membership of around 46,000. Offices are maintained in New York City, New York; Washington, D. C.; Denver, Colorado; and Berkeley, California. Ten scientists or science associates, 11 lawyers, and 38 other professional and support staff are employed in these offices.

In 1977 EDF stabilized organizationally after the financial troubles and deficits of the mid-1970s. For the second consecutive year, money was added to the Reserve Fund. Public support of all forms in the year ending December 31, 1977, came to $1,729,333, including $1,001,557 from memberships, $619,358 from foundation grants, and $108,418 from bequests. Total revenue was $1,792,306. Expenses for that year were $1,646,837, including $854,342 for legal action, $84,200 for public education, and $35,833 for legislative action.[17]

(c) Protection technique

The Environmental Defense Fund has cases involving the gamut of environmental concerns, including toxic chemicals, energy, transportation, wildlife, and water and land resources. The wildlife and water and land resources program are discussed below.

Destruction of habitats is of great concern to the fund. Many of EDF's cases have involved habitat preservation with an emphasis on pesticide control and water and land resources. Specific species for whose protection EDF has taken legal action are porpoises, Pacific walruses, whales, Atlantic salmon, eagles, and various migratory birds.

To protect porpoises, EDF filed suit to force the government to implement the Marine Mammal Protection Act that requires porpoise kills to be reduced to "insignificant levels approaching zero." Porpoise and tuna swim together, and when fishermen set their nets for tuna, the porpoises get caught and drown. EDF won a victory in December 1977 when a federal ruling reduced porpoise kill quotas 50 percent by 1980 and required that tuna fishermen use improved nets which reduce entanglement.

Since 1975, EDF has participated in efforts opposing the transfer of management authority for the Pacific walrus and eight other Alaska marine mammals from the federal government to the State of Alaska until state laws are strengthened to comply with federal protection requirements. Many of EDF's arguments were incorporated in a preliminary 1977 ruling in the case.

To aid in the reintroduction of Atlantic salmon and American shad in the Connecticut River, EDF intervened in the proceeding for renewal of a utility company's license and won its agreement to install fish passages at three power dams on the river.

EDF has undertaken several cases which challenged dams, waterway projects, and development of flood plains, coastal wetlands, and barrier islands and beaches. Cases in which it has opposed drainage and development of wetlands include Marco Islands Wetlands in Florida and the Atchafalaya Delta Wetlands in Louisiana. EDF challenges to channelization include the proposed South Carolina Intracoastal Waterway, the Delmarva Waterway, the Cache River, and recently, the Tennessee-Tombigbee Waterway. Some projects which have been at least temporarily halted through EDF litigation are the Cross-Florida Barge Canal, the Cache River project in Arkansas, the San Felipe Division, California,[18] Tocks Island Dam (Delaware River), and Oakley Dam, Illinois. EDF has also been involved in trying to save a South Carolina barrier island, St. Phillips, from development.[19]

In approximately three-quarters of its cases, EDF works with other organizations, including national and local consumer groups, states, towns, and a variety of nongovernmental groups--sometimes with particular interest groups such as fly-fishermen and asbestos workers.

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[17]See Technical Appendix 77.13(g) for a copy of the financial statement.

[18]Construction of the San Felipe Division began in June 1977.

[19]See also Chapter 79: Watchdogging.

(d) Illustrative example: Atchafalaya Delta Wetlands

The following case study is taken from a report by the Environmental Defense Fund on its activities:

> The enormous silt loads carried by the Mississippi and Atchafalaya Rivers create 6.5 square miles of wetlands a year in the Louisiana coastal zone. Thirty percent of the nation's estuarine, freshwater, and saltwater wetlands are found here. Wetlands, among the most biologically productive areas on earth, produce and maintain marine life from the smallest organisms to fish and shellfish. They also provide habitat for wildlife and waterfowl. The Louisiana coastal zone is one of the nation's most productive resources.
>
> Although the Louisiana coastal zone is growing naturally, human activities are destroying it at an even faster rate. Navigation and flood control projects by the U. S. Army Corps of Engineers and private companies cut through the coastal ecosystem, causing the area to sink. These projects have caused a number of problems related to the collapse of the coastal zone, including saltwater intrusion, water pollution, and a decline in productivity in some fisheries.
>
> The Corps is presently considering more than ten new projects that will destroy sections of the Louisiana coastal zone. Channelization of bayous above the mouth of the Atchafalaya River has been proposed, and the Corps is currently drafting an environmental impact statement for a flood control project involving channelization of the Atchafalaya itself throughout much of the basin. In addition, the Corps continues to issue permits to private companies to build destructive channels.
>
> Under Section 404 of the 1972 Federal Water Pollution Control Act Amendments, the Corps has the authority to manage the coastal zone. Traditionally the agency has favored development and commercial interests, in spite of the destruction their projects cause. EDF says the Corps should use its authority to protect the coastal zone, not destroy it. Proper management of coastal areas should plan development that is compatible with nature. EDF maintains that Section 404 requires the Corps to develop such an environmental management plan and to use it in designing projects and reviewing permit requests.
>
> The campaign to implement Section 404 has already been successful for at least one Corps project in Louisiana. In June 1974, EDF intervened in a suit filed by the South Louisiana Environmental Council and on August 6, just a week before a scheduled Federal Court hearing on the Bayous Boeuf, Black and Chene channelization project, the Corps agreed to postpone the project. The suit had challenged this channelization, which would have destroyed 7,000 acres of wetlands along the bayous, above the mouth of the Atchafalaya River. The Corps also agreed to review maintenance dredging of a widened channel in Atchafalaya Bay.
>
> As required by Section 404, the Corps held hearings on the proposed dumping of dredging spoil from the Boeuf, Black and Chene project onto wetlands. In June 1975, the Corps announced a new disposal plan. Three disposal sites were selected, including a new site, Avoca Island in Atchafalaya Bay. The Environmental Protection Agency (EPA) approved this site, on the condition that the level of the island not be increased to more than 0.5 foot above high water. EPA listed several other conditions designed to minimize the effects of the dredging on water flows and water quality in the bayous, on hardwood swamps upstream and on habitats of endangered species.
>
> EDF considered the Corps new proposal to be better than the previous one but still questioned certain points, particularly EPA's authority to enforce the conditions it imposed. It is essential to the environment of the Louisiana coastal zone that EPA and the Corps have authority to control land use in the disposal area not only during construction but also during the entire life of a project.
>
> In January 1977 the Corps issued a supplemental environmental impact statement (EIS) for the Bayous Chene, Boeuf, and Black Navigation Project

and construction seemed imminent. EDF believed that the supplemental EIS was still inadequate, however, and filed an amended complaint in May 1977, preparing to go back into court to halt construction until the Corps prepares an environmentally sound design for the entire project--if such is possible. In the last three years, the Corps has recognized that the wetlands and flood plains of the Lower Atchafalaya River face increasingly severe flooding problems and has redesigned the project to reduce those admitted flooding problems, proposing a number of additional structural flood controls. EDF believes that all of these activities--navigation, projects, flood control measures, dredging and dumping of dredge spoils--should be planned together. The Corps of Engineers should not induce intensive industrial and shipping-related commercial activities, through the navigation project, in one of the most threatened flood plains in the U. S., for which the Corps has not yet developed an adequate flood control program.

EDF was preparing for a trial in 1978.

77.7 Sierra Club Legal Defense Fund

(a) History, objectives, and structure

The Sierra Club Legal Defense Fund grew out of a volunteer legal program established by the Sierra Club. The fund was started in 1970 and began operations in August of the following year. It is a "public interest law firm" and is, therefore, tax-exempt under the Internal Revenue Code. Through its staff, the fund provides legal representation to conservation organizations and concerned individuals around the country. It also represents the Sierra Club in environmental legal matters when these concerns are within the fund's scope as a public interest law firm.

The fund is governed by a 15-member board of trustees and has a staff of three lawyers in Washington, D. C., two lawyers in Denver, and one lawyer in Juneau, Alaska. Most of the fund's work consists of civil law suits, but it also engages in administrative proceedings before federal, state, and, sometimes, local agencies.

(b) Protection technique

General areas of litigation include nuclear energy, air and water pollution, logging activity in the national forests, and mining in the national parks.

Protection of Redwood National Park has been a major concern of the fund since the park's formation in 1971. In 1973 the fund brought suit under the Freedom of Information Act in the federal court in San Francisco to obtain copies of Park Service reports documenting threats caused by careless logging on adjacent private lands. After release of the documents, the fund filed a new complaint charging that the Secretary of the Interior was failing to protect the park under the 1968 Redwood National Park Act. The court ruled in favor of the fund's client, the Sierra Club, and required the department to protect the park by making land acquisitions, modifying the park's boundaries, and getting further authorization and appropriations from Congress. This litigation, and other efforts of the fund's lawyers to protect the park, proved to be effective holding actions until Congress could act. In early 1978 Congress did act and authorized the expansion of Redwood National Park in order to protect existing park property.

State and Local Organizations

77.8 The Montana Wilderness Association Legal and Education Fund

(a) History and objectives

The Montana Wilderness Association was founded in 1958 as a wilderness recreation organization. Gradually the group's emphasis has changed to the promotion of wilderness to save wildlife habitat, air, and water quality, and part of the continent's original land heritage. Although the organization's primary emphasis is wilderness preservation, the group also fights for the entire range of environmental issues.

The methods it uses to achieve its goals are advocacy, lobbying, education, legal action, and administrative appeals.

It is the areas of legal action and administrative appeals that are discussed in this section.

According to Article I, Section 3, of the association's constitution and bylaws, its objectives are

> (a) to enlist public support in a Montana program for classification and preservation of an adequate system of wilderness areas;
>
> (b) to encourage a land ethic that allows areas to have little human interference;
>
> (c) to further knowledge about wilderness as a valuable natural resource and to gather and disseminate information about use and enjoyment of wilderness;
>
> (d) to promote the protection of primeval and primitive areas and the integrity of their ecosystems and to discourage land uses and activities that threaten these areas; and
>
> (3) to establish a balanced outdoor recreation program on public land.[20]

Legislative goals for 1977 were (1) a 960,000-acre Absaroka-Beartooth Wilderness; (2) passage of the Metcalf Montana Wilderness Study bill; and (3) a Spanish Peaks Wilderness that joins the Taylor-Hilgards roadless area and includes all of the Madison Range.

Other programs include regularly conducted wilderness walks to interest people in wilderness, although these are not as prominent a feature as they once were due to heavy use of some wilderness areas.

(b) Structure of the organization

The Montana Wilderness Association has a 17-member elected council which meets quarterly to establish policies and priorities. Council members serve 2- or 3-year terms and are often experts on certain geographical regions in the state. Council members and officers are elected at an annual meeting of all association members held in December. Membership is around 550, about half of which are family memberships. About 100 members are from outside Montana.

There are three local groups--in Billings, Kalispell, and Great Falls--which organize members in those areas behind council policies and actions. The association also works closely with the National Wilderness Society, Friends of the Earth, and the Sierra Club. It publishes a quarterly newsletter.

Funding is through dues and occasional small contributions. Contributions to the association itself are not tax deductible. A separate Legal and Education Fund, Inc., was set up in 1975 to receive tax deductible contributions to support legal and educational projects.

As of August 28, 1976, the bank balance was $3,446, the operating balance $1,083. There was $597 in a memorial fund.[21]

(c) Protection technique: Legal action and administrative appeals

The Montana Wilderness Association is heavily involved in legal and administrative actions, believing that this is the only way to counter inadequate enforcement of good laws and regulations. Lawsuits have involved roads, subdivisions, and access to mining prospecting claims; and consideration has been given to challenging the state Attorney General's decision on use of school lands as natural areas under the Montana Natural Areas Act.

Since 1972 the Montana Wilderness Association has argued that taxpayer money should not be used to build a private resort road. The case is before the 9th Circuit Court of Appeals in San Francisco as of January 1977. The previous court ruling was in favor of the highway. The other case involving a road was an attempt to stop the Bighorn Canyon Trans-park Road.

Two subdivisions have been challenged by the Wilderness Association. One was in an area of Gallatin Canyon called Beaver Creek South. It was successfully challenged in a lower court on the basis of environmental impact statement requirements, but the Montana Supreme Court reversed the decision. The second, the Arrowleaf Subdivision, was approved by the state health department and the

[20]See Technical Appendix 77.13(h).

[21]See Technical Appendix 77.13(i).

Teton County Commissioners without a public hearing or environmental and economic studies. This area is a prime habitat for bighorn sheep, mountain goat, and grizzly bear. The Montana Wilderness Association secured a restraining order in the Helena District Court.

In August 1976 the association was considering becoming a plaintiff in challenging the state Attorney General's decision that, for school lands to be state-protected natural areas under the Montana Natural Areas Act, someone has to pay fair market value for the lands. The association's position was that "natural area" is only a classification of land; the land has not been sold. If there is a favorable decision, it could establish a valuable precedent for other states.

Administrative appeals involved consideration of roadless areas as possible wilderness areas and agency land use of roadless areas. The Moose Creek Timber Sale Appeal was a successful joint appeal of the Sierra Club and the Montana Wilderness Association to stop timbering in that Forest Service area. The service is now conducting a wilderness review of this Bitterroot National Forest area in conjunction with the 85,000-acre Sapphire Divide roadless area. Another appeal to the Forest Service has resulted in a study of a roadless area in the Callahan Planning Unit of Kootenai National Forest. Twelve organizations and the association appealed the service's plan to log and build a road through the Helena National Forest's Elkhorn Planning Unit. The Elkhorns have now been designated by Congress as a Wilderness Study Area. Even after many appeals to stop a development called Ski Yellowstone, the Forest Service appears ready to approve it. A public hearing was requested in Missoula by 1,200 petitioners and denied. In the Absaroka-Beartooth Corridor, the association is arguing against allowing snowmobiles and motorbikes which have caused damage in some areas.

77.9 Northwest Fund for the Environment

(a) History and objectives

The Northwest Fund for the Environment was established as an outgrowth of the Washington Environmental Council, an activist lobby organization. The fund's principal activity is raising money for public interest environmental lawsuits. Other general areas of concern are energy, pollution, and protection of agricultural lands.

The fund also engages in several educational, research, and informational activities. It publishes a bi-monthly newsletter of environmental information called *Farthest Corner*.

(b) Structure of the organization

The fund is incorporated as a charitable foundation; therefore, contributions are tax deductible. Lawsuits are initiated by local or regional citizens groups. These groups retain their own lawyers but apply to the fund for financial assistance because of its privileged tax status. The fund has an executive director and a summer legal internship program for law students.

The 10-member Board of Trustees reviews each request for assistance and decides whether or not to help by making available grants from the fund or unrestricted gifts.

(c) Protection technique

Approximately 75 percent of the lawsuits which the fund supports are concerned with land use questions. Several suits have been filed to protect natural areas. Some areas saved from improper development include the Nisqually Delta, the Yakima Flood Plain, Spokane's Five Mile Prairie, Seattle's Salmon Bay, Crockett Lake on Whidby Island, and a Winslow shoreline.

The Skagit Valley is another area of contention. Two nuclear power plants have been proposed by the Puget Sound Power and Light Company, with construction planned near Sedro Woolley, Washington. The Skagit Valley is the winter home of the rarely seen whistling and trumpeter swans. Up river from the plant site is the largest bald eagle wintering area in the far Western United States. There are also many geological hazards near the plant site. Litigation is expected.

77.10 Red River Gorge Legal Defense Fund

(a) History and objectives

The Red River Gorge Legal Defense Fund is an example of an *ad hoc* organization formed to stop a threat to a local natural area. The group was organized in 1974 to prevent the Army Corps of Engineers from building a dam across the North Fork of the Red River in Powell County, Kentucky. As an *ad hoc* organization, people from many professions, such as biology, economics, and law, and people from other conservation organizations, joined with local citizens to prevent the dam.

The organization stated several reasons why the dam should not be built. The flood waters which would form Red River Lake would have eliminated unique and important representatives of Kentucky's aquatic and terrestrial ecosystems and would have resulted in further reduction of restricted habitats of rare, endemic, and/or unusual plant and animal populations. The sharply dissected topography of the gorge areas of Kentucky, Tennessee, and Alabama have been recognized in Braun's reference work, *Deciduous Forests of Eastern North America,*[22] as containing habitat diversity, floristic richness, and diversity of forest communities. That topography allows the survival of relict and disjunct populations, permits the extension of species' ranges beyond their usual geographic boundaries, and, therefore, promotes the evolution of endemic and subspecies.

Many species of fish are represented in the Red River Drainage, including species which are indicators of oxygenated, relatively clear, unpolluted stream water. There are 13 darter species, two of which are endemic to Kentucky: the bluestripe darter (*Percina cymatotgenia*) and the emerald darter (undescribed *Etheostoma* sp.).[23] A major floristic study of the area found 555 vascular plant species; more recent studies have expanded this to 720 vascular species.[24] Only one plant species endemic to the Red River drainage has been discovered, a little-known goldenrod (*Solidago albopilosa*). The dam would destroy the habitat for these species.

Other reasons for opposing the dam were the displacement of families, loss of agricultural land, and other economic considerations, including whether all needed factors had been taken into account to arrive at the cost/benefit ratio of the dam promulgated by the Corps of Engineers.

(b) Structure of the organization

The Red River Legal Defense Fund is an *ad hoc* group with an executive committee empowered with the authority to make decisions and find biologists, botanists, economists, attorneys, and others to prepare comments on the Corps' environmental impact statements and to file suits to stop the dam. An advisory board of directors of prominent conservationists was formed for additional advice and credibility. The organization had a full-time staff coordinator at the height of the controversy.

(c) Protection technique

In 1962 the Red River Lake Project had been approved by Congress; it was to involve the construction of a dam on the North Fork of the Red River for flood control. The Sierra Club was a leader in delaying the dam once widespread opposition developed. After the passage in 1969 of the National Environmental Policy Act (NEPA), the Corps was required to submit an environmental impact statement to the Council on Environmental Quality. In 1973 the Corps submitted a draft statement which contended that the dam would not be the originally proposed $8 million flood control dam but a

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[22] E. Lucy Braun, *Deciduous Forests of Eastern North America*, Hafner Press, Macmillan Publishing Company, New York, 1974.

[23] B. A. Branson and D. L. Batch, *Fishes of the Red River Drainage*, The University of Kentucky Press, Lexington, Kentucky, 1974.

[24] P. D. Higgins, "A preliminary survey of the vascular flora of the Red River Gorge of Kentucky," Master of Science Thesis, the University of Louisville, 1970.

"multi-purpose" $31.8 million flood control, recreation, and water supply dam.

During 1973 and early 1974 conservationists and the 55 families to be displaced formed a coalition which led to the organization of the Red River Gorge Legal Defense Fund.[25] The group incorporated in anticipation of filing lawsuits under NEPA. In July 1974 the final environmental impact statement was published, including the decision to continue the project. A suit was subsequently filed in August 1974 by the Red River Gorge Legal Defense Fund and others to stop the project, citing the inadequacy of the final impact statement. Affidavits and letters were prepared under the organization's auspices to provide documentation and were sent to the Council on Environmental Quality. The council asked the Corps to respond to these criticisms on two separate occasions. After reviewing the replies, it recommended termination of the project.[26]

By April 1975 representatives of seven nationwide environmental organizations had signed a letter to the governor of Kentucky asking him to express his opposition to the dam. The national environmental groups included the National Parks and Conservation Association, Friends of the Earth, the American Rivers Conservation Council, the Izaak Walton League, the Environmental Policy Center, the Sierra Club, and the Wilderness Society. The Red River Gorge Legal Defense Fund held its second annual march from Lexington, Kentucky, to the state capital, Frankfort, where a rally was held to publicize and express opposition to the dam.[27] In September 1975 the governor of Kentucky announced his opposition to the dam proposal, and in that month the Corps suspended the project. However, this suspension does not end the possibility of a dam being built someday. It may be reactivated unless the U. S. Congress "deauthorizes" the Red River Lake.

[25]See Technical Appendix 77.13(j).

[26]William H. Martin, "The Red River Gorge Controversy in Kentucky: A Case Study in Preserving a Natural Area," ASB (Association of Southeastern Biologists) *(Bulletin*, July 1976, v. 23; No. 3., p. 66.

[27]Al Marsh, "Oppose Dam, Carroll Asked," *Lexington Herald*, Lexington, Kentucky, April 15, 1975.

D. Information and Bibliography

77.11 Key information contacts

T. William Booth, Executive Director
Northwest Fund for the Environment
119 South Main Street
Seattle, Washington 98104
(206) 623-6832

Bill Cunningham
The Wilderness Society
1901 Pennsylvania Avenue, N. W.
Washington, D. C. 20006
(202) 828-6600

George D. Davis, Executive Director
The Wilderness Society
1901 Pennsylvania Avenue, N. W.
Washington, D. C. 20006
(202) 293-2732

Dave Foreman
Wilderness Affairs Coordinator
The Wilderness Society
1901 Pennsylvania Avenue
Washington, D. C. 20006
(202) 293-2732

Marni Holbrook, Environmental Associate
The Izaak Walton League
1800 North Kent Street
Arlington, Virginia 22209
(703) 528-1818

Dr. William H. Martin
Associate Professor of Biological Science
Eastern Kentucky University
Richmond, Kentucky 40475
(606) 622-3211
(for information about the Red River Gorge Legal Defense Fund)

Natural Resources Defense Council
Washington Office
917 15th Street, N.W.
Washington, D. C. 20005
(202) 737-5000

Steve Packard
Illinois Environmental Council
53 West Jackson
Chicago, Illinois 60604
(312) 663-0863

Springfield IEC Office
407-1/2 East Adams Street
Springfield, Illinois 62701
(217) 544-5954

Charlotte J. Read
Executive Secretary
Save the Dunes Council
P. O. Box 114
Beverly Shores, Indiana 46301
(219) 879-3937

Polly Renne, Secretary
The Montana Wilderness Association
Box 84
Bozeman, Montana 59715
(406) 587-0502

Edmund Schofield, Research Director
The Sierra Club
530 Bush Street
San Francisco, California 94108
(415) 981-8634

Sierra Club Legal Defense Fund, Inc.
311 California Street, Suite 311
San Francisco, California 94104
(415) 398-1411

Norma H. Watson, Public Information
Environmental Defense Fund, Inc.
475 Park Avenue, South
New York, New York 10016
(212) 686-4191
and
Washington EDF Office
1525 18th Street, N. W.
Washington, D. C. 20036
(202) 833-1484

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77.14 List of other organizations[28]

Alabama
- Bass Anglers Sportsman Society
- The Alabama Conservancy

Alaska
- Alaska Conservation Society
- Denali Citizens Council
- Trustees for Alaska

Arizona
- Arizona Wilderness Study Committee

California
- Environmental Defense Center
- Environmental Defense Fund
- Friends of the Earth Foundation, Inc.
- Friends of the Sea Otter
- Natural Resources Defense Council
- Sierra Club
- Save-the-Redwoods League
- The Trust for Public Land

Colorado
- Colorado Open Space Council

[28] Local listings of national organizations do not appear in this section. Please refer to "Master List of Organizations for local listings of Izaak Walton League, Sierra Club, The Nature Conservancy, Trout Unlimited, and the Wilderness Society.

Environmental Defense Fund
Public Land Institute
Trout Unlimited
Connecticut
Connecticut Audubon Society
Connecticut Land Trust Service Bureau
Land Trust Division of Greenwich Audubon Society, Inc.
Sleeping Giant Park Association
Steep Rock Association, Inc.
District of Columbia
American Scenic Rivers Conservation Council
Animal Protection Institute
Animal Welfare Institute
Barrier Islands Workshop
Citizens Committee on Natural Resources
Defenders of Wildlife
Environmental Action
Environmental Defense Fund
Environmental Policy Center
Friends of Animals
Friends of the Earth
Fund for Animals, Inc.
Monitor, Inc.
National Parks and Conservation Association
National Wildlife Federation
Society for Animal Protective Legislation
The Conservation Foundation
The Wilderness Society
The Nature Conservancy
Wildlife Society
Florida
Collier County Conservancy
Florida Audubon Society
Florida Defenders of the Environment, Inc.
Georgia
Georgia Environmental Council
Save America's Vital Environment
Trout Unlimited Georgia Council
Hawaii
Life of the Land
Idaho
Idaho Conservation League
Hells Canyon Preservation Council
Illinois
Committee on the Middle Fork
Illinois Environmental Council
Society for the Protection of Endangered Wildlife
Indiana
Acres, Inc.
Crooked Lake Property Owners Association
Indiana Academy of Science--Science and Society Committee
Indiana Public Interest Research Group
Save the Dunes Council
Steuben County Lakes Council
Kansas
Save the Tallgrass Prairie, Inc.
Kentucky
Red River Gorge Legal Defense Fund
Massachusetts
Conservation Law Foundation of New England, Inc.
Massachusetts Forest and Park Association
New England Forestry Foundation
New England Natural Resources Center
New England Wildflower Society
Maryland
American Fisheries Society
Chesapeake Bay Foundation
Michigan
West Michigan Environmental Action Council
Minnesota
Friends of the Boundary Waters Wilderness
Minnesota Public Interest Research Group
Northern Environmental Council
Project Environment
Quetico Superior Foundation
Mississippi
Committee for Leaving the Environment of America Natural
Montana
Allenspur Committee to Save the Upper Yellowstone Valley
Center for the Public Interest
Environmental Action Center
Environmental Information Center
Montana Wilderness Association
Northern Rockies Action Group, Inc.
North Carolina
Beaucatcher Mountain Defense Association
Carolina Bird Club, Inc.
Committee for the New River
Conservation Council of North Carolina
The Nature Conservancy Association for the Preservation of Eno River Valley
North Dakota
North Dakota Natural Science Society
New Hampshire
Audubon Society of New Hampshire
Environmental Coalition
New Jersey
New Jersey Conservation Foundation
Pine Barren Conservationists
South Branch Watershed Association
Stony Brook Millstone Watershed Association

New Mexico
- Central Clearing House
- New Mexico Wilderness Study Committee

New York
- Adirondack Council
- Bergen Swamp Preservation Society
- Environmental Defense Fund
- Environmental Planning Lobby
- Group for America's South Fork
- Hudson River Sloop Clearwater, Inc.
- Long Island Environmental Council
- Long Island Marine Environmental Council
- National Audubon Society
- Natural Resources Defense Council
- Scenic Hudson Preservation Conference
- The Nature Conservancy Catskill Center for Conservation and Development, Inc.

Ohio
- Little Miami, Inc.
- Ohio Environmental Council, Inc.
- Sierra Club Ohio Chapter
- The American Malacological Union
- The Darby Creek Association

Oregon
- Oregon Shores Conservation Coalition

Pennsylvania
- Northcentral Highlands Association

Rhode Island
- Audubon Society of Rhode Island

South Carolina
- Environmental Coalition of South Carolina
- Upper Savannah River Defense Association

South Dakota
- Dakota Environmental Council
- South Dakota Environmental Council

Tennessee
- Tennessee Citizens for Wilderness Planning

Texas
- Houston Sportmen's Club
- Texas Committee on Natural Resources
- Texas Environmental Council

Utah
- Defenders of the Outdoor Heritage

Virginia
- Izaak Walton League of America, Inc.
- National Recreation and Park Association

Washington
- North Cascades Conservation Council
- Northwest Fund for the Environment
- Olympic Park Associates
- The Mountaineers
- Washington Environmental Council
- Young Lawyers Section of the Seattle-King County Bar Association

Wisconsin
- Citizens Natural Resources Association of Wisconsin

West Virginia
- Appalachian Research and Defense Fund
- West Virginia Highlands Conservancy

Wyoming
- Wyoming Environmental Institute
- Wyoming Outdoor Council

Chapter Seventy-eight

Tax Incentives

A. Introduction

78.1 History and Objectives

The principle behind allowing tax exemptions and deductions for charitable activity is to encourage organizations, through public policy, to operate for the betterment of society.

In a 1965 U. S. Treasury report to Congress the following statements were made to justify using the tax system as an incentive for private philanthropy.[1]

> Private philanthropy plays a special and vital role in our society. Beyond providing for areas into which government cannot or should not advance (such as religion), private philanthropic organizations can be uniquely qualified to initiate thought and action, experiment with new and untried ventures, dissent from prevailing attitudes, and act quickly and flexibly.
>
> Private foundations have an important part in this work. Available even to those of relatively restricted means, they enable individuals or small groups to establish new charitable endeavors and to express their own bents, concerns, and experience. In doing so, they enrich the pluralism of our social order. Equally important, because their funds are frequently free of commitment to specific operating programs, they can shift the focus of their interest and their financial support from one charitable area to another. They can, hence, constitute a powerful instrument for evolution, growth, and improvement in the shape and direction of charity.
>
> Private philanthropic organizations can possess important characteristics which modern government necessarily lacks. They may be many-centered, free of administrative superstructure, subject to the readily exercised control of individuals with widely diversified views and interests. Such characteristics give these organizations great opportunity to initiate thought and action, to experiment with new and untried ventures, to dissent from prevailing attitudes, and to act quickly and flexibly. Precisely because they can be initiated and controlled by a single person or a small group, they may evoke great intensity of interest and dedication of energy. These values, in themselves, justify the tax exemptions and deductions which the law provides for philanthropic activity.[2]

78.2 Tax exemptions

Tax-exempt status may be granted to charitable organizations who operate exclusively for one or more of the tax-exempt purposes defined in section 501(c)3 of the Internal Revenue Code and in IRS Publication No. 557. Because this status affects a nonprofit corporation's ability to attract donations, it is important that it file for this federal tax status. The key to a tax-exempt status is through compliance with the provisions of IRS Publication No. 557.

The federal application is made on IRS Form 1023. The nonprofit corporation must provide information sufficiently detailed to allow the IRS to conclude that the organization has been formed and will operate exclusively for tax-exempt purposes defined in the sections under which the exemption is claimed. Among other things, the application will require information concerning the organization's proposed activities, the expected sources of funds, and a statement of public purposes to be served. The description of proposed operations must fully describe the activities in which the organization expects to engage.

An object of many conservation organizations is to influence legislation or administrative decisions of government agencies.[3] Until the Tax Reform Act of

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[1]Chapter 78.2 of this chapter discusses what this means in terms of a land donor's taxes.

[2]U. S. Congress, Senate, U. S. Treasury Department Report on Private Foundations, Presented to the Committee on Finance, 89th Congress, 1st session (1965), p. 5; hereinafter referred to as Treasury Report.

[3]See Chapter 77: Legislative, Legal, and Administrative Fighting.

1976[4] (effective January 1, 1977), existing regulations for tax-exempt status required that no "substantial part" of the activities of a 501(c) (3) organization be directed to influencing legislation. This did not forbid nonprofit organizations from lobbying; however, a conservation organization which included lobbying as a major objective in its program stood to lose its tax-exempt status if it were found to be in violation of the "substantial part" provision. The provision had never been clearly defined by court decisions or IRS regulations.

The Tax Reform Act set dollar amounts --up to $1 million a year for organizations with large budgets--in order to limit the activity that could be directed towards lobbying. The new law also defined the amount of grass roots expenditures allowed by local groups or affiliates of national organizations. This provision will require careful accounting of funds spent to influence legislation by those who elect to be covered under the new law, but it will also provide more definite guidelines for groups which intend to lobby and still retain tax-exempt status.

A nonprofit corporation should also apply for an exemption from state income taxes, if the state in question has such taxes. States ordinarily accept and endorse the organization as having the same IRS status as the federal, for purposes of state income taxation, once federal exemption has been granted.

According to Adler,

> . . . the state permitted private institutions to take over the work of charity (because) the latter was pro tanto relieving the state of a burden which it had avowedly undertaken to bear. Private institutions were thus performing a public function. This quid pro quo which the private institutions received was immunity from taxation. But it must be observed that what is done here is to state the terms of a bargain which we have not before us. It is not to be supposed that the bargain was openly made and publicly declared. There is no direct evidence that such a bargain was ever made. The process of exempting these private institutions developed imperceptibly, subtly. It was a spontaneous process, leaving no trace of its origin or immediate development.[5]

78.3 Tax deductions for charitable contributions

Contributions are deductible for federal income tax purposes if they are made to or for use by federal, state, or local governments exclusively for public purposes. Contributions to private entities described in section 501 (c) (3) of the Internal Revenue Code are also tax deductible according to section 701 of the Internal Revenue Code. The eligible entities include corporations, trusts or community chest funds, and foundations organized and operated exclusively for religious, charitable, scientific, literary, or educational purposes.

All of the entities discussed in this study--private conservation organizations, colleges and universities, and local governments--may use the incentive of tax deductible contributions to encourage the donation of land and/or money for natural area protection. Generally local governments and universities do not seek gifts for natural area protection because it is not their primary purpose, although they may be recipients for a variety of reasons. Special local districts such as the New England conservation commissions or midwestern park districts are more likely to seek gifts of land actively becaise they are primarily concerned with land protection.[6] In the case of universities, most donated lands are sold, with the proceeds going to support the institution. On occasion, however, land is donated with the expressed wish that the natural area be used for research.

Tax incentives may play a part in these donations. The University of

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[4]Public Law 94-455, October 4, 1976.

[5]Adler, Historical Origin of Tax Exemption of Charitable Institutions (1922), p. 73, quoted in Belknap and Mandel, Federal Income Tax Exemption of Charitable Organizations, p. 11.

[6]See Part Twelve--The Role of Local Governments, Chapter 92: Fee Acquisition.

California annually receives small additions to one of its preserves from a donor seeking to improve his tax status.[7]

The primary objectives of private conservation organizations obviously include environmental and sometimes natural area protection. Private conservation organizations also depend for their existence upon membership fees, large private donations, and grants from foundations. Landholding conservation organizations receive a substantial amount of their natural areas through donations or sale of land at less than fair market value.

Because contributions to organizations with 501(c)(3) tax status may be tax deductible, this may be an especially important factor in raising the larger cash contributions from the individuals or foundations on which many conservation organizations are directly dependent.

B. Tax Encouragement for Donations to Nonprofit Organizations

78.4 Gifts of land

(a) Methods of donating land

In a report prepared by The Nature Conservancy, working with the Bureau of Outdoor Recreation, the following ways of giving land were outlined:

(1) An outright donation by the execution of a standard deed. In this method, the owner gives the land to the government agency or nonprofit organization with no strings attached.

(2) A donation by the execution of a standard deed with the retention of a life estate. A gift by this method allows the owner to occupy and use the property during his life (or the life of the donor and the donor's spouse), with possession passing only thereafter to the organization. A similar method is to give the land outright, and have the receiving organization grant the donor life use. Either of these reservations of rights will be taken into account in determining the tax benefits of the gift.

(3) A donation by the execution of a restricted deed. If the donor insists, he may restrict the use of the land by placing restrictions into the deed. Given the obligations and problems that relate to the perpetual management of land, it is best for the recipient agency not to accept major restrictions in the deed from the landowner. Such restrictions would make management of the area very difficult in future years, should circumstances drastically change. If the donor insists on restrictions, then the agency should include in the deed provisions which enable it to take appropriate action should circumstances beyond its control make it unfeasible to manage the land for the purposes stated in the deed. Also, it should be pointed out to the donor that any restrictions in the deed will probably reduce the value of his gift for the purposes of a charitable tax deduction.

(4) Finally, the owner can donate the land to the organization in his will. The bequest may or may not be restricted, but whenever possible, the organization should request to see, before the donor's death, that section of the donor's will that applied to the land. If there is something wrong with the proposed bequest, it is a lot easier to work it out with the donor than his estate. Remember, a will is not a binding commitment, and the donor is free to rewrite his will anytime before his death. A gift by will can reduce estate taxes, but not income taxes.[8]

(b) Outright gifts and income taxes

Outright gifts of land to qualified charitable organizations entitle the owner to a federal income tax deduction for a charitable contribution equal to the fair market value of the property at the time of the gift. Taxable income is therefore reduced, lowering the amount of taxes to be paid. If the donated property has appreciated in value while

[7] See Part Eleven--The Role of Academic Institutions, Chapter 84: Fee Acquisition.

[8] David E. Morine. Unpublished paper on case histories on the preservation of natural land, The Nature Conservancy, 1975.

owned by the donor, there is an additional tax benefit because no capital gains taxes need be paid.

Allowable deductions are generally limited in a given year to 50 percent of the adjusted gross income of a noncorporate donor. For example, if an individual donor has an adjusted gross income of $40,000 a year, he can give and deduct up to $20,000 a year. However, when a gift is capital gain property, the deduction is generally limited to 30 percent of the taxpayer's adjusted gross income per year. If the total value of the gift exceeds this 30 percent in the year of the donation, the balance may be carried forward and used as a deduction for the next 5-year period, for a theoretical total of 6 years.

The rules for computing state income tax deductions vary in different states, and no generalization may be made.

If the gift is of an undivided fractional interest in the land, the same rules apply, using the fair market value of the fractional interest.[9] If the donor reserves a life estate and the property is a personal residence or a farm, he is still entitled to a deduction, but the value of the gift is discounted by the computed value of his life estate. (This is computed according to actuarial tables of the Internal Revenue Service.)

When a gift of land is made to a charitable organization[10] in a donor's will, the value of the land is in effect excluded from taxation in the donor's estate.

If a corporation donates land, it is subject to a limitation of 5 percent of its taxable income each year, but the balance may be carried forward and used as a deduction for an effective 6-year write-off period.[11]

The valuation of a gift is the responsibility of the donor and is either upheld or denied by the Internal Revenue Service. The most convincing evidence of value is an appraisal made by a professional appraiser. The IRS has stated that an appraisal may be given less weight if it is done or paid for by the nonprofit organization that is receiving the donation. Such an arrangement may create a conflict of interest. When the size of the gift does not seem to warrant the expense of a formal appraisal, the opinion of an experienced local real estate agent may suffice.

Gifts of unappreciated property, including land, stocks, and bonds, may be treated like cash contributions. In a somewhat unusual example of this, the Audubon Society of New Hampshire solicited in its December 1976 *Newsletter* the gift of a used car to replace its old station wagon. The donor would be entitled to a tax deduction equal to the car's current market value. If the prospective donor could not afford to donate it, but could sell it for less than its present market value, the tax deduction would be the difference between the bargain sale price and the market price.

In general, two factors determine the tax benefits that will accrue to a donor from a gift to a charitable or governmental organization. First is the adjusted gross income of the donor, which determines the rate at which he would have had to pay taxes were it not for the donation. Second is the amount by which the actual value of the property exceeds its basis, which determines the amount of capital gains that would be taxed if the property were disposed so as to produce capital gains. Basis is equal to the price originally paid for the property plus or minus adjustments allowed by law. Thus, for a wealthy donor who would be taxed in the 70 percent bracket, a donation of land could be highly attractive because 70 percent of the value of his donation would be subtracted directly from the amount he would otherwise have to pay in federal income tax. In addition, if sale of the property were to result in a capital gain, tax on that amount would also be avoided by a donation to a qualified donee.

Deductions for property with long-term capital gain are limited to 30 percent of adjusted gross income for individual taxpayers. Deductions can, however, be carried forward for 5 years after the donation, so that if the full value of the gift cannot be deducted in

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[9] See Chapter 72: Less Than Fee Acquisition.

[10] David E. Morine. Unpublished paper on case histories on the preservation of natural land, The Nature Conservancy, 1975.

[11] *New Hampshire Audubon News*, Audubon Society of New Hampshire, Concord, New Hampshire, 1976, p. 6.

the year it was given because of the 30 percent limitation, the donor might still be able to deduct all or a significant portion of the value of his gift. There have been cases where the donation of real estate has produced a higher net return after taxes than would have been achieved had the property been sold on the open market. In almost all cases, however, a gift of land will generate some tax advantages to the donor, and thus make the net cost of making the gift less than the actual value of the gift.

The following example illustrates this benefit.

> Assume that an individual with an annual adjusted gross income of $40,000 is in the 50 percent income tax bracket. If he makes a gift to The Nature Conservancy of property which had cost him $44,000 some years ago but now has a fair market value of $72,000, these rules would operate as follows:
>
> (1) Over a 6-year period (the year in which he made the gift and the 5 succeeding years) the donor would be entitled to deductions of $12,000 per year (30 percent of his adjusted gross income for each year);
>
> (2) Since he is in the 50 percent tax bracket, the total deductions of $72,000 (over the 6-year period) would generate income tax savings in the amount of $36,000; and
>
> (3) In addition, the donor would avoid a potential capital gains tax of at least $7,000 (based in this example on 25 percent of $28,000).
>
> Thus, a total tax savings of $43,000 has been realized by donating a piece of property that cost $44,000, and a gift worth $72,000 has been made at a cost of only $29,000 ($72,000 less tax savings of $36,000 and $7,000).[12]

(c) Other tax exemptions

Other deductions or exemptions usually allowed for contributions to (501(c)(3) organizations are:

(1) Reductions in estate and inheritance taxes for gifts of land to charitable organizations made by will;

(2) Relief for the donor from his obligation to pay real estate taxes for outright donations to a charitable organization;

(3) Decreased or stabilized taxes for properties where a conservation easement has been donated to a charitable organization;

(4) Special income and estate taxes for gifts in trust.

Tax incentives are described in more detail in The Nature Conservancy's publication, "Ways of Giving."[13]

C. Information and Bibliography

78.5 Key information contacts

Development Office
The Nature Conservancy
1800 North Kent Street
Arlington, Virginia 22209
(703) 841-5300

David E. Morine, Vice President,
Acquisition
The Nature Conservancy
1800 North Kent Street
Arlington, Virginia 22209
(703) 841-5300

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[12] "Gifts of Land," The Nature Conservancy, brochure, 1976.

[13] See Technical Appendix 78.7(a).

78.6 Bibliography

Morine, David E. The Preservation of Natural Land. Unpublished paper. The Nature Conservancy: 1800 North Kent Street, Arlington, Virginia 22209, 1975.

Smith, William H. and Carolyn P. Chiechi. *Private Foundations, Before and After The Tax Reform Act of 1969*. American Enterprise Institute for Public Policy Research: Washington, D. C. 1974.

The Nature Conservancy. "Gifts of Land." The Nature Conservancy: 1800 North Kent Street, Arlington, Virginia 22209, 1976.

The Nature Conservancy. "Land Preservation Training Program." The Nature Conservancy: 1800 North Kent Street, Arlington, Virginia 22209 and Department of the Interior, Bureau of Outdoor Recreation: Washington, D. C. 20240, 1977.

U. S. Congress. *U. S. Treasury Department Report on Private Foundations, Presented to the Committee on Finance*. 89th Congress, 1st session (1965).

Walsh, John. "Lobbying Rules for Nonprofits: New Options Set Specific Limits." *Science* (Washington, D. C.), 196 (April 1, 1977) 40, 42.

78.7 List of technical appendices

(a) "Ways of Giving." The Nature Conservancy: 1800 North Kent Street, Arlington, Virginia 22209, ca. 1975.

78.8 List of other organizations[14]

California
- Big Sur Land Trust
- East Orange Open Space Management Corporation
- Friends of the Earth Foundation, Inc.
- Hammonds Meadow Preserve
- Humboldt North Coast Land Trust
- Jefferson Land Trust
- The Land Trust of Santa Cruz County
- Marin Agricultural Land Trust
- Napa County Land Trust
- Peninsula Open Space Trust

Colorado
- Colorado Open Land Foundation
- Mesa County Land Conservancy

Connecticut
- Avon Land Trust
- Aspetuck Land Trust, Inc.
- Barkhamsted Land Trust
- Bethany Conservation Trust, Inc.
- Bethlehem Land Trust
- Branford Land Conservation Trust, Inc.
- Brookfield Open Space Legacy
- Canton Land Conservation Trust, Inc.
- Cheshire Land Trust, Inc.
- Clinton Land Conservation Trust, Inc.
- Connecticut Land Trust Service Bureau
- Deep River Conservation Trust
- East Granby Land Conservation Trust, Inc.
- East Haddam Land Trust
- East Lyme Land Conservation Trust, Inc.
- Enfield Land Conservation Trust
- Essex Conservation Trust, Inc.
- Farmington Land Trust, Inc.
- Flanders Nature Center
- Goshen Land Trust, Inc.
- Granby Land Trust, Inc.
- Great Meadows Conservation Trust, Inc.
- Guilford Land Conservation Trust, Inc.
- Haddam Land Trust, Inc.
- Hamden Land Conservation Trust, Inc.
- Harwinton Land Conservation Trust, Inc.
- Joshua's Tract Conservation and Historic Trust
- Killingsworth Land Conservation Trust
- Kongscut Land Trust
- Land Conservancy of Ridgefield, Inc.
- Land Trust Division of Greenwich Audubon Society, Inc.
- Land Trust of Darien, Inc.
- Litchfield Conservation Trust, Inc.
- Madison Land Conservation Trust, Inc.
- Manchester Land Conservation Trust, Inc.
- Mashantucket Land Trust, Inc.
- Middlebury Land Trust
- Monroe Fields and Wood Association, Inc.

[14]See "Master List of Organizations," for addresses of the following organizations as well as the local chapter, field, and regional offices of The Nature Conservancy able to provide tax advice.

Naromi Land Trust, Inc.
New Canaan Land Conservation Trust, Inc.
New Hartford Conservation Trust, Inc.
Newtown Forest Association, Inc.
North Branford Land Conservation Trust, Inc.
North Haven Land Trust, Inc.
Norwalk Land Conservation Trust
Old Lyme Conservation Trust
Orange Land Trust, Inc.
Peace Sanctuary Trust, Inc.
Plymouth Land Trust and Conservancy
Pond Mountain Trust, Inc.
Pootatuck Land Trust
Redding Land Trust, Inc.
Roxbury Land Trust, Inc.
Salisbury Land Conservancy, Inc.
Saybrook Land Conservancy, Inc.
Shelton Land Conservation Trust, Inc.
Simsbury Land Conservation Trust, Inc.
Sleeping Giant Park Association
Somers Land Trust
Southbury Land Trust, Inc.
Southington Land Conservation Trust, Inc.
Stamford Land Conservation Trust, Inc.
South Windsor Land Conservation Trust
Steep Rock Association, Inc.
Suffield Land Conservation Trust
Swampfield Land Trust, Inc.
Tolland Land Trust, Inc.
Torrington Land Conservation Trust, Inc.
Trustees of Roseland Park
Wallingford Land Trust, Inc.
Weantinogue Heritage, Inc.
Westbrook Land Conservation Trust, Inc.
West Farms Land Trust, Inc.
West Haven Land Trust
Wilton Land Conservation Trust
Woodbridge Conservation Trust, Inc.
Wyndham Land Trust

District of Columbia
National Wildlife Federation Endowment

Iowa
Iowa Natural Heritage Foundation

Massachusetts
Mattapoisett Land Trust
The Trustees of Reservations

Minnesota
Minnesota Parks Foundation
Minnesota Wildlife Heritage Foundation, Inc.
Project Environment Foundation

New Hampshire
Society for the Protection of New Hampshire Forests

New York
Pound Ridge Land Conservancy
Save Open Spaces

Oregon
Oregon Community Land Trust

Pennsylvania
Berks County Conservancy
Brandywine Valley Association
Bucks County Conservancy
Chester County Conservancy
French and Pickering Creeks Conservancy Trust
Green Valleys Association
Lancaster County Conservancy
Lehigh Valley Conservancy
Pennypack Watershed Association
Western Pennsylvania Conservancy
Wissahickon Valley Watershed Association

Rhode Island
Barrington Land Conservation Trust
East Providence Land Conservation Trust

Vermont
Ottauquechee Regional Land Trust
Vermont Natural Resources Council

Washington
Indianola Land Trust
Yakima River Regional Greenway Foundation

Wyoming
Jackson Hole Land Trust

Chapter Seventy-nine

Watchdogging or Monitoring Natural Areas

A. Introduction

One role of private conservation organizations is the monitoring of specific types of landscapes, such as barrier islands, wilderness areas, or rivers, for possible adverse uses. A wide range of organizations do this in some form, but the discussion in this chapter is limited to two. One is the Barrier Islands Workshop, a coalition of groups attempting to set up a system to monitor all of the East Coast Barrier Islands. The other is the New Mexico Wilderness Study Committee that watches all aspects of wilderness in New Mexico and West Texas.

The programs of many organizations involve some aspect of monitoring areas that are pertinent to their programs, especially lands under consideration for legislative protection. For example, the Wilderness Society and the state and local wilderness groups often keep an eye on potential wilderness areas on federal lands not yet designated as part of the Wilderness Preservation System. The Adopt a Roadless Area program of the New Mexico Wilderness Study Committee is designed to develop data for federal wilderness proposals as well as to interest local people in their protection. The Izaak Walton League sponsors a Save Our Streams program which calls upon local citizens to "adopt" streams near their homes and monitor the water quality and physical condition of the stream and its banks.

Other groups which were formed to counter by legislative or legal action a threat to a specific area also realize that they must maintain constant vigilance even after part of the group's legislative goal has been reached. An example of this is the Save the Dunes Council.[1]

Some organizations monitor the status of designated critical habitats of endangered species. National groups involved in this to some degree are: Defenders of Wildlife, Environmental Action, Environmental Defense Fund, Environmental Policy Center, Friends of the Earth, Fund for Animals, Humane Society, National Parks and Conservation Association, Natural Resources Defense Council, New York Zoological Society, Rachel Carson Trust, Society for Animal Rights, Wildlife Management Institute, and Wildlife Society. (These and others have also formed a coalition called Monitor, Inc.) Other groups try to monitor critical habitats for certain species; among the groups are the Desert Fishes Council for the desert pupfish and the American Malacological Union for the pearly mussel and other mollusks. Local preservation societies often take up monitoring projects--an example is the Santee (South Carolina) Preservation Society which is trying to save a habitat within the Ion Swamp for the Bachman's Warbler.

[1]See Chapter 77: Legislative, Legal, and Administrative Fighting.

B. National Organizations

79.1 The Barrier Islands Workshop

(a) History and objectives

The Barrier Islands Workshop is a coalition of over 25 environmental and conservation organizations formed in 1976 to protect the fragile barrier islands. Barrier islands are the long, low, sandy islands and spits which flank much of the U. S. coastline from Maine to Texas. Beautiful, fragile, and shifting, they protect thousands of miles of coast from hurricanes and the battering of storms and ocean currents. They offer a rich diversity of recreational and scenic opportunities within a small area. Hundreds of species of coastal birds, fish, shellfish, reptiles, and mammals are dependent upon barrier islands for habitats and food. Increasingly, real estate speculation and development activities are threatening the barrier islands. There are over 281 barrier islands and beaches of 100 acres or more in size.

The Barrier Islands Workshop acts as an information exchange, providing access to surveys, reports, and other technical material on the islands. All sponsors and members are invited to make full use of the exchange.

The coalition has established a network of over 100 island-watchers, local citizens or groups on the islands who will alert the Workshop and provide up-to-date information on each barrier island and beach that is threatened.

The Workshop also attempts to implement fundamental changes in the way the islands are managed. By providing coordination and communication among members and focusing attention on new areas of concern, the Workshop serves as a catalyst in this regard.

One goal of the Workshop is to secure the adoption of a Federal Executive Order recognizing the barrier islands as "areas of particular concern" in the Federal Coastal Zone Management Program. This would require that any federal action affecting the islands go through special review procedures.

(b) Structure of the organization

The 25-member organizations which are members of the Workshop include many national groups such as the Conservation Foundation, The Nature Conservancy, the Environmental Defense Fund, and the National Audubon Society. Several state and local organizations are represented, such as the Georgia Conservancy, Florida Audubon Society, and Fire Island Natural Area Committee.[2] The organization has a national coordinator in Washington, D. C., and an executive director in New York. Advisory groups have been formed to provide scientific support data for the Workshop and advice on legal issues and possible legal action needed to protect the islands.

(c) Protection technique: The Islands Watch Program

An important element of the Barrier Islands Workshop coalition is its network of over 100 local island-watchers--persons who monitor specific islands and beaches. They collect information and forward it to the Workshop for its ongoing inventory. Another responsibility is to alert coalition members of actions that jeopardize any island's resources. The watchers in turn benefit from the information and technical assistance available through the Workshop.

Monitoring focuses on any actions which might directly or indirectly affect the ecology, stability, or resources of the islands. Activities may include some or most of the items below:

(1) Gathering information for an inventory on: demographics, natural characteristics, current land use and land use controls, development trends, bridges, sewers, parks, etc.

(2) Monitoring the media (newspapers, TV, etc.) for: relevant hearings, plans for development, proposed bridges, large land purchases, and editorials or letters to the editor which depict the general mood and politics of the area.

(3) Being alert to conservation opportunities, threats to resources, government programs, and coastal zone planning and management possibilities. (Much information of relevance is provided by other island-watchers and disseminated through the *Bulletin*.)

The Workshop provides all watchers with the information necessary for conducting the Watch and distributes forms appropriate for data collection. There is personal contact between the watcher and the Barrier Islands Workshop coalition through the coordinator's office in Washington, D. C. A volunteer state coordinator from one of the environmental organizations in each state oversees state actions.

The major results expected of the Island Watch are: (1) accumulation of detailed data on each island (over 200), to be incorporated into the Workshop's central data pool, (2) a source for timely notice of avoidable threats to barrier islands, and (3) a contact point for member organizations of the Workshop.

C. State and Local Organizations

79.2 New Mexico Wilderness Study Committee

(a) Objectives

The New Mexico Wilderness Study Committee is an *ad hoc* informal organization devoted to wilderness preservation in West Texas and New Mexico. The Committee identifies wilderness areas, attempts to get wilderness designations through federal programs, and endeavors to protect the areas from encroachment. The Committee provides resource people, information, and coordination for local

[2]See technical appendix 79.5(b) for the list.

groups involved in New Mexico and West Texas wilderness preservation.

In addition, the Committee serves as an umbrella coordinating agency for approximately 50 other groups involved in wilderness preservation. The Committee seeks to identify all potential federal wilderness areas, wild and scenic rivers, outstanding natural areas, and research natural areas and has been doing so since 1967. It organizes public support and demonstrates this to federal agencies and Congress to ensure the designation of identified areas primarily as wilderness areas under the 1964 Wilderness Act.

To demonstrate public support to federal agencies, the Committee maintains contact with appropriate agencies in the southwest. They include the U. S. Forest Service regional forester in Albuquerque and forest supervisors in each of the New Mexico National Forests, the state director of the Bureau of Land Management and district managers within the state, the Park Service regional director and superintendents of the individual national parks, and the regional directors of the Fish and Wildlife Service and the Bureau of Outdoor Recreation (now defunct). As part of a program entitled "Adopt a Roadless Area," the group has resource people for each identified potential wilderness area who watch all potential threats and actions affecting the area.

(b) Structure of the organization

The New Mexico Wilderness Study Committee has approximately 15 local wilderness study groups in communities throughout the area, such as the Gila Wilderness Committee, the Los Alamos Wilderness Group, and the Las Cruces Wilderness Group. A local group may be highly flexible, with no minimum requirements as to the number of people needed or for formal organization.

The Committee is directed by a chairman. At present this person is also the southwest regional representative for the Wilderness Society (the two groups have no formal affiliation).[3] General policy is set by a board of directors composed of leaders of various study groups and affiliates. Officers are elected annually.

At a 1976 board meeting, a decision was made that an annual meeting of all Wilderness Study Committee leaders was needed to evaluate the various programs and activities and to plan strategy for the different regions of the area. The annual meetings are intended to involve area and regional planning and develop priorities now that the organization has grown from a local group to one that is statewide.

Priorities for 1976 concerned wilderness legislation, Forest Service and Bureau of Land Management administrative practices, wild rivers (including national designation), and an attempt at passage of legislation for state wild rivers and threatened areas (*e.g.*, timbering, mining, flooding for dams, and grazing).

Priorities for field work in 1976 included: (1) completion of field work for areas already proposed; (2) investigation of a suggested unknown wilderness area; and (3) assessment of all Forest Service Category II roadless areas. Another was to strengthen existing local wilderness groups and establish groups in key areas where there are none.[4] Field priorities for 1977 included Bureau of Land Management primitive areas.

The Committee sponsors various instructional workshops; *e.g.*, how to do a wilderness study or how to impart knowledge about the Wilderness Act. The workshops contribute to the Adopt a Roadless Area program, which is discussed in the next section as a watchdog protection tool.

Funding for the group comes mainly from small private donations. Contributions are not tax deductible. The budget for 1976 was approximately $1,500. There is no paid staff; more than 100 volunteers were involved in various Committee wilderness activities.

(c) Protection technique: Adopt a Roadless Area Program

The Adopt a Roadless Area program is designed to organize residents of New

[3]See Chapter 77, Section 77.2 for a discussion of the Wilderness Society.

[4]See Technical Appendix 79.5(c) for the list of committees.

Mexico and West Texas to survey, watch, and protect wilderness areas where there is a possibility of wilderness designation or a wilderness study area designation. The first Adopt a Roadless Area questionnaire was sent out in January 1974 to members of the New Mexico Wilderness Study Committee and others on the newsletter list. The questionnaire noted state regions of member interest and priority wilderness resource areas that were to be considered by Congress or federal agencies for wilderness designation. These questionnaires are sent out annually.[5]

The Committee keeps current a list of people willing to work in certain geographical areas. These people may participate in various instructional workshops, such as the spring 1974 New Mexico/West Texas Wilderness Symposium in Albuquerque, which had 200 participants. Study teams and field trips were formed at that time. The study teams inventoried and wrote wilderness proposals for the areas owned by the Forest Service, Bureau of Land Management, and Park Service. In February 1975, a New Mexico Natural Resource Lands Workshop was held in Las Cruces; it dealt with Bureau of Land Management primitive and natural areas. Study teams were also organized, and a spin-off organization called the Las Cruces Wilderness Committee was formed.

There are approximately 100 areas in New Mexico and West Texas which could qualify as roadless areas and receive a wilderness designation. The New Mexico Wilderness Study Committee has divided its study area according to Forest Service and Bureau of Land Management district boundaries and has a coordinator for each.

A local person or group takes responsibility for or adopts a certain roadless area and follows it through all the steps necessary to its becoming a wilderness area. A district coordinator, in turn, has responsibility for coordinating the various groups in his district. The adopters go into that area, determine if it qualifies as a roadless area, do a complete field study (described below), and draw final boundaries. They then follow the decisions made during Forest Service or Bureau of Land Management agency planning processes. Recommendations go to Congress, at which point the group coordinates letter writing and other measures to foster public and Congressional support for wilderness designation.

Necessary field work for wilderness proposals is done by study teams or local groups. The studies include three major phases: (1) reconnaissance: (2) resource conflict; and (3) boundary selection.[6]

The reconnaissance phase includes marking and verifying existing roads and plotting the road network on the largest scale topographic map available. The extreme outer boundaries of the area of concern are drawn on the study map.

The resource conflict phase includes researching existing developments and development possibilities. Existing development should be researched using published data and field work. Information is plotted on a topographic study map and includes: private rights and ownership within the federal area; logging, mining, cultivation, and grazing locations; existing buildings, lookouts, dams, old roads, pipelines, telephone lines, and airfields; and present use in general. It is also necessary to look at possible private or government plans for development so that effective preservation strategies can be developed in advance of commercial development proposals. This means analyzing timber, mineral, water, and recreation resources in terms of potential commercial value.

The boundary selection phase follows the premise that boundaries should be selected to include an entire geographic entity and entire drainage system of a stream. Final boundaries for all units are keyed to written justifications. At least three color pictures are included illustrating the characteristic or unique features of the area. Once a field wilderness study is completed, wilderness legislation is proposed.

One result of a wilderness study is the creation of a network of knowledgeable people who can be mobilized to protect an area by letter writing, testifying at public hearings, and persuading

[5]See Technical Appendix 79.5(d) for a sample questionnaire.

[6]See Technical Appendix 79.5(e) for a copy of "How to Conduct a Wilderness Study."

agencies to use practices compatible with wilderness preservation. Local wilderness study committees do not consider an area forever protected simply because it has been designated a wilderness study area. Hikes and field trips are still planned regularly to monitor the area.

(d) Illustrative example: How local groups get involved with wilderness areas

A new wilderness group centered in the Jemez Mountains of New Mexico was organized in the fall of 1976 . Various research and action projects have been planned, including regulations on geothermal leasing and off-road vehicles and a wilderness study of the Peralta Canyon Roadless Area. The group will also concern itself with the San Pedro Parks wilderness additions and the Caballo Mountain and Dome roadless areas. The group has a coordinator for all activities, including wilderness area studies, which will be carried out by interested people who will carefully inspect the land on foot.

The Albuquerque branch of the New Mexico Wilderness Study Committee planned to concentrate on ensuring that wilderness proposals for the Sandias and Manzanos Mountains would be passed in 1977. The organization geared up for a big campaign. It prepared the wilderness proposals in 1977 and in 1977 published a brochure on the Sandia wilderness proposal, prepared a slide show for groups in the Albuquerque area, and held several public meetings to build local support. The Albuquerque branch and its two coordinators also planned a major weekend field workshop in the Sandias.

The Gila Wilderness Committee and the Las Cruces Wilderness Committee planned field trips and other activities to ensure that the entire Gila/Aldo Leopold Wilderness Complex (approximately one million acres) would be protected. Field trips were taken to the Gila Wilderness and the Aldo Leopold Wilderness for hiking and discussion, and to the Las Uvas area for hiking and exploration. The last was part of an effort to monitor the Bureau of Land Management's land use proposals for that particular area.

D. Information and Bibliography

79.3 Key information contacts

Nancy Buckingham
Stewardship Assistant
The Nature Conservancy
1800 North Kent Street
Arlington, Virginia 22209
(703) 841-5350

Dave Foreman, Chairman
New Mexico Wilderness Study Committee
P. O. Box 38
Glenwood, New Mexico 88039
(505) 539-2645

Bruce McLain, Coordinator
Barrier Island Workshop
Suite 300
1717 Massachusetts Avenue, N. W.
Washington, D. C. 20036
(202) 797-4311

79.4 Bibliography

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79.5 List of technical appendices

(a) List of Membership Organizations of the Barrier Island Workshop. Barrier Island Workshop: 1717 Massachusetts Avenue, N. W., Washington, D. C. 20036, 1977.
(b) List of State Coordinators for Island Watch Program. Barrier Islands Workshop: 1717 Massachusetts Avenue, N. W., Washington, D. C. 20036, 1977.
(c) List of Local Wilderness Study Committees. New Mexico Wilderness Study Committee: Box 38, Glenwood, New Mexico 88039, ca. 1977.
(d) 1977 New Mexico/West Texas "Adopt a Roadless Area" Questionnaire. New Mexico Wilderness Study Committee: Box 38, Glenwood, New Mexico 88039, 1977.
(e) How to Conduct a Wilderness Study, "Adopt a Roadless Area" Progress, 1976. New Mexico Wilderness Study Committee: Box 38, Glenwood, New Mexico 88039, 1976.

79.6 List of other organizations[7]

California
- Mono Lake Committee
- Save San Francisco Bay Association
- Save-The-Redwoods League

Illinois
- Natural Land Institute

Maryland
- Chesapeake Bay Foundation, Inc.

Michigan
- Michigan Natural Areas Council

New Mexico
- New Mexico Wilderness Study Committee

New York
- Association for the Protection of the Adirondacks
- Forest Preserve Association of New York State, Inc.
- Hudson River Heritage, Inc.

Ohio
- The American Malacological Union

Oregon
- Oregon High Desert Study Group
- Oregon Shores Conservation Coalition

Pennsylvania
- Conestoga Valley Association

Texas
- Texas Coastal and Marine Council

Virginia
- Piedmont Environmental Council
- The Oceanic Society

Washington
- North Cascades Conservation Council
- Olympic Parks Associates
- The Mountaineers

Wyoming
- Powder River Basin Resource Council
- Wyoming Environmental Institute

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[7]See "Master List of Organizations" for local offices of the following natural watchdog organizations: The Sierra Club, The Nature Conservancy, The Wilderness Society.

Part Eleven

The Role of Academic Institutions

Chapter Eighty

Introduction

Academic institutions play an important role in protecting the elements of natural diversity, even though the extent of their role may vary. Just as individuals make the difference in the private sector and local government, individuals are usually the key to the effectiveness of an academic institution's involvement. Many natural area programs have been initiated at schools across the country simply because a faculty member was able to convince the administration of a proposal's importance. Conversely, projects have failed because individuals were unwilling to devote the time and energy to support them or because administrators were unwilling to consider integrating natural area protection into an academic program.

Traditional techniques of land preservation are employed by colleges and universities as indicated in the following eight chapters. Generally consciousness-raising, environmental analysis, and management of natural areas are used as preservation tools more frequently than fee acquisition, notification, designation, and so forth. Colleges and universities are primarily concerned with education; they cannot be expected to consider natural area acquisition a primary objective since it would be at the expense of educating students. While academic institutions may not be able to provide for natural area acquisition, they can and do provide scientific expertise to support private and government conservation efforts.

Since colleges and universities are considered to be nonprofit organizations under existing tax laws, these institutions are often recipients of gifts of land from individuals seeking tax relief. Frequently the land is a potential research natural area; sometimes donated sites are used for recreation or resource management. Nonetheless, once a school accepts title to a site, it is then responsible for its preservation. A school may provide no specific allocation in the annual budget for protection or may provide hundreds or thousands of dollars.[1]

Donated land may benefit the school by enhancing its academic program while at the same time providing the donor with appropriate tax advantages and recognition. The University of California annually receives small additions to one of its preserves from a donor seeking to improve his tax situation. Shorter College in Georgia has a similar arrangement for the acquisition of a salt marsh located in Florida. Each year the landowner donates 30 acres to the school; the eventual size will be 300 acres.

Land donations to colleges and universities often lack restrictions in the deed. This allows the land to be converted to cash if necessary. A school in Virginia will not accept any gifts of land that have restricted use clauses in the deed. This same school recently sold to a lumber company a 3,500-acre forest that had been donated to the university in the early 1900s, despite faculty recommendations to the contrary. A university in New York state recently sold a 500-acre tract to a development corporation.

Campus committees composed of faculty, students, and, in some instances, administrators frequently attempt to make recommendations regarding the fate of university-owned natural areas.

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[1]See chapters 83 and 84 for detailed discussion of funding for management of areas.

Administrative reaction to these suggestions varies. In some cases recommendations to sell the site to a conservation organization, another school, or the state's department of conservation are accepted; in other cases they are ignored.

More than 450 colleges, universities, and other academic organizations were contacted during this study to determine the extent of past and present involvement in natural area activities. Especially large universities which have a school of forestry in addition to schools of life sciences and natural resources may have been sent more than one questionnaire. Professors of botany, geology, biology, ecology, forestry, and environmental studies were contacted in addition to deans and vice presidents. Individuals often responded that they found it difficult to act as spokesmen for the entire university or organization, but they would respond for their department or committee. One professor in Ohio forwarded his completed questionnaire to an administrator for further comments and additions; five weeks later the questionnaire was returned without any comments. The professor apologized for the delay and said, "I did my part but apparently this matter is of little concern to our administrators."

Individuals who were willing to discuss their school's natural area involvement in detail were interviewed by telephone. In addition to supplying information about the nature of that involvement, they often supplied insight into, and contacts at, local governments and private organizations concerned with preserving natural areas. The majority expressed an interest in obtaining a final copy of this study.

Although most contacts understood the general definition of a natural area, one college professor in Alabama replied that the college owned a 685-acre natural area. He then went on to discuss the activities occurring on it: lumbering; construction of a swimming pool for use by religious and academic groups throughout the state; construction of other recreational facilities; dormitories, classrooms; etc. He considered the entire campus to be a natural area.

A list of university-affiliated natural areas follows. It was generated from university site files at the national office of The Nature Conservancy and from information received during this study.

Chapter Eighty-one

Notification

A. Introduction

81.1 Overview

Notifying individuals and corporations of the ecological importance of land they own is not a common practice among college and university professors. Conversations with at least 50 individuals active in preserving natural areas revealed that only 10 percent have actually personally notified a private or corporate landowner. The success of their efforts has varied, and they generally agree that each case must be handled with tact and a sensitivity to the particular situation. There is no systematic procedure for notification, and the professors contacted indicated that they frequently seek the advice and/or cooperation of a government agency or conservation group.

81.2 Individual notification attempts

An aquatic biologist in Tennessee mentioned an instance where freshwater springs containing rare organisms were discovered on two tracts of private property. The respective landowners were notified. One was extremely cooperative and willing to preserve the site. The other was less concerned. The Endangered Species Office (Department of the Interior) was informed of the location of the sites; the researchers decided that any further action should originate from that office.

A botany professor at Drew University in New Jersey who has been active in the preservation of New Jersey's Great Swamp contacted several landowners adjacent to this wildlife refuge to inform them of the natural value of the area. (He also testified in Washington, D. C., at hearings to determine the fate of the Great Swamp area. In addition, he has been instrumental in the establishment of three arboreta near the university, including one which was a gift to Morris County.) The university's administration has been supportive of his activities whenever possible.

For years northern bald eagles have wintered in the vicinity of Lock #19 on the Mississippi River. It was not, however, the local residents in nearby towns in Iowa and Illinois who were concerned and in 1971 initiated the action to save the eagles' night roosting area. Instead, it was two professors from Western Illinois University who alerted The Nature Conservancy's Illinois Chapter to an impending timber sale which would have meant destruction of the roosting site.[1] An initial 182 acres was acquired; the professors were asked to recommend additional acquisitions to complete the preserve. As of 1977, another addition (68 acres) was being acquired by the American Land Trust[2] to bring the local preserve to 491 acres.[3]

Geographic factors plus the history of natural area preservation within a region often play a role in the responsiveness of landowners to the suggestion that their land be preserved. A professor in Louisiana indicated that he and his colleagues would prefer notification by the appropriate department within the state government rather than even attempt to contact landowners informally themselves. He felt that since most of the landowners have oil or gas under their land, they would not be willing to agree to a preservation policy. Much of the land is owned in large tracts by prosperous individuals or companies who are looking for a profit and would not be willing to relinquish their mineral rights. Although notification *per se* does not imply that mineral rights would be forfeited, the effectiveness of notification would be diminished if the landowner were unwilling to consider preservation as an alternative to development.

Citizens of Kentucky tend to put a high value on private land ownership. Due to citizen pressure, state governments have been unable to become active in natural area acquisition and protection.[4] Only a small percentage of land in Kentucky is publicly owned. In that

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[1] *Stewardship*, Vol. 1 (2), March 1974. The Nature Conservancy, p. 2.

[2] See Chapter 72 for a general description of the American Land Trust.

[3] *The Nature Conservancy News*, V. 27(1), Winter 1977, The Nature Conservancy, p. 5.

[4] W. H. Martin, personal communication, January 1977.

state owning land is considered a valuable financial asset since it can easily be converted to cash when necessary, usually by selling timber rather than the land itself.

When he discusses land preservation with private landowners, a professor at Eastern Kentucky University suggests to them alternatives to development, such as conservation easements or acquisition by a conservation organization. Responses have varied from indifference to any suggestions to planning to keep the land preserved as well as pass it on to heirs. One individual indicated he intended to sell the timber if someone offered a good price. Individuals often express a concern that, if a natural area is located in the center of their property, trespassing will become a problem if that section is transferred to a conservation group.

81.3 Notification efforts by academic organizations

Even academic organizations that are involved in one phase or another of natural area preservation[5] rarely use notification as a protection tool. The Indiana Academy of Science has a special committee concerned with natural areas which gets together once each year at the Academy's annual meeting. Although members of the committee are not responsible for personally contacting potential natural area donors, several individuals have done so on their own time, including a professor who has assisted the Director of the Indiana Division of Nature Preserves. The Academy has officially expressed its support of natural area preservation activities throughout the state and has helped with several projects.[6]

The Ohio Biological Survey, an organization which coordinates the research efforts of biologists throughout Ohio, sponsored an inventory of natural areas in the state which was published in 1962 (revised in 1965 and 1974).[7] A professor from Kent State University conducted the survey with the assistance of individuals from the Ohio Department of Natural Resources, The Nature Conservancy, the Ohio Biological Survey, and faculty at various institutions throughout the state. Natural areas to be included in the inventory were personally inspected when time permitted. Landowners were not systematically contacted; rather, the project director spoke with some of them if the occasion arose (especially when he was greeted as a trespasser). He also addressed interested groups through Ohio to explain the aims, objectives, and methods of the project.[8]

The Ohio Biological Survey is now conducting an inventory of prairie remnants in the state. Plans do not include notifying landowners. The executive director of the survey said that "sometimes it is the worst thing you can do" and that each situation must be considered individually.[9] For example, the owner might consider selling the land upon learning that it is worthy of preservation for the simple reason that he might not want to assume any protection burdens. In other cases, prairie remnants may have been protected for years just by the nature of their use (*e.g.*, a cemetery). Rather than spending time and effort searching for the landowners and notifying them, it might be safer to assume that the area will continue to be protected.

B. Cooperation Between Industry and Academia

81.4 Millerville State College/ Pennsylvania Power and Light Company

Although Millersville State College in Pennsylvania does not own or manage a natural area, the faculty in the Biology

[5]See Chapter 86: Environmental Analysis for a discussion of the other activities of these academic groups.

[6]See Chapter 86.

[7]Herrick, J. Arthur, "The Natural Areas Project: A Summary to Date," *Ohio Biological Survey Information Circular No. 1* (revised 1974), The Ohio Biological Survey, 1974.

[8]*Ibid.*, p. 1.

[9]C. C. King, personal communication.

Department have been concerned with natural area preservation for years. The department became actively involved in organizing the Marine Science Consortium based at Wallops Island, Virginia, and since then staff have inventoried the land surrounding the marine lab to suggest sites to protect as natural areas. Several members of the department are active in local conservation groups.

In addition, the department has developed an informal cooperative program with a local utility company. For 5 years a botanist at the college had utilized a wildflower site owned by the Pennsylvania Power and Light Company (PP&L). During the spring of 1973, he noticed that extensive damage had occurred to the flora due to trailbikes. Wildflowers were being destroyed, tree roots were being damaged, and the ground was being eroded. The professor contacted the power company to inform them of the detrimental consequences to the area if these practices were allowed to continue. Since he was aware that PP&L had designated natural areas within its land use management plans,[10] he urged the company to work with local police to prosecute violators and to publicize its protection policy in the press. In addition, the professor wrote a letter to the editor of the local paper, and the newspaper itself later ran a story on the company's attempts to prevent destruction of the area.[11]

Members of the Biology Department have since become informally involved in a cooperative program with PP&L. Millersville continues to use the 30-acre Shenk's Ferry Wildflower Preserve as a resource for spring semester botany courses and provides the power company with data such as species lists, maps locating different plant communities, and so forth. A professor at Franklin and Marshall College plus members of a local botanical society have also been involved. The information collected will be compiled into an informal master plan.

[10]See Chapter 70 for complete discussion of the program.

[11]See Technical Appendix 81.7(a) and (b) for copies of the newspaper articles.

C. Summary

Notification is not a widely used protection tool among colleges and universities, even on an informal basis, although professors who are field-oriented and travel to different research sites are more apt to have the occasion to inform landowners. Notification should include informing a landowner that his parcel has been identified by an inventory as containing important elements of natural diversity, as well as explaining why the site should be protected and how this might be done. Usually an individual at an academic institution who has become involved with notification has done so because of active involvement with local or national conservation organizations.

If a natural areas inventory has been completed by an academic organization, a private conservation group, a state agency, or the National Natural Landmarks Program, it could then be used for a notification project conducted by an advanced undergraduate or graduate field-oriented class. This tool could then be incorporated into a course, preferably an interdisciplinary one which would combine a knowledge of geology, botany, zoology, land use planning, and related studies. Students and instructors frequently have more spare time during a summer session for implementation of a program of this type. In addition, academicians might lend their expertise to a conservation organization willing to undertake a notification project.

D. Information and Bibliography

81.5 Key information contacts

Charles C. King
Executive Director
Ohio Biological Survey
484 West 12th Avenue
Columbus, Ohio 43210
(614) 422-9645

Marion T. Jackson, Ph.D.
Professor of Life Sciences
Indiana State University
Terre Haute, Indiana 47809
(812) 232-6311, ext. 2489

William H. Martin, Ph.D.
Associate Professor of Biological Science
Eastern Kentucky University
Richmond, Kentucky 40475
(696) 622-3122

Kenneth S. Miller
Associate Professor of Biology
Reddy Science Center
Millersville State College
Millersville, Pennsylvania 17551
(717) 872-5411, ext. 269

James Park, Ph.D.
Biology Department
Reddy Science Center
Millersville State College
Millersville, Pennsylvania 17551
(717) 872-5411, ext. 269

Robert K. Zuck, Chairman
Department of Botany
Drew University
Madison, New Jersey 07940
(201) 377-3000

J. Dan Pittillo, Ph.D.
Associate Professor of Biology
Western Carolina University
Collowhee, North Carolina 28723
(704) 293-7244

Richard E. Cary
Supervisor, Conservation and Land Management
Pennsylvania Power and Light Company
Two North Ninth Street
Allentown, Pennsylvania 18101
(215) 821-5769

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The Nature Conservancy. *The Nature Conservancy News*, (The Nature Conservancy: 1800 North Kent Street, Arlington, Virginia 22209), Winter 1977.

81.7 List of technical appendices

(a) "Trailbike Riders Damage Ecology." Letter to editor of *New Era* (March 1973).
(b) "Cycles Tear Up Wilderness Area." *Intell* (April 1973).

Chapter Eighty-two

Registration/Designation

A. Introduction

82.1 Overview

Colleges and universities do not normally maintain official lists or registries of natural areas, so academic involvement with this protection tool has usually been limited to national or state programs. The one exception found is a University of Nebraska-sponsored registration program.[1]

A school's response to being asked to register its site is generally either enthusiasm over the distinction or else concern that recognition will result in overuse or misuse of the area. Decisions to register with a designation program are also influenced by the benefits associated with the specific program.

On an informal basis, universities occasionally designate natural areas within the large tracts of land they own. These natural areas are often situated within demonstration forest tracts, prairies, arboreta, or biological field stations. In addition to being set aside for preservation of a particular species, community, or ecotype, these sites are often used in comparative studies with surrounding areas which have been altered.

82.2 Formal designation programs

Academic institutions may own or manage a natural area which is listed in a number of registries, including the National Register of National Natural Landmarks, the Society of American Foresters' list of natural areas, the Soil Conservation Society of America's list of managed natural areas, or the Wisconsin Scientific Areas list. At least six other states in addition to Wisconsin maintain lists of natural areas within their states, but college and university sites are not listed on those registries.[2] In addition, several states, including Ohio, Indiana, and Illinois, maintain lists and officially dedicate sites as nature preserves.[3]

Thirty-four university-affiliated natural areas are currently registered as National Natural Landmarks, and 29 are possible landmarks (pending on-site evaluations). The Society of American Foresters has 20 university sites registered as natural areas representative of a particular forest cover type. The Soil Conservation Society has identified and listed 6 university areas in its program, and 14 of the Wisconsin Scientific Areas are managed by universities.[4]

B. National Designation Program

82.3 National Natural Landmarks Program

When a college or university receives a notification letter from the National Natural Landmark office stating that a site owned by it is eligible for Natural Landmark status, the response is frequently similar to that of private landowners. Some universities will not agree to register the site since they envision an influx of visitors which would impose an additional burden on on-site management. Others are willing to register the site because the idea of national recognition is appealing from a public relations standpoint.

Of the 34 university-affiliated natural landmarks which have been registered, only 19 have been approved by the universities. In some cases the failure to accept designation is for the above reasons; in others, the Natural Landmark Office never received a reply from the college or university. That office usually contacts the dean of the college, who, it is hoped, will then contact the appropriate faculty members to generate interest in designation. If the campus community is to learn of the landmark program, it will depend on communication efforts by the school's administration.

Where no action is taken by the university and the landmark office does not receive a reply, follow-up notification is usually not conducted. Time cannot

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[1]See Section 82.7 Nebraska Statewide Arboretum Council.

[2]See John W. Humke, *et al.*, *The Preservation of Natural Diversity: A Survey and Recommendations,* The Nature Conservancy, 1975, for further discussion of designation programs.

[3]See Chapter 85: Dedication.

[4]See Section 82.12 for a complete list of these designated areas as of March 1977.

be devoted to personal contacts because the regional offices of the National Park Service, which are responsible for notifying landowners, are already overburdened with other priorities. Just as with contacting private landowners, notifying universities that they own an eligible natural landmark becomes a "hit or miss" process.[5]

Although only 34 of the officially registered natural landmarks are owned or managed by colleges and universities, these institutions are responsible for other forms of input into the landmark program. University scientists sometimes receive contracts to compile data for natural history theme studies. Once these have been completed, on-site evaluations are conducted. These evaluations are usually contracted to university professors for completion during the summer months. On occasion, professors have taken sabbaticals for a semester to complete the evaluations.

82.4 Illustrative example: Michigan State University

Of the 10 National Natural Landmarks located in the state of Michigan, 2 are owned by Michigan State University. Both Toumey Woodlot and Newton Woods were officially designated in February 1976. According to the professor of forest ecology who initiated the efforts to preserve the two sites, the designation and protection procedures went remarkably smoothly, and the National Park Service acted within a year to finalize the designations.

Toumey Woodlot is a 15-acre sugar maple-beech forest remnant which contains trees approaching 200 years in age. The site had been owned by one family from 1852 until it was donated to Michigan State University in 1939. During those years, the area was never farmed or grazed; it was completely enclosed by a fence to prevent cattle from disturbing it (such protection was unusual in those days). The result of these efforts is that within its 5,000-acre campus that contains dozens of dormitories, classroom buildings, and parking lots, the university is fortunate to have one of the few remaining virgin stands of sugar maple-beech forest in Michigan.

When the professor of forest ecology learned that the National Park Service was interested in identifying unique natural areas to designate as national landmarks, he contacted the Park Service, which in turn sent a staff member to Michigan State. The field representative inspected both Toumey Woodlot and Newton Woods, the latter being located 200 miles south of the campus. Once these sites were officially designated, the university received bronze plaques to identify each as a National Natural Landmark.

Although this special designation does not guarantee protection in perpetuity, it is hoped that the university will always consider them worthy of preservation. Any attempts to develop Toumey Woodlot, which is surrounded by a 9-acre buffer zone, would undoubtedly receive bad publicity and meet with opposition because it is one of the few natural areas within the city. It is also documented as an important natural area.

82.5 Illustrative example: Allerton Park, University of Illinois

As stated in the Humke study, "public recognition is the only protection afforded the site under the Landmarks Program. Environmental impact statements required by the National Environmental Policy Act would have to take into account not only the merits of the area, but the environmental arguments made for it by virtue of its having been considered a landmark.[6] Proposed development projects have threatened and are threatening several natural landmarks. Occasionally universities are unwilling or unable to fight to protect a natural area, even if it is a nationally recognized one. However, public pressure often helps reverse the outcome.

In 1946 the University of Illinois received a gift of 1,500 acres which included a remnant of the bottomland forest which once lined prairie rivers in the Midwest. The land was donated to the university to "hold in public trust

[5] G. Waggoner, personal communication, December 1976.

[6] *Op. cit.*, Humke *et al.*, p. 121.

as an education and research center, a forest, a wild-life preserve, an example of landscape gardening, and a public park."[7]

A 1,000-acre natural area within Allerton Park became a national landmark in 1970 because it is one of the few remaining examples in Illinois of this type of ecosystem. The Society of American Foresters also included this site in its listing of natural areas.

Since 1946 the university has used the site for ecological studies. Its convenience to the Urbana campus plus the natural features of the area are "of the utmost importance in recruiting and retaining a high quality of staff members interested in ecological and animal sciences. . . . Allerton Park is an essential baseline area for determining the ecological states of a number of typical Illinois habitats."[8]

Despite the ecological importance of the area to the university, the state, and the country, the Army Corps of Engineers proposed modifying the Sangamon River which flows through Allerton Park. The modifications, including damming and channelizing the river, would have flooded 1,100 acres of the park.

The University of Illinois Committee on Natural Areas plus various state and local organizations opposed the project. The Committee on Allerton Park, formed in 1967 to make people aware of the permanent damage the dam would do to the park, included among its concerned members several university professors. In spite of this organized opposition, in 1970 the University of Illinois sent a trustee to Washington to testify in favor of the Corps' project before the Senate Appropriations Committee.

According to the Committee on Allerton Park, the university's dependence on the state legislature for the majority of its operating budget was in part responsible for the official university position. In addition to serving as a check on the power of the university, dependence on the state for funds made the school "vulnerable to political and budgetary coercion."[9] Other universities experience similar pressures which must be taken into account when attempts are made to include university-owned land in designation or dedication programs.

C. State and Local Programs

82.6 Wisconsin Scientific Areas Preservation Council

One of the purposes of the Wisconsin Scientific Areas Preservation Council program is to prepare an official state list of scientific areas available for research and teaching of conservation and natural history. The program now includes 130 areas, of which 14 are university-affiliated,[10] and there is a good working relationship between the council and private and state universities. Since the program's inception in 1951, a representative of each of the following organizations has been included on the council:

(1) The University of Wisconsin, appointed by the Board of Regents of the University of Wisconsin system.

(2) The state universities, appointed by the Board of Regents of the University of Wisconsin system.

(3) The private colleges in the state, appointed by the council of the Wisconsin Academy of Sciences, Arts and Letters.[11]

This representation allows academic institutions to become officially involved in the state's designation program.

Although the inclusion of a site on the official state list of scientific areas does not legally bind the landowner to a preservation management policy, the program has had a high rate of success. A gentleman's agreement between the state and the landowner replaces the formal, legal documents used in states such as Illinois and

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[7]Marlin, J. C., ed., *Battle for the Sangamon: The Struggle to Save Allerton Park,* The Committee on Allerton Park, Champaign, Illinois, 1971, p. 1.

[8]*Ibid.*, p. 8.

[9]*Op. cit.*, Marlin, J. C., ed., *Battle for the Sangamon*, p. 80.

[10]See Section 82.12 for a list of these areas.

[11]See Vol. II, Chapter 63: Wisconsin, Preserving Our Natural Heritage, State Activities, for a further discussion of the program.

Indiana which have dedication programs. During the Wisconsin program's 26 years of existence, only one site has been lost to development, a parcel of land owned by an out-of-state university. The general consensus in the state is that this type of transaction would not occur as easily today as it did in the 1950s. The preservation council, along with private conservation groups, would be able to mount considerable public pressure against such action.

Because the Wisconsin program is not as legally binding as a dedication program, it is often easier to convince an academic institution to agree to designation. If a private college owns a natural area that the state considers eligible, the preservation council suggests several benefits the college would receive by agreeing to register the site as a Wisconsin Scientific Area. Designation would give the college's site statewide recognition. The council could assist with protection if a threat occurred. For instance, if a proposed highway were to cut through a section of the site, the council could work with the state highway department to suggest alternative routes, review impact statements, and write press releases on the proposed route. The college would be able to use the council's expertise in all phases of natural area protection. In addition, since one of the objectives of the council is to recommend that research done on these areas be published, the research community would be made aware of the availability of the site for study.

82.7 Nebraska's Statewide Arboretum Council

(a) History

One example of a university-sponsored registry and notification program is that of the University of Nebraska at Lincoln, which is being implemented in conjunction with several public agencies and private organizations. The concept of a Nebraska registry of arboreta sites in which native and introduced species of trees, shrubs, perennials, grasses, and even annuals would be represented was the result of several events. According to a description by the interim curator of the Nebraska Statewide Arboretum (NSA):

> The concept of a multiple site statewide arboretum for Nebraska is perhaps somewhat unique. How the idea developed isn't really well defined. An awareness of the value of land grant college branch experiment stations and USDA Regional Plant Introduction Stations for growing plant materials adapted to different environments certainly influenced our thinking. Another significant factor was the knowledge that plants, no matter how valuable, are unable to compete with mortar and brick. I think all of us have had the experience of seeing irreplaceable plant materials destroyed to make room for buildings or other construction. It's also been my experience--and I've contributed my share to the losses--that plants are not able to compete with changes in programs, staff, or administration. All these considerations were part of the background in which the multiple site philosophy evolved.
>
> Construction of Interstate 80 was really a key happening among the several events that led up to the proposal for a Nebraska Statewide Arboretum. Specific to Nebraska is the series of so-called interstate lakes and associated recreational areas that were the brainchild of Mr. Mel Steen, former director of the Nebraska Game and Parks Commission. The development of these lakes was made possible by virtue of the fact that I-80 follows the Platte River for about half of its length across the state. The Platte Valley is underlain with extensive gravel deposits through which water of the Platte Valley aquifer moves. The water table in this aquifer is within two to three feet of the surface in many areas. Steen foresaw the need for gravel in I-80 construction and through his leadership, negotiations with highway contractors were conducted with the result that gravel from the deposits along the I-80 right-of-way was extracted in a way that left a chain of excavations immediately adjacent to the highway--each of which penetrated the Platte Valley aquifer to a depth of from 10 to 14 feet. As soon as the gravel-

removing operation was completed, the excavations were permitted to fill with water, thus forming a chain of lakes--each of which is like a huge aquarium with the water being exchanged constantly as flow in the aquifer moves to the east. A few of these lakes were returned to private ownership but most were retained by the State of Nebraska. The Game and Parks Commission has developed these lakes for recreational use and has included park, landscape, and wildlife habitat plantings in this development. Concurrently with the development of the interstate lake recreational sites, the Nebraska Department of Roads was establishing rest areas along the interstate which are well landscaped with a variety of ornamental trees, shrubs, ground covers, and turfs. A few of these rest areas are located adjacent to points of special historical and/or ecological interest.

Given the existence of these several physical developments plus a dedicated interest on the part of several educators and farsighted plantsmen, the concept of a statewide arboretum or system of arboreta gradually evolved. Significant contributions to formulating the idea were made by Mr. Steen, who was mentioned earlier, by Professor J. O. Young, former chairman of the Department of Horticulture and Forestry at UNI; the late Glenn Viehmeyer, ornamentals breeder and horticulturist at the University of Nebraska's North Platte Station; Willard Barbee, recent director of the Nebraska Game and Parks Commission; and Hans Burchart, plant propagator with the Nebraska Game and Parks Commission. The more than thirty members of the Nebraska Statewide Arboretum Council must also be recognized as having contributed much to the development of the statewide arboretum concept.

On June 10, 1974, Glenn Viehmeyer died while traveling to a garden club convention in Colorado. Glenn's death plus the upcoming bicentennial celebration provided rallying points for supporters of the statewide arboretum concept. During the summer and fall of 1974, several state and federal agencies were contacted to determine their interest in the idea.

> . . . At the same time, numerous people associated with the State Federated Garden Clubs of Nebraska and with the American Penstemon Society contacted the University of Nebraska officials suggesting that some kind of living memorial be established in Viehmeyer's name.
>
> The university administration subsequently established a committee to investigate the feasibility of the statewide arboretum concept. There was some cross-listing of personnel and the logical thing happened--the university and interagency committee merged to form what became an arboretum advisory council. A draft proposal for a statewide arboretum was drawn up and after significant discussion, a revised version was submitted to the university's Institute of Agriculture and Natural Resources. The proposal for establishment and development of the Nebraska statewide arboretum was approved in principle and a commitment was made by the university to provide funding for a three-quarter time curatorship plus some limited technical support. A public announcement to that effect was made by University of Nebraska President Durward Varner at Arbor Day ceremonies held at Arbor Lodge in April 1975.[12]

(b) Goals and objectives

The Nebraska Statewide Arboretum is based on the concept of a multiple-site, multiple-purpose system of arboreta throughout the State of Nebraska. Sites range from traditional manmade, labelled arboreta to natural areas where more than 50 percent of the land has not been altered and contained unique sites and species.

The arboretum system

> . . . will contain native or introduced species of any trees, shrubs, perennials, annuals, or turfs which have real or potential value to

[12]Uhlinger, Roger D., "Nebraska's Statewide Arboretum--A Dream," *The Bulletin*, Vol. 10, No. 3, American Association of Botanical Gardens and Arboreta, July 1976, p. 72.

Nebraskans. This value may be in terms of food, fiber, or timber production or the value may be in terms of the benefits obtained from landscape beautification, sun and wind protection, wildlife food or cover, erosion control, noise abatement, etc. Initial arboretum development will occur in conjunction with I-80 and/or the Platte Valley but sites may be located any place in the state where sufficient interest and support are available.

Nebraska's Statewide Arboretum will provide an educational and research tool of unlimited potential. Users of this outdoor classroom may include primary, secondary, and post-secondary students, plantsmen from all segments of the horticulture industry and related fields, plus the general public. Another significant function of a statewide arboretum will be to provide a germ plasm repository for woody plants. The need for such a repository is widely recognized but action to ensure preservation of woody plant germ plasm has been difficult to initiate.[13]

The long-term goal for the Nebraska Statewide Arboretum is to provide a sufficient number of sites (with appropriate documentation of their plants) that all Nebraska residents and visitors will have ready access to them.

(c) Structure of the organization

Establishment and development of NSA is being directed by the Nebraska Statewide Arboretum Council. The council includes, but is not limited to

1. Representatives of the following state and private agencies:
DAS Office of Planning and Programming
Department of Economic Development
Department of Roads
Federated Garden Clubs of Nebraska
Game and Parks Commission
Natural Resources Commission
Nebraska Association of Nurserymen
Nebraska Association of Resource Districts
Nebraska Recreation and Parks Association

2. Representatives of the following federal agencies:
Corps of Engineers
Forest Service
National Park Service
Soil Conservation Service

3. Representation from each of five geographic areas within the state.[14]

4. The first interim curator of the Nebraska Statewide Arboretum was appointed July 1, 1975. He is currently also chairman of the University of Nebraska Department of Horticulture.

(d) Protection technique

The Nebraska Statewide Arboretum Council has taken the following actions:

1. Establishment of a committee structure to deal with bylaws, site selection, mapping, nomenclature, publications, memoranda of understanding, and publicity and finance.
2. Approved a classification system for sites of various categories.[15]
3. Approved steps to be followed in applying for recognition of sites by the Nebraska Statewide Arboretum Council.[16]
4. Developed application forms for use by sponsors of sites.[17]
5. Approved Arbor Lodge as the first officially recognized site within the Nebraska Statewide Arboretum.
6. Received an additional seven applications for site recognition which are now under review.
7. Approved a uniform labeling system to be utilized throughout the statewide arboretum.
8. Procured engraving equipment for the preparation of standard labels.
9. Developed a logo and certificate of recognition for display by sponsors and/or owners of recognized sites.

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[13] *Ibid.*, p. 71.

[14] *Op. cit.*, Uhlinger, p. 71-73.

[15] See Technical Appendix 82.11(3) for classifications.

[16] See Technical Appendix 82.11(f) for a listing of the steps in the approval process.

[17] See Technical Appendix 82.11(g) for a copy of the nomination form.

10. Approved the development of a multiple-purpose brochure cover that will provide general information about NSA and which can be adapted for use with tour guides and similar documents appropriate to a specific site or area.[18]

The Nebraska Statewide Arboretum Council is dependent on commitments from sponsors and/or owners of sites for long-term maintenance, as it does not have sufficient funds for land acquisition or maintenance. As of January 1977, no natural area sites had been recognized.[19]

82.8 University natural areas programs

Most colleges and universities do not own a large number of natural areas, so it is unnecessary for them to maintain an inventory of their sites. Yale University and the University of California are two of the exceptions.

Yale owns or leases a dozen parcels of land ranging in size from a 5-acre tract to the 7,500-acre Yale Forest. In order to provide biological descriptions plus information on the location, acquisition method, and tax status of each parcel of land, the Yale Natural Preserve Committee compiled "An Inventory of Natural Lands Held by Yale University" in 1971. This informal listing is not classified as an official registry; likewise, the sites have not been officially designated.

The 24 parcels of land now included in the University of California Natural Land and Water Reserves System have in a sense been designated as reserves by the Regents.[20] A potential reserve may not be included in the System until it has first been approved by faculty committees and administrators and finally by the regents. Once it qualifies as a preserve, the land is then protected as necessary.

Other academic institutions have set aside small parcels of land as natural areas within larger tracts of manipulated land. For example, the 580-acre Fred Russ Forest owned by Michigan State University contains a 10-acre natural area which was set aside when the forest was donated to the university in 1942. No forest management of any kind is practiced in this area in order that comparisons may be made between natural and human disturbances. Half of this natural area is situated within the 40-acre Newton Woods National Natural Landmark.[21]

D. Information and Bibliography

82.9 Key information contacts

Gary Waggoner
National Landmarks and Theme Studies Unit
National Park Service
755 Parfet Street
P. O. Box 25287
Denver, Colorado 80225
(303) 234-3654

William Tans
Natural Areas Botanist
Scientific Areas Preservation Council Program
Department of Natural Resources
Box 7921
Madison, Wisconsin 53707
(608) 266-2621

Gary Schneider, Ph.D.
University of Tennessee
Institute of Agriculture
Department of Forestry, Wildlife and Fisheries
P. O. Box 1071
Knoxville, Tennessee 37901
(615) 974-2591

Norden H. Cheatham
Field Representative
Natural Land and Water Resources System
211 Bancroft Way, Room 544
Berkeley, California 94720
(415) 642-2211

The Committee on Allerton Park
1208 West Union Street
Champaign, Illinois 61820
(217) 352-3646

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[18] *Op. cit.*, Uhlinger, p. 73.

[19] Uhlinger, Roger D., personal communication, January 17, 1977.

[20] See Chapter 84: Fee Acquisition for a complete description of this program.

[21] See Section 82.4.

Roger D. Uhlinger, Chairman
Department of Horticulture and Interim Curator, Nebraska Statewide Arboretum
Nebraska Statewide Arboretum Council
102 Plant Industry Building
University of Nebraska, Lincoln
Lincoln, Nebraska 68583
(402) 472-7211

J. Dan Pittillo, Ph.D.
Associate Professor of Biology
Western Carolina University
Cullowhee, North Carolina 28723
(704) 293-7244

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82.11 List of technical appendices

(a) "U. S. Designates Toumey Woodlot as 'Natural Landmark'." *The State Journal* (East Lansing, Michigan), May 28, 1976, p. 4.

(b) Natural Landmark Brief for Toumey Woodlot. Department of the Interior, National Park Service, National Natural Landmark and Theme Studies Unit: 655 Parfet Street, P. O. Box 25287, Denver, Colorado 80225, October 1975.

(c) Natural Landmark Brief for Newton Woods. Department of the Interior, National Park Service, National Natural Landmark and Theme Studies Unit: 655 Parfet Street, P. O. Box 25287, Denver, Colorado 80225, October 1975.

(d) "The Fred Russ Forest." Michigan State College, Division of Conservation, School of Agriculture: East Lansing, Michigan 48864, 1951.

(e) Classification for Nebraska Statewide Arboretum Sites. Nebraska Statewide Arboretum Council, University of Nebraska-Lincoln: 102 Plant Industry Building, Lincoln, Nebraska 68583.

(f) Steps in Applying for Nebraska's Statewide Arboretum Recognition of Sites. Nebraska Statewide Arboretum Council, University of Nebraska-Lincoln: 102 Plant Industry Building, Lincoln, Nebraska 68583.

(g) Application to Designate a Site for Recognition by Nebraska's Statewide Arboretum. Nebraska Statewide Arboretum Council, University of Nebraska-Lincoln: 102 Plant Industry Building, Lincoln, Nebraska 68583.

82.12 List of officially designated natural areas

(a) Wisconsin Scientific Areas

Ablemans Gorge Scientific Area
Abrahams Woods Scientific Area
Bear Creek Cave Scientific Area
Blackhawk Island Scientific Area
Cactus Rock Scientific Area
Cedarburg Bog Scientific Area
Cedarburg Beech Woods Scientific Area
Chiwaukee Prairie Scientific Area
Faville Prairie Scientific Area
Finnerud Forest Scientific Area
Hub City Bog Scientific Area
Loddes Mill Bluff Scientific Area
New Observatory Woods Scientific Area
Oliver Prairie Scientific Area
Ripon Prairie Scientific Area
Schmidts Maple Woods
Toft Point Scientific Area
Vanderbloemen Bog Scientific Area

(b) National Natural Landmarks

Georgia
  Marshall Forest
Iowa
  Iowa Lakeside Laboratory

Illinois
  Allerton Park
  Funks Grove
Kansas
  Baker University Wetlands
Maine
  Colby-Marston Preserve
  Orono Bog (Fay Hyland Tract)
Michigan
  Newton Woods
  Toumey Woodlot
Minnesota
  Lake Itasca Forestry and Biological Station
North Carolina
  Piedmont Beech Natural Area
New York
  Bear Swamp
  Lloyd Cornell McLean Preserve
Ohio
  Browns Lake Bog
  Dysart Woods
  Glen Helen Natural Area
Pennsylvania
  Florence Jones Reineman Wildlife Sanctuary
Tennessee
  Reelfoot Lake Biological Station
Washington
  Mima Mounds
Wisconsin
  Chiwaukee Prairie Scientific Area
  Toft Point Scientific Area

(c) Eligible National Natural Landmarks

California
  Deep Springs Marsh
Indiana
  Davis-Purdue Natural Forest
Missouri
  Tucker Prairie
New Jersey
  William L. Hutcheson Memorial Forest
New Mexico
  Fort Stanton Range Research Station
Ohio
  Hazelwood Botanical Preserve
Pennsylvania
  Tannersville Cranberry Bog
Tennessee
  Dick Cove
  Piney Falls
Vermont
  Batelle Biological Preserve
  Julia Hagar Rugg Sanctuary (Molly Bog)
Wisconsin
  Abrahams Woods Scientific Area
  Cedarburg Bog Scientific Area
  Finnerud Forest Scientific Area
  Milwaukee Arboretum

(d) Proposed National Natural Landmarks

California
  Moss Landing Marine Laboratories
Colorado
  Central Plains Experimental Range
  Maxwell Ranch
  Pawnee Site
Illinois
  Funk Forest Natural Area
  Hart Memorial Woods
  Rocky Branch Preserve
Indiana
  Allee Memorial Woods
Kansas
  Briedenthal Tract
  Tall and Mixed Grass Prairies
Michigan
  Chase Osborn Tract on Sugar Island
  Stinchfield Woods
Minnesota
  Helen Allison Savanna
New Hampshire
  Bottomless Pit
  Harvard Forest Bowldown
  Mt. Moosilauke Alpine Area
  Pine Park
  West Rattlesnake Talus Area
  Blackwater Draw
Ohio
  Jennings Woods
  Stumpy Basin
  Steidtmann Wildlife Sanctuary
Pennsylvania
  Jennings Nature Reserve
South Carolina
  Hobcaw Barony
Virginia
  William B. Russell and Robert A. Russell Nature Preserve
Vermont
  Centennial Pine Woods
  Colchester Bog
  Concord Sugar Maple-Beech Forest
  East Woods
  Mount Mansfield Alpine Tundra
  Shellburne Pond

(e) Managed Natural Areas (SCS)

California
  Coal Oil Point Natural Reserve
  Ryan Oak Glen Reserve
  Valentine Eastern Sierra Reserve (Snarl)

Iowa
  Conrad Environmental Research Area (Cera)
Kansas
  Ross Natural History Reservation
Wisconsin
  Sheboygan Arboretum
  University of Wisconsin Arboretum

(f) Society of American Foresters

California
  Hastings Natural History Reservation
Idaho
  Idlers Rest
Illinois
  Allerton Park
  Brownfield Woods
  Funk Forest Natural Area
  Hart Memorial Woods
  Trelease Woods
Minnesota
  Lake Itasca Forestry and Biological Station
North Carolina
  Duke Forest Natural Area
  Hemlock Bluffs Natural Area
  Hill Forest Natural Area
  Hoffman Forest Cypress Natural Area
  Nere Exexus Day Pond Pine Natural Area
  Piedmont Beech Natural Area
  Schenck Forest Natural Area
New Hampshire
  Forks of the Diamond Natural Area
New Jersey
  William L. Hutcheson Memorial Forest
New York
  Charles Lathrop Pack Demonstration Forest Natural Area
  Huntington Wildlife Forest Station
Ohio
  Browns Lake Bog
  Dysart Woods
  Glen Helen Natural Area
  Kimball Woods

Chapter Eighty-three

Management Lease Arrangements and Cooperative Agreements

A. Introduction

83.1 Overview

Given the costs of acquiring and maintaining natural areas, many academic institutions must use public or private property for their research and educational needs. Sites include national parks and forests, state forests, and county natural areas in addition to lands owned by corporations and individuals. Use permits, leases, conservation easements, and cooperative agreements afford access to these lands and allow for flexibility in academic programs which might not otherwise be able to include field-oriented courses.

83.2 Advantages

In addition to the college or university benefitting from the use of a natural area, either free of charge or for a nominal fee, the cooperating landowner often receives benefits as well. Results of research activities such as soil surveys, flora and fauna inventories, and population studies should be available to him. The information might prove useful in developing management and use guidelines, for environmental impact assessments, as testimony at a public hearing, in locating endangered species habitats, or simply as a record of the transitional changes occurring within the area.

A specific example of the advantages of an academic program is the pilot interdisciplinary student internship program initiated by the Connecticut Chapter of The Nature Conservancy during the summer of 1975. Ten students from four universities conducted research on Conservancy preserves.[1] They were supervised by their professors, and the Conservancy also hired a coordinator. The participants--undergraduates and graduates--obtained data for research projects and doctoral theses, while the Conservancy obtained biological, geological, and chemical information on its preserves. This data will aid in proper management.

The Conservancy's Northern California Coast Range Preserve is also being used extensively by students from colleges throughout California.

A site often receives additional protection through being leased to a university. For instance, for 6 years Kansas Newman College has been using a 10-acre site owned by a local citizen. An informal agreement allows the college to use this land as an environmental biology research area; in return, the college has put up a fence surrounding the site. Similarly, the 427-acre Theodore Roosevelt Preserve leased to Jacksonville University in Florida by The Nature Conservancy is used without too much damage to the ecosystem and receives day-to-day protection from the university. Even sites used by colleges but not patrolled regularly receive a degree of protection since researchers or class field trips visit the area.

Use of preserves owned by conservation organizations such as The Nature Conservancy and National Audubon Society increases the conservation organization's exposure and may subsequently increase its base of support. Cooperation between these organizations and academia may increase the information available on certain species and/or specific ecosystems. In this vein, The Nature Conservancy and Old Dominion University in Virginia are involved in establishing a research consortium to study the Conservancy-owned barrier islands in Virginia. The consortium, to be composed of regional academic institutions, will promote ecological research and education, using the barrier islands as its focus.

83.3 Disadvantages

If colleges and universities enter into short-term cooperative agreements to use or lease natural areas, they run the risk of having their research projects disrupted. To help alleviate this problem, institutions such as the University of California prefer signing 10-year leases to ensure continuity. The potential lack of continuity is the major disadvantage an academic institution must consider when agreeing to manage an area.

The cooperating agency, on the other hand, may be faced with one of a variety of problems. In general, undergraduate

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[1] *Stewardship*, The Nature Conservancy, Arlington, Virginia, June 1975.

institutions are devoted to education and have no particular mandate to preserve land. Although The Nature Conservancy has had positive working arrangements with many colleges and universities, problems still arise after lands have been transferred to them. In using natural areas to implement educational programs, destructive overuse may occur when there are no checks and balances to assure preservation. Sites may be overcollected by professors and students.

One indication of administrative weakness in a school's management of a natural area is the delegation of responsibility for the preserve to the office of physical planning (building and grounds). This department usually lacks natural area expertise, so interested faculty in a biology or botany department may have to take on day-to-day management themselves. Faculty members, however, are usually more concerned with their academic workload than natural area administration. As a result, they may have little time to devote to a preserve, aside from educational use.

In their enthusiasm over the transfer of a natural area, colleges and universities often promise to develop, execute, and supervise management plans. After the enthusiasm dies down, these objectives are often not fulfilled. The Nature Conservancy notes that these problems exist whether preserves are transferred to colleges and universities or to other agencies or organizations. Although the Conservancy provides institutions with guidelines for management and use, it is difficult to monitor compliance.[2] To alleviate these problems, the Conservancy must develop guidelines and programs for monitoring transferred lands locally, regionally, and nationally.

Another factor which must be considered is the distance from the college campus to the preserve. The Conservancy is now attempting to lease or transfer areas to schools located within a reasonable distance of them. Otherwise the college or university has no real local presence or ability to cope with local events and attitudes. In effect, the school becomes an absentee landlord. When a threat to the integrity of the site occurs, the school may be reluctant, or even unable, to develop community support for protection. In addition, if a site is too far away, the college or university will not be able to make sufficient use of it to warrant continued management.

B. Lease Arrangements

83.4 Parkland College: Pattons Timber Preserve

When seeking academic institutions to manage its sites, the Illinois chapter of The Nature Conservancy usually looks for schools with the best capability to protect them. It does not always follow that large, prestigious schools are the best choice. Usually the final decision is determined by an individual faculty member's teaching and research interests plus willingness to help protect natural areas.

Recently the Illinois chapter has had positive working relationships with junior colleges in the state. Most counties now have a junior college, each of which is publicly supported by local taxes. Money is readily made available in the budget for preserve management because local citizens realize the need to preserve areas within their locality. This funding is not as easily obtained from state-operated institutions, which must rely on funds from the state legislature.

The Nature Conservancy recognized that many of its sites in Illinois were small (less than 50 acres) and lacked rare and endangered species habitats, though they did contain valuable representative ecotypes. Transferring these parcels of land to junior colleges that have environmental education programs was a good way, The Nature Conservancy believed, to spread a land ethic. This approach was in keeping with the feeling of the director of the Illinois chapter of The Nature Conservancy, who emphasized that "local control with local funds is the best system for preservation."[3]

An opportunity to implement the

[2]G. M. Lieberman, personal communication, January 1977.

[3]N. Gaston, personal communication, February 1977.

approach came in 1976. Parkland College, a community college in Champaign, Illinois, had an environmental education program which formerly used natural areas owned by the University of Illinois for field trips. Because of the lengthy procedures necessary for obtaining use of the university's sites, the faculty at Parkland were eager to locate more accessible areas. When it learned that The Nature Conservancy was interested in including junior colleges in its land stewardship program, Parkland realized its educational program could benefit greatly from this cooperation. The faculty and administration responded enthusiastically to the opportunity to incorporate the 14-acre Pattons Timber Preserve into their outdoor education, natural history, and resource management courses.

After Parkland College became responsible for management of the preserve, one faculty member applied for a sabbatical to conduct research on the site. His proposal--to inventory the area and develop a trail system--received top priority from other faculty and the administration. The school believed the proposal would be beneficial not only to students but also to the community. Since Parkland is a community college, requests for sabbaticals must be approved by the college's board of trustees. The trustees, all residents of the community, gave their consent for the fall semester of 1976.

The professor conducted an inventory of plants on the preserve with the assistance of a botanist at the University of Illinois. Three students who were enrolled in an independent study course helped with the development of nature trails involving a sequence of numbered stations and a booklet to describe the stations. A student from the art department took photographs and colored slides for the booklet. This material is also being used in class lectures and presentations describing Parkland's involvement with The Nature Conservancy. The recreation department has expressed interest in the development of the self-guiding nature trail and will work closely with the department of life sciences. A soil study was conducted, and during the 1977 fall semester, insect, bird, and mammal populations were studied.

Both Parkland College and the Conservancy are pleased with the results thus far. In order to publicize the success of the program, the director of the Illinois chapter of The Nature Conservancy has spoken at a meeting of the Illinois Association of Community College Biologists. The response has been positive, and plans are under way to involve more junior colleges in this type of cooperative program.

C. Cooperative Agreements

83.5 Dickinson College: Florence Jones Reineman Wildlife Sanctuary

During the 1960s the chairmen of the biology and geology departments at Dickinson College in Carlisle, Pennsylvania, submitted a proposal to the college president for acquisition of a natural area for field studies. Realizing that the purchase of a large tract of land would strain the budget, the proposal was limited to a 5- or 10-acre site.

By chance, the trustees of the estate of Florence W. Erdman learned of the professors' request. They contacted Dickinson College and offered to buy a large preserve if the college would agree to manage it. Various prospective sites were inspected. The one chosen was a 3,100-acre[4] forest located less than 10 miles from the college.

Prior to being established as the Florence Jones Reineman Wildlife Sanctuary, the site had been selectively cut for timber and hunted and fished by the local residents. Mrs. Erdman's will stated that the purpose of the preserve would be to afford a sanctuary for all forms of wildlife and to be a place for scientific research. Trespassing, hunting, fishing, and trapping were prohibited. Both the trustees of the estate and the college work together to implement the objectives and enforce the restrictions. The college limits access to the area to scientific and organized groups of visitors. The trust fund provides for a full-time custodian.

The annual operating budget for the sanctuary is approximately $25,000. Of that sum, less than $5,000 is contributed

[4]Total acreage is 3,300 acres.

by the college. The trust fund furnishes the managerial budget, which includes money for upkeep, the custodian's salary, the truck, and the replacement of fences. In addition to checking on the boundaries, the custodian is responsible for keeping the fire roads open. Dickinson College pays any educational expenses through the geology and biology departments' budgets. Since the trustees of the estate--Girard Trust Bank and J. Welles Henderson--own the sanctuary, they pay the taxes on the land. The project has helped to establish a good rapport between the college and the community.

Since the objectives of the trust fund and sanctuary are in keeping with the objectives of the National Natural Landmarks Program, the college recommended that the trustees register the site as a landmark. The brief which proposes the site for designation states: "The area is a large, protected ecological community that significantly illustrates the process of succession and restoration to natural conditions following disruptive change. It also has great value in the protection it affords to the concentration of hawks migrating through its ridge gaps."[5] The site has since been registered as a National Natural Landmark.

Dickinson College is not only fortunate to have access to this preserve, but also receives an added benefit--the endowment fund for management. The present relationship between the college and the owners of the sanctuary is a good one. There is a written agreement that the site will be managed properly; if not, management reverts to the trustees of the estate.

D. Information and Bibliography

83.6 Key information contacts

Grace M. Lieberman
Regional Land Steward
The Nature Conservancy Midwest
Regional Office
328 East Hennepin Avenue
Minneapolis, Minnesota 55414
(612) 379-2134

Neil Gaston
The Nature Conservancy
79 West Monroe Street
Suite 708
Chicago, Illinois 60603
(312) 346-8166

William B. Jeffries, Ph.D.
Department of Biology
Dickinson College
Carlisle, Pennsylvania 17013
(717) 234-5121, ext. 329

Tim McCall
Regional Land Steward
The Nature Conservancy Southeast
Regional Office
35 South King Street
Leesburg, Virginia 22075
(703) 777-7760

Regional Land Steward
The Nature Conservancy, Eastern
Regional Office
294 Washington Street, Room 850
Boston, Massachusetts 02108
(617) 542-1908

Earl Creutzburg
Department of Life Sciences
Parkland College
Champaign, Illinois 61820
(217) 351-2371

Peter Seligmann, Director
California Field Office
The Nature Conservancy Western
Regional Office
156 Second Street
San Francisco, California 94105
(415) 777-0487

Stewardship Department
The Nature Conservancy
1800 North Kent Street
Arlington, Virginia 22209
(703) 841-5300

[5]See Technical Appendix 83.8(a) for the complete natural landmark brief.

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83.8 List of technical appendices

(a) National Natural Landmark Brief for Florence Jones Reineman Wildlife Sanctuary. Department of the Interior, National Park Service, National Natural Landmark and Theme Studies Unit: 655 Parfet Street, P. O. Box 25287, Denver, Colorado 80225, October 1972.

83.9 List of natural areas managed (leased by universities)

California
- Lanphere-Christensen Dunes
- Owen R. Cheatham Grove Reserve
- Van Duzen Redwood Grove

Colorado
- Galena Mountain (Mexican Cut Research Preserve
- University of Denver High Altitude Lab (Mt. Evans)

Illinois
- Baber Woods Nature Preserve
- Emma Vance Woods Preserve
- Grandma Jane Patton Timber Preserve

Indiana
- Cedar Bluffs
- Fontanent Woods

Kansas
- Konza Prairie (Ordway Prairie Preserve System)

Kentucky
- Spencer Morton Preserve

Minnesota
- Helen Allison Savanna

Missouri
- Hinkson Valley Nature Preserve

Ohio
- Browns Lake Bog

Oklahoma
- Red Bud Valley

Oregon
- Camassia Natural Area

South Dakota
- Vermillion Prairie Preserve

Washington
- Cyrus Gates Memorial Preserve (Chuckanut Island)
- Goos and Deadman Islands

West Virginia
- Cranesville Swamp Nature Preserve

Wisconsin
- Pigeon Lake Field Station

Chapter Eighty-four
Fee Acquisition

A. Introduction

84.1 Overview

For years academic institutions have been involved in various ways in natural area protection. One way has been to purchase sites by fee acquisition, but it has presented some problems. Most colleges and universities report that funding is the major constraint. At a time when the vast majority of academic institutions are experiencing cuts in budgets and/or personnel, funds are unavailable for natural area acquisition. In addition, many schools indicate that, even if money were available, top priority would be assigned to sites suitable for extensive teaching and manipulative studies (*e.g.*, experimental forests and demonstration prairies). Occasionally small sections of these larger tracts would be set aside and designated as natural areas within the land use plan.[1]

Some schools receive donations of land from individuals or organizations, but often no endowment fund for the management and protection of the area is included. Since management funds are not always available from the college or university budget, some schools have indicated a reluctance to accept a gift of land unless it is protected with a fence. Even when management funds are available, they are often insufficient to provide for protection and/or suitable use of the site.

Gifts to colleges and universities, like gifts to private organizations, may provide federal income tax benefits to the donor.[2] This is true with respect to gifts of land with appropriate restrictions made to educational institutions, since institutions are exempt from local real property taxes. Real property tax laws vary from state to state, and it is often difficult, and sometimes impossible, for a nonprofit 501(c)(3) conservation organization involved in land preservation to obtain real property tax exemption. In addition, some states do not have a uniform system for processing applications, and final decisions are often left to individual county assessors. As a result, exemption may be obtainable in some counties and not in others within the same state.

In states where real property tax exemption is a problem for conservation organizations, they can often identify and work with a college or university with an interest in natural area preservation and management. For example, The Nature Conservancy does not have real property tax exemption in the State of Vermont. When the Conservancy acquires a unique natural area, it attempts to identify an organization or agency which does have the exemption to take title to the land and afford the area perpetual protection. If it is unable to do so, the Conservancy must either raise funds or seek an endowment to pay the taxes, or forego acquisition. Many Conservancy areas in Vermont have been successfully transferred to the University of Vermont, with appropriate deed restrictions. The areas are kept in their natural state and used by the botany department for ongoing research and study. By working through the University, high quality natural areas can be acquired and protected without worrying about present and future real property tax exemptions, the absence of which might otherwise prohibit preservation of the resource.

84.2 University foundations

Each type of academic institution has its own particular budgetary problems. Private colleges must rely on outside support: donations from individuals and large grants from corporations and foundations. State-affiliated schools receive most of their funding from state funds after the budget is approved by the legislature. In many states, large allocations for research are often cut in favor of those for teaching. In states which have a major university, state colleges, and junior colleges, the institution which receives the largest research budget is the university. The responsibility of the other schools is to teach.

Even if these teaching institutions received a natural area as a donation, it would be difficult for them to acquire funds for management unless the site were used primarily for teaching rather than for research. To receive funding

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[1]See Chapter 82: Registration/Designation.

[2]See Chapter 78: Tax Incentives.

for natural area research, individuals and departments at state-affiliated universities rely on a university's foundation. These are nonprofit branches established to handle grants and other gifts to the university. Their purpose is to help support worthy projects which could not normally be included in the school's budget. Since a foundation is able to accept grants and distribute funds more efficiently than the state-controlled school administration, it gives more flexibility to the state system.[3]

In considering acquisition as a protection tool, the effectiveness of a university foundation might be compared to that of a private conservation organization: both are generally able to acquire land more rapidly and efficiently (and often at lower cost) than a state university or the federal government.

Several university foundations have assisted The Nature Conservancy in acquiring natural areas in the past. Volo Bog was purchased partially with funds from the University of Illinois Foundation.[4] The Little Bluestem Prairie, a six-acre site owned by Indiana State University, was purchased with an advance from The Nature Conservancy. The Foundation is repaying half the funds, and the Conservancy will raise funds for the remainder.

B. Coordinated Efforts to Acquire Natural Areas

Academic institutions rarely coordinate their efforts to preserve natural areas, either as members of a state university system or as members of a consortium of public and/or private institutions. An exception to this general rule is an effort undertaken by the University of California's nine campuses to develop a system of natural areas. Through a program called the Natural Land and Water Reserves System (NLWRS), the University of California is involved in the inventory, acquisition, and management of natural areas. Since it is currently the only university-affiliated program of its kind in the United States, its objectives, policies, and progress should serve as a model for other institutions.

84.3 University of California Natural Land and Water Reserves System

(a) History

Three decades ago, professors of field-oriented courses in biology and geology at the University of California rarely encountered obstacles in locating various types of undisturbed habitats for use in conducting research and for teaching. Year after year it was possible to return to the same site to continue uninterrupted studies.

During the 1950s and early '60s, several biology professors noticed a reversal; former research sites were being bulldozed by developers, fouled by chemical pesticides, and destroyed by vandals. Concerned that the situation would worsen unless an attempt was made to preserve examples of the various habitats within the state, the professors informed the president of the university of the problem.

The spokesman for the group was well-acquainted with the adverse effects urbanization could have on a research project. While working toward his doctorate degree, his project was destroyed by the construction of a motel on the site.[5] He and the other professors stressed the importance of natural area preservation to then President Clark Kerr, who appointed an *ad hoc* committee of faculty and administrators to investigate the feasibility of establishing a reserve system oriented to the state's educational needs at the postsecondary level. Representatives from each campus of the university were involved, and their recommendations were presented to the board of regents for approval.

The regents approved the concept, and in January 1965 the Natural Land and Water Reserves System (NLWRS) was established with the purpose of providing "a series of land parcels throughout the

[3] P. H. Zedler, personal communication, March 1977.

[4] See Chapter 85: Dedication.

[5] Norris, Kenneth S., "California's Natural Land and Water Reserves System," *Bioscience*, Vol. 18, No. 15, 1968, p. 415.

State of California, either owned by the university or made available to the university, in the use of which a primary consideration is the preservation of a natural environment in as undisturbed a condition as possible so that present and future faculty members and students may do research and make observations on a variety of natural environments."[6] In addition, the regents agreed to match a $500,000 grant from the Ford Foundation for the purpose of acquiring and establishing reserves.

Seven sites already owned by the University of California were designated as the initial reserves. Since then 17 additional parcels of land have been added, bringing the total to 24 reserves comprising more than 75,000 acres. Of this total, 10,200 acres are owned outright; the balance is available through licences, leases, and easements.

(b) Program objectives

In keeping with the overall purpose, the long-range plan is to incorporate as many as 50 reserves into the NLWRS; they are to include as many representative habitats as are reasonably possible. To aid in acquisition, existing protected natural areas located throughout the state are compared to a habitat checklist, "An Annotated List of California Habitat Types."[7] This publication, developed specifically for the NLWRS, lists more than 100 ecological habitats and transition zones in California, including marine habitats, coastal marshes, deserts, forests, montane habitats, etc.[8]

Access to the reserves is limited to qualified students, faculty, and researchers at the University of California and other institutions of higher education. This policy assists in protecting against possible disturbances to the ecosystem and to individual research projects.[9]

(c) Administrative structure and personnel

Although the president of the university is responsible for the overall administration of the NLWRS, many individuals and committees contribute to its implementation. Actual operations and development are coordinated by a director, a field representative, and other staff members.

Members of the Systemwide Natural Land and Water Reserves Faculty Advisory Committee are appointed by the president of the university. In addition to the director of the NLWRS and the assistant treasurer-real estate, a representative from each of the university's nine campuses serves on the committee. The campus representatives are usually the chairmen of the campus-based NLWRS committee. The purpose of the committee is to evaluate "from a systemwide perspective, proposals submitted by campus NLWRS committees, make specific recommendations concerning acquisition and management of sites, maintain contact with the scientific community within and outside the university and advise the president on general policy and use of the system."[10]

Once a site has been made part of the NLWRS, its management is usually assigned to the nearest campus. The chancellor appoints a faculty manager and a management advisory committee composed of 5 to 10 members from several academic disciplines. If a campus manages more than one reserve (*e.g.*, Berkeley, Irvine, Riverside, San Diego, and Santa Barbara), then there is a separate management advisory committee for each reserve.

(d) Acquisition procedures

The acquisition process requires the time and energy of numerous individuals,

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[6]Recommendations from the Office of the President, University of California, January 15, 1965.

[7]Cheatham, Norden H., and J. Robert Haller, *An Annotated List of California Habitat Types*, California Natural Land and Water Reserves System, Berkeley, California, 1976.

[8]See Technical Appendix 84.6(d) for this document.

[9]*NLWRS Information Sheet*, University of California, July 1972.

[10]Excerpt from "NLWRS Proposed Governing Policies, California Natural Land and Water Reserves System," Berkeley, California, October 1976.

but the effort is necessary if the NLWRS is to meet its goals and objectives. Prior to actual acquisition, the site must be visited by members of a campus NLWRS faculty advisory committee, who consider many factors in order to justify its inclusion in the system. A checklist of scientific, academic, and administrative criteria must be applied;[11] then the campus committee decides whether to recommend the site to the systemwide committee. If, after visiting the site, that committee recommends it, the respective chancellor recommends to the president that acquisition is advisable. A proposal is then sent to the regents for final approval.

Many sites have been considered as potential reserves but were not acquired because they failed to meet the NLWRS standards. Proximity to a University of California campus is becoming increasingly important due to the costs of transportation and management considerations.

(e) Funding and budgetary authority

As previously mentioned, the initial funding for the NLWRS consisted of a $500,000 grant from the Ford Foundation matched by regents' funds. A portion of this money has been used for establishment funds for each of the new reserves to provide for initial facilities and protection needs. These needs have varied from reserve to reserve, ranging from no needs at all to fencing, signposting, and other matters required to get the reserve into operation. No capital improvements have been involved. Beyond this source, the administering campus must use other funds at its disposal to meet operational and maintenance needs.

Expenditures for NLWRS operations and capital improvements amounted to $122,800 during 1974-75. Of this total, 20 percent consisted of state funds, 26 percent was acquired from foundations, and the remainder came from other private sources.

Now that the system is expanding and the demands for campus funds are increasing, it has been necessary to establish an endowment. This campaign, approved by the university's administration and the regents, is being managed by a staff member whose responsibility it is to seek large donations from individuals, corporations, and foundations.

In the past, private contributions to the NLWRS have consisted of monetary gifts and/or donations of land to be used as reserves. Use agreements of 10 years or more with government agencies and private landowners have also been employed. (Agreements for less than 10-year periods would not ensure continuity of a research project.)

Although use agreements have the advantage of a minimal initial investment of funds, ownership in fee is still preferred. However, due to the increased costs of fee acquisition, greater use of conservation easements will be given priority in the future.

(f) Management

Management of individual reserves is decentralized; either the campus closest to the site or the one with the greatest interest in it is responsible. In addition to maintaining the integrity of the reserve, the campus must implement a management plan which ensures that the use of the site is consistent with the goals of the NLWRS. Efforts are now being initiated to develop formalized master plans.

Protection procedures vary from reserve to reserve. If the reserve is situated close to the campus, then faculty, staff, and students are able to monitor it. This is usually done on a voluntary basis. Some reserves have a caretaker, others are posted. In some, trespass problems are minimal due to remoteness or conservation-minded adjacent landowners.

Although funding is the major constraint facing the NLWRS in general, several reserves have received generous private support in the past. Two of these are Hastings Natural History Reservation and the Philip L. Boyd Deep Canyon Desert Research Center. Another exception is the 136-acre Valentine Camp, which is part of the Valentine Eastern Sierra Reserve. The land was donated to the system along with a $600,000 endowment fund to be used for maintaining the property and related

[11] See Technical Appendix 84.6(e) for a complete discussion of these criteria.

educational programs. This is the only reserve which has an endowment fund, which has been a considerable asset in the use and protection of the site. The Marine Sciences Institute at the Santa Barbara campus manages this reserve, and the only major expense which the regular budget must cover is the mileage cost of transporting students to the reserve.

(g) Use of reserves

The recent fuel shortages have had their impact on the use of some reserves, but others situated near a campus have not been subject to that limitation.[12] For example, the Riverside campus of the University of California is only 10 minutes from Box Springs and 20 minutes from Etiwanda Wash and Motte Rimrock reserves. The Boyd Deep Canyon Center and James San Jacinto Mountains reserves are approximately an hour from the campus but are still used frequently. Occasionally the Riverside campus uses the Sacramento Mountains Reserve; since it is four hours away, the group usually camps overnight.

The University of California at Irvine has developed a unique program involving the reserve system. Each semester reserves are included as part of three or four courses in the department of ecology, but every other year intensive use is made through a super course. This super course is equivalent to three ecology courses plus one independent research course and allows the 20 students enrolled to devote their time solely to this program. A flexible schedule allows the class to spend up to a week at each of the four reserves used in the course. The sites usually are Hastings Natural History Reservation, Burns Piñon Ridge Reserve, Philip L. Boyd Deep Canyon Desert Research Center, and Valentine Eastern Sierra Reserve.

In addition to becoming familiar with the flora and fauna of different ecosystems (forest, chaparral, desert, mountains, woodlands, streams, etc.), the students learn research techniques which may be used the following year in an independent research project of their choice.

[12]See Technical Appendix 84.6(f) for a document on use.

Now the super course is funded by the department, but several years ago a special grant was received from a university-wide special projects fund established to develop programs of innovative instruction.

(h) Disestablishment of reserves

Since Sawyer Trinity Alps Reserve had not been used since before 1972 because of its remoteness and the accessibility of other examples of similar habitats, it is being sold to the U. S. Forest Service. The funds will be used for the acquisition of another site or otherwise for the benefit of the NLWRS.[13] The Forest Service will gain because it already owns much of the land surrounding Sawyer Trinity Alps. No deed restrictions will be placed on the Forest Service, nor will there be a reverter clause to the NLWRS.

The NLWRS has also allowed the lease to expire on Cheatham Grove for similar reasons. Although the site is an excellent example of a coastal redwood ecosystem, its distance results in insufficient faculty and student use to justify continued university involvement.[14]

(i) Cooperation with other agencies

During the past 10 years, the NLWRS has cooperated and interacted with various federal, state, and private groups. The U. S. Forest Service is receiving assistance in identifying areas of scientific interest within its holdings. The Bureau of Land Management is also being assisted in identification of potential reserve sites and natural areas within the 11 million acres of California desert it manages.[15] Some students who completed their degrees using NLWRS reserves are now employed by land management agencies such as the bureau. The insight and knowledge gained from their studies of the reserves have been invaluable in preparing them for their duties. Other former students are now professors at

[13]This stipulation was stated in the original gift to the NLWRS.

[14]The lease with The Nature Conservancy expired February 1, 1978.

[15]University of California NLWRS Information Sheet, July 1972.

academic institutions throughout the state and their opinions of the NLWRS are also positive.

Although the NLWRS is administered and managed by the Univeristy of California, all institutions of higher education are allowed to submit a request to use a reserve.[16] The system is not widely advertised as a statewide resource for the general public, but it is known within the scientific and conservation community. In keeping with its educational and preservation goals, it is necessary to limit use to qualified students and researchers, lest potential threats to the integrity of the sites materialize. Press releases announce the acquisition of a new reserve, but additional news relating to individual reserves is usually focused at the campus level.[17]

Private organizations with which the NLWRS has interacted include the California Native Plant Society, The Nature Conservancy, California Natural Areas Coordinating Council, and American Institute of Biological Sciences.

In 1975 the NLWRS was honored with a Bay Area Environmental Award of Merit. This was awarded by the Bay Area Council in recognition of the "university's pioneering effort to preserve unique parcels of land in their natural state." recently two of the NLWRS reserves were cited by the Soil Conservation Society of America in recognition of each being a "natural plant community managed in a wise and judicious manner."

(j) Summary

Although the Natural Land and Water Reserves System is in an intermediate stage of development, much progress has been made since its inception in 1965. One of the professors who has taken an active part in the NLWRS since its beginning commented that "the system has developed much beyond what we ever expected."[18] This progress is due not only to the cooperation of the regents, administration, and faculty of the University of California but also to the untiring efforts of various individuals.

The president of the University of California summed up the concept of the reserve system as "a product of years of concern, a lot of work, and a remarkable blending of private philanthropy and academic and governmental cooperation."[19]

Although other schools may be unable to undertake a land acquisition project as ambitious as this one, many portions of the NLWRS program may serve as guidelines for natural area acquisition on a smaller scale.[20]

The list on the facing page indicates the acreage and method of acquisition for the reserves. Each is managed by one of the nine campuses of the University of California (listed in parentheses).

C. Information and Bibliography

84.4 Key information contacts

Raymond M. Culter
Director of Tradelands
The Nature Conservancy
1800 North Kent Street
Arlington, Virginia 22209
(703) 841-5300

J. Roger Samuelson, Director
Norden H. Cheatham
Field Representative
California Land and Water Reserve System
Room 544
2111 Bancroft Way
Berkeley, California 94720
(415) 642-2211

Susan L. Washburn
Vice President for Development
Centenary College
Hackettstown, New Jersey 07840
(201) 852-1400

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[16]See Technical Appendix 86.6(g) for sample lists of user-affiliations.

[17]See Technical Appendix 84.6(c) for the press release.

[18]W. W. Mayhew, personal communication, March 1977.

[19]Quote from President Charles J. Hitch in "University of California Natural Land and Water Reserves System" pamphlet.

[20]This study has benefitted greatly from the cooperation and assistance of Mr. N. H. Cheatham, who provided very useful personal communications.

University of California Natural Land and Water Reserves

Site	Acres	Method of Acquisition
Año Nuevo Island Reserve (UC-Santa Cruz	8	10-year license agreement with California State Department of Parks and Recreation; expired June 30, 1978.
Bodega Marine Reserve (UC-Berkeley)	326	Existing UC property.
Box Springs Reserve (UC-Riverside)	160	Existing UC property.
Philip L. Boyd Deep Canyon Desert Research Center (UC-Riverside)	16,036	Existing UC property augmented by several gifts and a license agreement for adjacent Bureau of Land Management land.
Burns Pinon Ridge Reserve (UC-Irvine)	265	Gift/purchase using Regents Funds matched by Ford Foundation grant.
Coal Oil Point Natural Reserve (UC-Santa Barbara)	49	Existing UC property.
Dawson Los Monos Canyon Reserve (UC-San Diego)	93	Existing UC property augmented by additional gifts.
Elliott Chaparral Reserve (UC-San Diego)	107	Existing UC property.
Etiwanda Wash Reserve (UC-Riverside)	175	Gift.
Hastings Natural History Reservation (UC-Berkeley)	1,897	Existing UC property.
James San Jacinto Mountains Reserve (UC-Riverside)	30	Acquired with Regents Funds.
Kendall Frost Mission Bay Marsh Reserve (UC-San Diego)	21	Existing UC property.
Motte Rimrock Reserve (UC-Riverside)	62	Several gifts to be augmented by additional gifts and purchases.
North Fork American River Reserve (UC-Berkeley)	1,680	Gift of conservation easement.
Pygmy Forest Reserve (UC-Berkeley)	70	Existing UC property augmented by purchase with Regents Funds matched by Ford Foundation grant.
Ryan Oak Glen Reserve (UC-San Diego)	15	Gift.
Sacramento Mountains Reserve (UC-San Diego)	591	Purchased from state with Regents Funds matched by Ford Foundation Grant.
San Joaquin Fresh Water Marsh Reserve (UC-Irvine	202	Purchased with Regents Funds matched by Ford Foundation Grant.
Santa Cruz Island Reserve (UC-Santa Barbara	54,500	10-year renewable license agreement with Santa Cruz Island Company.
Santa Monica Mountains Reserve Complex: (UC-Los Angeles)		(Temescal Canyon) and gifts.
a. Arroyo Sequit	40	
b. Temescal Canyon Site	362	
c. Sepulveda Canyon Site	57	
Scripps Shoreline Underwater Reserve (UC-San Diego)	254	Licensed to UC by state legislature in 1929.
Valentine Eastern Sierra Reserve:		Gift (included $600,000 endowment fund), surplus lab facilities granted by U. S. government; underlying land is leased.
a. Valentine Camp	136	
b. Sierra Nevada Aquatic Research Lab (UC-Santa Barbara)	51	
Fee title	10,194	
Easements	1,680	
Licenses/leases	65,373	
Total Acreage:	77,247	

Total Disestablished Reserves

Site	Acres	Method of Acquisition
Cheatham Grove	160	Lease agreement with The Nature Conservancy; expired February 1, 1978.
Sawyer Trinity Alps Reserve	125	Originally a gift; no longer of reserve quality due to adjacent land uses.

Paul H. Zedler, Ph.D.
Biology Department
California State University at San Diego
San Diego, California 92182
(714) 286-5386

William W. Mayhew, Ph.D.
Department of Biology
University of California
Riverside, California 92502
(714) 787-5917

Richard MacMillan, Ph.D.
Department of Ecology
University of California
Irvine, California 92717
(714) 833-5973

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84.6 List of technical appendices

(a) Constitution of the State of California, Article IX, Section 9 (on the University of California).

(b) Map depicting location of University of California Natural Land and Water Reserves. Unpublished. California Natural Land and Water Reserves System: Room 544, 2111 Bancroft Way, Berkeley, California 94720.

(c) "UC's Natural Lands--Water System Adds Two More Sites." *UC News*, 48, No. 18 (December 12, 1972).

(d) Cheatham, Norden H., and J. Robert Haller. An Annotated List of California Habitat Types. Unpublished and copyrighted. California Natural Land and Water Reserves System: Room 544, 2111 Bancroft Way, Berkeley, California 94720, December 1975.
(e) NLWRS Acquisition Guidelines (Scientific, Academic and Administrative Criteria). Unpublished. California Natural Land and Water Reserves System: Room 544, 2111 Bancroft Way, Berkeley, California 94720, March 1975.
(f) Use of NLWRS Reserves from 1972-1975. Unpublished. California Natural Land and Water Reserves System: Room 544, 2111 Bancroft Way, Berkeley, California 94720, September 3, 1976.
(g) Partial list of user-affiliations. Unpublished. Natural Land and Water Reserves System: Room 544, 2111 Bancroft Way, Berkeley, California 94720, 1977.
(h) List of rare or endangered species found on sites of the Natural Land and Water Reserves System. Unpublished. California Natural Land and Water Reserves System: Room 544, 2111 Bancroft Way, Berkeley, California 94720, 1977.
(i) Computer-generated printout describing the 24 University of California Natural Land and Water Reserves. Unpublished. The Nature Conservancy: 1800 North Kent Street, Arlington, Virginia 22209, 1977.

84.7 List of university-owned natural areas

Alaska
- University of Alaska Arboretum

Alabama
- Tanglewood

California
- Bodega Marine Reserve
- Boyd Deep Canyon Research Center
- Box Springs Reserve
- Burns Pinyon Ridge
- Coal Oil Point Natural Reserve
- Dawson Los Monds Canyon Reserve
- Eagle Lake Field Station
- Elliott Chaparral Reserve
- Etiwanda Wash Reserve
- Hastings Natural History Reservation
- James San Jacinto Mountains Reserve
- Kendall-Frost Mission Bay Marsh Reserve
- Motte Rimrock Reserve
- Ryan Oak Glen Reserve
- Sacramento Mountains Reserve
- San Joaquin Fresh Water Reserve
- Santa Monica Mountain Reserve--Sepulveda Canyon Site
- Santa Monica Mountain Reserve--Mountain Park
- Santa Monica Mountain Reserve--Arroyo Sequit Site
- Scripps Shoreline--Univerwater Reserve
- Valentine Eastern Sierra Reserve (Snarl)
- Valentine Eastern Sierra Reserve (Valentine Camp)

Connecticut
- Bethany Bog
- Moss Tract (Albert E. Moss Conservation Area)
- Yale University Natural Preserve

Delaware
- Lewes Marine Studies Complex--University of Delaware

Florida
- University of Florida Research and Education Center

Georgia
- Lullwater Biological Field Laboratory
- Marshall Forest

Idaho
- Dautrich Preserve
- Idlers Rest

Illinois
- College of Lake County Prairie (East Campus)
- Gensburg-Markham Prairie Addition

Indiana
- Allee Memorial Woods
- Ball State University Wildlife Refuge
- Christy Woods
- Cooper Woods
- Ginn Woods
- Landsbaum Woods
- Pseuddacres Pond

Kansas
- Fort Hays State Relict Area

Maine
- Bethel Point
- Bowdoin Scientific Station (Kent Island)
- Coleman Farm
- Orono Bog (Fay Hyland Tract)

Michigan
- Bissel Bog
- Edwin S. George Reserve
- North Shore Dunes

Minnesota
  Carleton Arboretum
  McKnight Prairie
  Riverside Laboratory of St. Mary's College
Missouri
  I. R. Kelso Wildlife Sanctuary
  Schnabel Woods
Montana
  Lubrecht Experimental Forest
New Jersey
  Drew Forest Preserve
  Frank G. Helyar Forest
  Kilmer Woods
New York
  Bear Swamp
  Emmons Pond Bog
  Kip Tract
  Sapsucker Woods Sanctuary
Ohio
  Hazelwood Botanical Preserve
  Stillfork Swamp Preserve
Oklahoma
  The Oliver Wildlife Preserve
Oregon
  Cogswell Foster Preserve
  Lawrence Memorial Grasslands Preserve
  Sandy River Gorge Natural Area
Pennsylvania
  Tannersville Cranberry Bog
Texas
  Coastal Center, University of Houston
Virginia
  Oak Island
Washington
  Moxee Bog
  Rose Creek Preserve
Wisconsin
  Bear Creek Cave Scientific Area
  Bjorklunden
  Cedarburg Bog Scientific Area
  Falk Property
  Finnerud Forest Scientific Area
  Nelson Property
  New Observatory Woods Scientific Area
  Omro Prairie
  Ripon Prairie Scientific Area

84.8 List of natural areas transferred to universities by The Nature Conservancy

California
  Bumpy Camp
Illinois
  Gensburg-Markham Prairie Addition
  Hart Memorial Woods
  Ica Marks Natural Science Preserve
  Pine Rock Nature Preserve
  Rocky Branch Preserve
Indiana
  Little Bluestem Prairie
Kansas
  Ethel and Raymond F. Rice Woodland
  Konza Prairie (Ordway Prairie Preserve System
  Roy and Eleanor Wall Woods
  Sand Prairie Natural History Reservation
Kentucky
  Murpheys Pond
Maine
  Colby-Marston Preserve
Michigan
  North Shore Dunds
  Vermillion Point
Mississippi
  Plymouth Bluff
Montana
  Lubrecht Experimental Forest
Nebraska
  Arapaho Prairie
  Cuming City Cemetery Prairie
New Hampshire
  Five Fingers Point (Ethridge Point)
  Louis Cabot Preserve
Ohio
  Dysart Woods
  Kimball Woods
Pennsylvania
  Niering Preserve
South Dakota
  Altamont Prairie
Vermont
  Colchester Bog
  H. Laurence Achilles Natural Area
  Shellburne Pond
Washington
  Engelhorn Pond
  Lake Louise Ecological Area
Wisconsin
  Ablemans Gorge Scientific Area
  Abrahams Woods Scientific Area
  Benedict Prairie
  Cactus Rock Scientific Area
  Douglas H. Thiemann Arboretum
  Fried-Sarona Woods
  Hi-Trestle
  Hub City Bog Scientific Area
  Loddes Mill Bluff Scientific Area
  Milwaukee Arboretum
  Oliver Prairie Scientific Area
  Otis Forest
  Ranger Macs Fen (McNeel Preserve)
  Reuss Preserve
  Schmidts Maple Woods
  Sheboygan Arboretum
  Stanley Harris Tract
  Toft Point Scientific Area
  University of Wisconsin Arboretum

Chapter Eighty-five

Dedication

A. Introduction

85.1 Overview

The effectiveness of this protection tool is contingent upon the constraints imposed by the state statutes under which the dedication is authorized and the particular dedication agreement. The agreement may vary from case to case and state to state, but generally a high degree of protection is assumed to be implicit in the legal contract between the landowner and the state. This chapter will discuss the advantages and disadvantages to academic institutions which dedicate their natural areas into a state preserves system and some of their decisions relating to dedication.

Academic institutions which own dedicated natural areas generally agree that three factors are important in facilitating the process: (1) the land use and history of preservation of the site; (2) the administrative structure of the school; and (3) the conservation efforts of individuals at the campus.

When lands are donated to a university by alumni, corporations, conservation groups, or whomever, the deed or transfer document does not always explicitly state what the use of the land should be. If the site is an unrestructed gift, then generally the university will not be as anxious to agree to dedication for natural area use only. This action would place a constraint on future uses (*e.g.*, the institution would be unable to sell the site in the event it needed cash, to construct buildings, or to manipulate the area extensively for a research experiment). Conversely, if the site is already subject to a restriction which states that it must be preserved forever as a natural area, then the school will probably consider dedication. In some states the institution might receive tangible benefits as a result: assistance with management, nature preserve signs posting the area, and so forth.

Certain universities are less bureaucratic in their structure than others, and dedication may be easier to accomplish. In smaller schools there is often better communication between faculty and administration. A professor who is concerned with natural areas preservation may be able to discuss ideas and plans directly with the president and other officials more easily than at a larger, more impersonal institution. This would be an asset in getting a site dedicated, since individuals frequently determine the fate of a natural area.

85.2 State natural area dedication systems

The dedication procedures now in use in Illinois, Indiana, Ohio, and other states were discussed in a previous chapter.[1] University-owned natural areas are subject to the same general dedication procedures and agreements as apply to other private or public lands. Individual cases may vary depending upon the planning and negotiations required.

B. Dedication of College and University Natural Areas

85.3 Dedication of natural areas in Illinois

The Illinois Nature Preserves Commission has had varying degrees of cooperation in its attempts to achieve dedication of lands owned or managed by academic institutions. Two dedicated reserves are owned by universities: Pine Rock Nature Preserve (59 acres, Northern Illinois University) and Robeson Hills Nature Preserve (120 acres, Vincennes University). Five others are owned by non-university affiliated groups but managed by a college or university: Barber Woods Nature Preserve, Beach Cemetery Prairie Nature Preserve, Big Creek Woods Memorial Nature Preserve, Cedar Glen Nature Preserve, and Mississippi River Sand Hills Nature Preserve.

The University of Illinois has three natural areas which the state Commission considers worthy of dedication, but the University's lawyers and administration are not yet ready to sactifice all of their development and ownership rights, even though one of these sites is nationally recognized as a National Natural

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[1]See Chapter 73: Dedication (Sections 73.2, 73.4, and 73.8 discuss the Illinois, Indiana, and Ohio programs respectively).

Landmark.[2] In general, unwillingness to dedicate land has stemmed from the fact that universities consider their lands as financial assets to be sold or built upon when money is tight.

As indicated above, another factor which impedes dedication is the administrative structure of an academic institution. It has been found that junior colleges in Illinois can often assume a greater responsibility for natural area protection than larger schools which are accountable to a wide variety of interests.[3] Although most colleges and universities have (or have had) a representative serving as a member of the Illinois Nature Preserves Commission, representatives from the smaller schools seem to be more effective in influencing the school's administration regarding natural area protection. In addition, smaller schools usually have a higher percentage of professors active in community conservation efforts and are frequently members of conservation groups such as The Nature Conservancy. Since four of the seven university-affiliated reserves mentioned above are owned (or were owned) by the Conservancy, this would provide another reason why these sites were dedicated.

85.4 Illustrative example: Volo Bog

This case study involves an area which was formerly owned by a university and is now a state-owned and dedicated nature preserve. Although this example does not strictly adhere to the stated purpose of this chapter, it does illustrate a university's involvement in the protection of a natural area and the eventual dedication of a site into the Illinois Nature Preserves System.

In 1957 The Nature Conservancy was called upon by a group of concerned citizens who had recognized the need to preserve the 12,000-year-old quaking Volo Bog in Northern Illinois. The Conservancy raised $40,000 from more than 1,200 individuals and organizations to purchase the site (47 acres[4]) and another bog--Wauconda Bog (67 acres)--in the same county. These acquisitions were the first project of the Illinois Chapter of The Nature Conservancy.

Having used Volo Bog for ecology classes since 1909, the University of Illinois expressed an interest in managing the site. Both bogs were conveyed by the Conservancy to the University in 1959 for a sum of $8,000.[5]

In keeping with The Nature Conservancy's stewardship policies, the deed contained a reverter clause which stated:

> . . . should the (University of Illinois) ever cease so to use said real estate (for a nature preserve for scientific, educational, or research purposes), or abandon it, or alter it from, or disturb, its natural state, the estate herein granted shall thereupon cease and title to said real estate shall thereupon revert to and vest in (The Nature Conservancy) automatically and without necessity of re-entry or notice.

For 10 years the bog was managed without incident. In 1969, however, it was threatened by a proposed development project. Conservationists feared that the acidic balance of the bog might be upset by the initial site drainage of the $94 million residential development. This problem might subsequently be compounded by permanent runoff, fertilizers, street salting, and sewage. If all this occurred, the delicate and unique bog flora would be destroyed.

The University of Illinois officially filed a protest against the proposed project in January 1970 at a county board of supervisors meeting. An attorney representing the school stated that "the University is interested in the protection of the bog. We don't want to stop progress, but we want the bog satisfactorily considered."[6] Despite

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[2]See Chapter 82: Registration/Designation for a discussion of the threat to Allerton Park.

[3]See Chapter 83: Management.

[4]Volo Bog Nature Preserve now includes 186 acres.

[5]Both the University of Illinois Foundation and the University contributed an equal share.

[6]"Renew Fight on Housing Project near Volo Bog," *Chicago Tribune*, January 1970.

this opposition and the efforts of various concerned individuals, the following month the county board voted to rezone a 655-acre site adjacent to Volo Bog in the development corporation's favor.

By April 1970 The Nature Conservancy became concerned because the University was not expressing (and perhaps was powerless to express) greater opposition. The Illinois Nature Preserves Commission had previously requested that the University dedicate the site into the Nature Preserves System. Both the Commission and the Conservancy stressed that dedicating the site would provide the bog with the same protection as state-owned preserves.[7] In addition, the University was asked to consider transferring the property to the state or back to The Nature Conservancy. The school would be allowed continued use of the site for research and teaching, but it would not be responsible for management.

The University's president responded that consideration was being given to each of these suggestions. Meanwhile, in order to allow time to develop a strategy to protect the bog, the Attorney General of Illinois filed a complaint for an injunction to half construction on the adjacent land until the developer could prove that the project would not impair or threaten its ecological integrity.

By June 1970 the University decided that the best way to protect the site would be to transfer it directly to the Illinois Department of Conservation, which would immediately dedicate the site into the Nature Preserves System. Dedication would confer certain protection obligations on the state which the University of Illinois was unable to undertake, most particularly the taking by eminent domain on purchase of adjacent buffer lands.

The Department of Conservation immediately began negotiations to acquire a buffer zone. This addition, originally planned to become a golf course, brought the total acreage of Volo Bog Nature Preserve to 186 acres. Currently the Commission is attempting to acquire more adjacent land so the preserve will eventually contain three bogs and sufficient buffer areas to protect it. Total acreage would be approximately 900.[8]

In 1974 the bog was designated as a National Natural Landmark by the National Park Service. As of 1977 the battle to preserve Volo Bog continued. The additional national distinction did not solve the controversy.

The bog faces still another problem. While the Illinois Nature Preserves Commission is continuing to acquire land adjacent to the bog, it is also assessing the threat of a freeway proposed to run past the bog. Since 1970 the Commission has been submitting alternate plans and suggestions to the Illinois Department of Transportation. The most recent action was the Commission's vote in October 1976 to oppose the planned construction of the road proposed in the Draft Environmental Impact Statement for FAP Route 420.[9] A detailed description of the Commission's reasons was sent to the Department of Transportation.

These protection efforts on the part of the Illinois Nature Preserves Commission are being supplemented by those of several conservation groups in the state, including a group of students at the College of Lake County.[10]

85.5 Dedication of natural areas in Indiana

Individuals at academic institutions throughout Indiana have been active in natural area preservation in a variety of ways, including contributing significantly to the planning and establishment of the state's Division of Nature Preserves.[11] Each college and university in the state has a faculty representative who acts as a liaison between the school and the state's program. As of spring 1977, only two university natural areas had been officially dedicated, primarily because very few of the colleges and universities own prime natural

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[7]See *Illinois Nature Preserves, Two Year Report (1973-74)*, Illinois Nature Preserves Commission, Rockford, Illinois, May 1975.

[8]See Technical Appendix 85.9(h).

[9]See Technical Appendix 85.9(f).

[10]See Chapter 87.

[11]See Chapter 81: Section 81.3 and Chapter 86; Section 86.4 for discussions of involvement.

areas. Thus, the state is now concentrating on dedicating non-university affiliated sites.

The two areas which have been dedicated are the 123-acre Cedar Bluff Nature Preserve and the 80-acre Olin Lake (Purdue) Nature Preserve. Indiana University at Bloomington manages the first, which is owned by The Nature Conservancy. The site was dedicated in August 1976. Purdue University owns the Olin Lake site, which was dedicated in December 1976. This site, a combination of a purchase by the Purdue University Foundation plus a donation, is adjacent to another dedicated preserve which the state purchased from the Conservancy.

Indiana University owns several parcels of land which the state might have considered for dedication, but in the early 1970s consideration was given to a power company's request to locate a transmission line through one of them. This would have been incompatible with the goals of the state's preserves system.

Wabash College owns another natural area, the 180-acre Allee Memorial Woods, which has been recommended as a possible National Natural Landmark. However, for several reasons the college has not dedicated the site as a state preserve. Radioactive research is being conducted on one portion; and, if it were dedicated as a state preserve, the school would be unable to allow complete access to the public. Second, the college has assured all those concerned that it will continue to protect the site. Allee Memorial Woods was donated to Wabash College with a 99-year "no disturbance clause" in the deed. Trespassing problems have been minimal; the site is adjacent to the donor's farm, and cooperative efforts help enforce protection.

85.6 Dedication of natural areas in Ohio

Ohio's Division of Natural Areas and Preserves has identified several university-owned natural areas to be included in the state's system. As of spring 1977, none had been officially dedicated. One reason is that some of the parcels had not received the final endorsement of both the state and the school. The Division of Natural Areas and Preserves is hopeful that they will be dedicated before 1978.

Another is that some schools are not willing to adhere to the strict guidelines imposed by dedication. Research is encouraged by professors and graduate students on any Ohio Nature Preserve, but permits must first be obtained from the state. Two types of permits are issued depending upon the kind of research project proposed. The most common is for a special project limited to a specific amount of time. The researcher indicates the amount of time required to complete the study, and the permit is granted only for the duration. Most permits are issued for a year, but others range from 1 month to 6 or 8 months. The second type of permit is a "blanket" research permit, which is issued only in rare instances. Stricter guidelines are required for this type of permit.

C. Information and Bibliography

85.7 Key information contacts

Gerald A. Paulson
Field Representative
Illinois Nature Preserves Commission
819 North Main Street
Rockford, Illinois 61103
(815) 964-6666

James Keith
Assistant Director
Division of Nature Preserves
Department of Natural Resources
State Office Building
Indianapolis, Indiana 46204
(317) 633-4164

Edward Salabsky
Supervisor of Field Operations
Division of Natural Areas and Preserves
Department of Natural Resources
Fountain Square
Columbus, Ohio 43224
(614) 466-7803

John W. Humke, Director
Midwest Regional Office
The Nature Conservancy
328 East Hennepin Avenue
Minneapolis, Minnesota 55414
(612) 379-2134

Marion T. Jackson, Ph.D.
Professor of Life Sciences
Indiana State University
Terre Haute, Indiana 47809
(812) 232-6311, ext. 2489

Robert O. Petty, Ph.D.
Associate Professor of Biology
Wabash College
Crawfordsville, Indiana 47933
(317) 362-1400, ext. 257

Neil Gaston, Director
Illinois Chapter
The Nature Conservancy
Suite 1919
666 North Lake Shore Drive
Chicago, Illinois 60611
(312) 787-1791

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85.9 List of technical appendices

(a) "Renew Fight on Housing Project near Volo Bog." *Chicago Tribune* (Chicago, Illinois), January 1970.

(b) National Landmark Brief for Volo Bog Nature Preserve. Department of the Interior, National Park Service, National Natural Landmark and Theme Studies Unit: 655 Parfet Street, P. O. Box 25287, Denver, Colorado 80225, August 1972.

(c) National Landmark Brief for Wauconda Bog Natural Preserve. Department of the Interior, National Park Service, National Natural Landmark and Theme Studies Unit: 655 Parfet Street, P. O. Box 25287, Denver, Colorado 80225, August 1972.

(d) "Highway Threatens Volo Bog." *Open Lands News* (Open Lands Project: 53 West Jackson Boulevard, Chicago, Illinois 60604), 9, No. 3 (May-June 1976).

(e) Chronology of communications between the Illinois Nature Preserves Commission staff and Department of Transportation concerning FA Route 420 between Volo and Brandenberg Bogs, Illinois Nature Preserves Commission: 819 North Main Street, Rockford, Illinois 61103, 1976.

(f) News release concerning Volo Bog and FAP Route 420. Illinois Nature Preserves Commission: 819 North Main Street, Rockford, Illinois 61103, October 15, 1976.

(g) Map of proposed FAP Route 420 in vicinity of Volo Bog. U. S. Geological Survey Topographical Map 1:24,000.

(h) "Volo Bog Nature Preserve." *Illinois Nature Preserves: Two-Year Report 1973-1974.* Illinois Nature Preserves Commission: 819 North Main Street, Rockford, Illinois 61103, 1975.

(i) "Wauconda Bog Nature Preserve." *Illinois Nature Preserves: Two-Year Report 1973-1974.* Illinois Nature Preserves Commission: 819 North Main Street, Rockford, Illinois 61103, 1975.

85.10 List of college and university areas which have been dedicated

Illinois
- Baber Woods Nature Preserve
- Forest Park Nature Preserve
- Gensburg-Markham Prairie Addition
- Pine Rock Nature Preserve
- Rocky Branch Preserve

Indiana
- Cedar Bluffs
- Little Bluestem Prairie

Kansas
- Sand Prairie Natural History Reservation

Oregon
- Sandy River Gorge Natural Area

Chapter Eighty-six

Environmental Analysis

A. Introduction

86.1 Overview

Individuals at colleges and universities have become involved in environmental analyses in a variety of ways: reviewing environmental impact statements, conducting environmental assessments, collecting information on endangered species, and providing expert testimony in court and at public hearings. In addition, certain professional societies, including state academies of science, disseminate information on endangered species through conferences, committees, and publications. These activities are often volunteer. Sometimes they are endorsed by the university's administration but rarely financed out of its budget.

Time is a major limiting factor in determining the extent to which academicians can become involved. Even if a school's administration approves a professor's involvement, he must still meet his professional responsibilities and commitments. In addition, individuals are not always willing to become involved on a volunteer basis, especially if travel is a prerequisite.

Despite these obstacles, professors have contributed greatly to the environmental assessment process. According to staff members in the Office of Endangered Species (U. S. Department of the Interior), academicians are responsible for the majority of endangered species information which is submitted to that office. The information is either supplied voluntarily, particularly by specialists in certain fields, or is provided under contract. State lists of endangered flora and fauna are also usually compiled by professors.

86.2 National involvement

An example of a national professional society involved in environmental analysis is the American Society of Ichthyologists and Herpetologists. This organization is concerned with the study and conservation of fish, amphibians, and reptiles. In addition to publishing the journal *Copeia*, the society has formed a Committee on Environmental Quality which is active in natural area preservation. This committee is especially interested in the protection of endangered species and their habitats. Its activities involve "providing commentary on draft environmental impact statements to various government agencies as well as alerting those agencies as to the endangered status of certain fishes, amphibians, and reptiles."[1] In addition, members of the society inventory and gather data on specific organisms within natural areas.

86.3 Regional involvement

On a regional basis, the Association of Southeastern Biologists (ASB) is involved in similar activities, including the publication of a journal and the formation of a conservation committee. The primary objectives of the committee are to encourage and facilitate communication among members of the association interested in conservation issues and to stimulate interest in rare, endangered, and threatened species which need attention.[2] These objectives are accomplished in several ways. The committee plans to (1) initiate projects to identify critical habitats for rare, endangered, and threatened species; (2) maintain a directory of biologists in the Southeast who are actively interested in and working on rare, endangered, and threatened species; (3) continue accumulating lists and other material relating to rare, endangered, and threatened species; and (4) generate resolutions which should be brought to the attention of the association's general membership.[3]

The ASB Conservation Committee also sponsors symposia on concervation issues. These are held in conjunction with the association's annual meeting, and the proceedings are published in the *ASB Bulletin*. The first symposium, cosponsored with the Ecological Society of America, was held in April 1976. The topic was "Rare, Endangered, and Threatened Biota of the Southeast." Several invited speakers presented papers describing the activities of national,

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[1] W. R. Courtenay, letter dated November 29, 1976.

[2] C. E. Styron, personal communication, December 1976.

[3] See Technical Appendix 86.9(a) for a proposed resolution.

regional, and local organizations involved in research on endangered species.[4] The second annual symposium topic was "Natural Areas in the Southeastern United States;" once again, papers, both invited and contributed, were presented.

B. Involvement at the State Level

At the state level, several academic organizations are involved in one way or another in environmental analysis programs. Oklahoma, Indiana, and Ohio each have an academy of science which has been instrumental in advising and assisting with the development of their state's natural area legislation. The Biological Section of the Oklahoma Academy of Science has recently established an Endangered Species Committee. This committee reviews the *Federal Register* daily to keep up to date on the status of threatened and endangered species in the state. For instance, the leopard darter was listed as "threatened;" members of the committee supplied data and suggested its status be changed to "endangered." Committee members also testified before the U. S. House of Representatives Appropriations Committee on behalf of several endangered species living in or along a river destined to be altered by the Corps of Engineers.

86.4 Indiana Academy of Science

In the early 1950s the Indiana Academy of Science appointed a Scientific Areas Preservation Committee to generate a list of natural areas in Indiana. This inventory was derived primarily from the past experiences of field biologists and geologists and was not a comprehensive, formalized survey. One botanist specializing in the unusual flora of the state suggested many potential natural area sites; other committee members listed and described sites they had used for field work. The original committee dissolved after two years, but their list of areas was retained by the academy.

In 1966 and 1967 the committee was reorganized as the Committee for Preservation of Natural Areas. Its first project was to contact all the colleges and universities in Indiana plus more than 160 high schools, to determine what natural areas they were using and for what purposes. The state was then divided into seven regions. The committee's director appointed a field biologist as chairman of a group of committee members in each region. The groups were responsible for collection of data from as many key individuals as possible who might have information concerning protected or unprotected natural areas. The resulting information on sites with special biological or geological features was computerized and can be retrieved easily.

The following year a Purdue University professor who was also an officer of the Indiana Academy of Science received a two-year, $35,000 grant from the Ford Foundation to obtain and publish information about the state's natural areas. The objectives of the Indiana Natural Areas Survey were "to locate, describe, and evaluate areas already in use as nature preserves and other natural tracts worthy of preservation by public agencies, conservation groups, or educational institutions."[5] The computerized list of natural areas compiled by the Academy of Science's committee was used by the members of the Natural Areas Survey for their project.

New areas are identified each year and are added to the list. Because the Director of the Indiana Division of Nature Preserves has been director of the Academy of Science's Committee for Preservation of Natural Areas since 1973, the computerized list is being maintained by the Division of Nature Preserves.

Another activity of the Indiana Academy of Science was to testify before the state legislature when the natural areas bill was introduced in 1967.[6] The bill, which was passed, states that the president of the academy (or other delegate appointed by the president) should serve as one of the six *ex officio* members of the state's Natural Resources Commission. This commission, which also

[4]See Technical Appendix 86.9(e) for list of papers presented.

[5]Alton A. Lindsey, *et al.*, 1968, p. 2.

[6]See *Preserving Our Natural Heritage*, Vol. II, Chapter 28.

includes four private citizens appointed by the governor, oversees the activities of the Division of Natural Resources and reviews environmental impact statements pertaining to state projects such as strip-mining, construction of reservoirs, etc.

The Academy of Science has also formed a Science and Society Committee composed of political scientists, sociologists, ecologists, and others involved in environmental resource fields. These individuals have testified at many hearings, especially ones on compliance, with the provisions of the National Environmental Policy Act. Occasionally the academy has passed resolutions concerning conservation matters, but that is not a normal procedure, partially due to the academy's being funded by the state. The academy does, however, publish a list of environmental scientists who are willing to help review and analyze impact statements. The list is distributed to interested citizens' groups throughout the state.

86.5 Ohio Biological Survey

The Ohio Biological Survey is an inter-institutional organization of more than 60 colleges, universities, museums, and other organizations in Ohio. The survey generates, collects, and distributes basic biological information which is then often given practical application through environmental impact statements, resource management programs, legislative action, etc. Since the survey is inter-institutional, it has a large supply of biologists and environmental researchers to call on.

(a) Program objectives and goals

The general objectives and goals of the Ohio Biological Survey, as stated in its constitution, are

> (1) to secure accurate and detailed information concerning the occurrence, distribution, and ecology of the plants and animals in Ohio for the people in general and for those engaged in education, conservation, and science in particular;
>
> (2) to collect, identify, describe, and distribute biological materials that may be of service in education and research;
>
> (3) to publish the results of biological surveys and scientific studies on the taxonomy, distribution, and ecology of plants and animals in Ohio or in a wider geographical area of which Ohio is an integral part.[7]

These objectives are accomplished through the research efforts that the survey coordinates, which include inventories and environmental assessment projects. Workshops, symposia, and publication of bulletins, guides, and other literature are additional activities.

(b) History

As far back as the 1830s, an attempt was made to organize a biological survey similar to the one that existed for the geological features of the state, the Ohio Geological Survey, but due to a lack of financial support the effort had failed. In 1911 the Ohio Academy of Science appointed a committee to formulate a proposal for establishing a biological survey. The committee's proposed plan was accepted by the Board of Trustees of Ohio State University in 1912. The plan provided that inter-institutional cooperation and administration of the Survey be handled through Ohio State University. The following year the state legislature appropriated $2,500 of the University's budget for the biological survey.

During its first 40 years, the primary activity of the organization was publishing bulletins. By the late 1950s its annual operating budget was reduced to $1,500; interest in the organization had decreased considerably. However, a few individual members stressed the importance of continuing the survey, and a long period of reorganization followed. In the 1960s the survey's publication activities expanded as did its support of research projects. This revitalization was a result of the dedicated efforts of a few individuals.

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[7]"Ohio Biological Survey." Ohio Biological Survey: 484 West 12th Avenue, Columbus, Ohio 43210.

(c) Funding and administrative structure

By 1968 the annual budget of the Ohio Biological Survey had increased to $40,000. That same year a half-time administrative assistant was employed to supplement the work of the executive secretary. Both individuals were university professors who still had commitments to their respective institutions. Not until 1972 was a full-time administrator employed as the executive director.

The present administrative structure of the Ohio Biological Survey consists of an executive director, an Executive Committee and an Advisory Board. Each of the more than 60 cooperating member institutions appoints an individual to serve on the Advisory Board, which determines general programs and policies. The board then elects an Executive Committee from among its members. The 11-member committee is responsible for developing specific programs and policies.

The central office is located in the College of Biological Sciences at Ohio State University.

The Ohio Biological Survey receives the majority of its financial support from the College of Biological Sciences. The present budget exceeds $46,000 annually. Additional funding is obtained from publication grants and sales, membership dues, contributions, research grants, and negotiated contracts. Institutions and organizations which become members of the Survey pay $50 annual dues, which entitles them to appoint one representative to the Advisory Board. In addition, staff or faculty of the participating institution are eligible to initiate or participate in projects and programs sponsored by the survey.

(d) Projects and programs

In addition to the inventory of Ohio's natural areas,[8] other environmental assessment projects of the survey include the Raptor Survey Project, the Prairie Survey Project, an inventory of systematic collections of Ohio biota, carried out by various public and private groups, and the Endangered Species Project. As of March 1977, the survey was completing the publication of two separate reports describing endangered plants and animals.

A current and major research effort of the survey is the Environmental Analysis of Central Ohio, which is being funded by the U. S. Army Corps of Engineers.[9] This inventory and analysis of the region's environmental resources includes an assessment not only of the region's biological and physical characteristics, but also of its cultural and human resources. One objective of the project is to identify known areas of significant environmental value and to classify them as "red flag" areas. These areas are then indicated on a map divided into 25 square kilometer grid cells. The ratings of "red flag" and significance used throughout the report assist decisionmakers involved in long-term land use planning.

86.6 New Mexico Environmental Institute

The New Mexico Environmental Institute is an academic organization created in 1971 to use the expertise of university scientists in the preparation and assessment of environmental impact studies. Six universities in New Mexico are represented on the Advisory Board, as are members of federal and state agencies. The institute was organized at the state level in order to provide sufficient manpower and resources; an organization below the state level was considered impractical, the regional level too complicated.

(a) Program objectives and goals

The general objectives of the New Mexico Environmental Institute include activities related to research and educational programs, evaluation of environmental impact statements, and data storage and retrieval.[10]

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[8]See Chapter 81: Notification for a description of the inventory.

[9]See Technical Appendix 86.9(d) for a description of this project.

[10]"New Mexico Environmental Institute," New Mexico Environmental Institute: Box 3AF, New Mexico State University, Las Cruces, New Mexico 88003.

(a) Research Programs: The Institute will encourage and facilitate the entry of qualified scientists into environmental research through their particular disciplines and respective administrative units; will arrange agreements with institutions of higher learning and with private and public organizations in New Mexico for the support of environmental research; and will maintain contacts with the businesses needing environmental information and provide means of contact between scientists doing environmental research and the organizations which will support such research.

(b) Educational Programs. The Institute will make informational and educational materials related to environmental questions available to community leaders and decisionmakers so they may become familiar with the issues involved; will provide seminars, lectures, and workshops on environmental management for the continued education of community leaders.

(c) Evaluation of Environmental Impact: The Institute will assist local, state, and federal agencies and commercial and industrial organizations in the preparation and review of environmental impact statements. The Institute, through its interuniversity association, will seek to obtain objective, unbiased, multidisciplinary evaluations of the effects of proposed activities on the environment.

(d) Data Storage and Retrieval: The Institute will establish and maintain an information retrieval system that includes past, present, and proposed environmental research in New Mexico and current manpower capabilities for environmental research within the State; will develop techniques for the storage of data related to environmental research.

(b) Funding and administrative structure

The institute was established in 1971 with funds obtained through a Title I--Higher Education Act Grant (U. S. Department of Health, Education, and Welfare). A portion of the initial funding was used to develop educational materials for environmental concepts and issues related to New Mexico. The institute also contracted with commercial firms to prepare environmental assessments. During the initial three years of operation, Title I (HEW) grant money was obtained for organizational purposes, but the majority of the operating expenses were covered by the private contracts.

Permanent federal funding for the program was denied, and, in an effort to guarantee the institute's stability and integrity, state funding was requested. A request to include the institute as a line item in the budget of New Mexico State University was denied by the state legislature. If the request had been approved, the funds would have covered the director's salary and office expenses.

The New Mexico Environmental Institute had been using its current limited budget to fund the two environmental baseline studies already in progress. Since permanent federal and/or state funding has been unavailable, the institute's director and educational advisor have had to be paid from non-institute sources. Consequently, the time they have been able to devote to institute activities has been limited. The director was a full-time professor at New Mexico State University.

The present administrative structure of the Institute consists of an Advisory Board, executive committee, and staff personnel. The board is composed of representatives of the state universities and the federal and state agencies which are engaged in environmental research and regulation in New Mexico. University representatives, appointed by their respective university presidents, include three from the University of New Mexico, two from New Mexico State University, and one from each of four other universities in the state. The Advisory Board annually reviews the activities and research proposals of the institute.

The Executive Committee is composed of the university representatives on the Advisory Board. Preliminary research proposals are circulated to Executive Committee members for approval. The committee also regularly reviews the activities of the institute during the time between the annual board meetings.

Administrative headquarters of the Institute are at New Mexico State University. Staff include a director, an educational adviser, and a secretary.

(c) Projects and programs

As listed in the section describing program objectives and goals, the institute is engaged in educational endeavors in addition to research projects. It conducts environmental management seminars, has co-sponsored land use symposia throughout the state, and has made advisory services available to public and private groups. A newsletter on environmental quality is published and distributed.

Research activities include environmental baseline studies, environmental impact studies, and a socio-ecological survey of a land grant site. Since the National Environmental Policy Act was passed in 1969, many commercial firms have had to enter into the environmental impact assessment process. In response to queries concerning the "competition" that the New Mexico Environmental Institute presents to private commercial firms, the institute has issued the following statement:

> (1) The Institute has intentionally selected and initiated a wide variety of environmental assessment activities with the intent of developing improved methodologies.
>
> (2) The integrated baseline inventory/environmental impact study/peer review concept appears to be a unique feature of the Institute.
>
> (3) The Institute has frequently sub-contracted *to* and been subcontracted *by* private firms.[11]

The Institute perceives its main strength in the impact assessment process to be the peer review procedure. This mechanism not only increases a study's credibility but also improves the quality of the study team's initial efforts.[12] Whereas a commercial firm might undertake an impact assessment project on short notice and with insufficient time allocated for its completion, study teams associated with the institute would be less willing to agree to these conditions, knowing that their results are subject to peer review.

In 1975 the New Mexico Environmental Institute was selected as one of two projects in New Mexico to participate in the national Horizons on Display program. This program, jointly sponsored by the American Revolution Bicentennial Administration and the U. S. Department of Housing and Urban Development, was organized to provide a "living laboratory" of community programs and ideas.[13] Two hundred projects throughout the United States received this recognition.

C. Information and Bibliography

86.7 Key information contacts

James D. Williams, Ichthyologist
Robert McManus, Botanist
Mark Imlay, Malacologist
Fish and Wildlife Service
Office of Endangered Species
U. S. Department of the Interior
Washington, D. C. 20240
(202) 343-7814

Charles C. King, Executive Director
Ohio Biological Survey
484 West 12th Avenue
Columbus, Ohio 43210
(614) 422-9645

Connie Taylor
Department of Biological Sciences
Southeastern Oklahoma State University
Durant, Oklahoma
(405) 924-0121, ext. 337
Re: Endangered Species Committee of the Biological Section of Oklahoma Academy of Science

Clarence E. Stryon, Senior Ecologist
Monsanto Research Corporation
P. O. Box 32
Miamisburg, Ohio 45342
(513) 866-7444
Re: Association of Southeastern Biologists (former Conservation Committee chairman)

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[11] "Organizational and Procedural Guidelines for Environmental Assessment Activities," NMEI, 1975, p. 15.

[12] *Ibid.*

[13] *NMEI Environmental Quality News*, Spring-Summer 1976.

William H. Martin
Associate Professor of Biological Science
Central University College
Eastern Kentucky University
Richmond, Kentucky 40475
(606) 622-3122
Re: Association of Southeastern Biologists

Robert O. Petty
Associate Professor of Biology
Wabash College
Crawfordsville, Indiana 47933
(317) 362-1400, ext. 257
Re: Committee for Preservation of Natural Areas (Indiana Academy of Science)

Marion T. Jackson
Professor of Life Sciences
Indiana State University
Terre Haute, Indiana 57809
(812) 232-6311, ext. 2489

Walter R. Courtenay
Department of Biological Sciences
Florida Atlantic University
Boca Raton, Florida 33431
Re: Committee on Environmental Quality (American Society of Ichthyologists and Herpetologists)

Carol Dimeff, Secretary
New Mexico Environmental Institute
Box #AF, New Mexico State University
Las Cruces, New Mexico 88003
(505) 646-3609

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(c) "Horizons on Display." New Mexico Environmental Institute: Box 3AF, Las Cruces, New Mexico 88003.

(d) *Environmental Analysis of Central Ohio--An Initial Approximation.* D. M. Anderson and C. C. King, eds. Abstract. Ohio Biological Survey: 484 West 12th Avenue, Columbus, Ohio 43210, November 1976.

(e) List of papers presented at Symposium on Rare, Endangered and Threatened Biota of The Southeast. Sponsored by Association of Southeastern Biologists, New Orleans. April 1976.

Chapter Eighty-seven

Consciousness-raising and Watchdogging

A. Introduction

87.1 Consciousness-raising

Consciousness-raising is a protection tool which is easily incorporated into an academic program--either at elementary and secondary or undergraduate and graduate school levels. Environmental education programs have recently been initiated in schools across the country which previously had made limited use of them. Educating students in the fundamentals of the preservation of natural diversity is important in order to have citizens who can make intelligent decisions concerning the natural environment.

At the national level are many academic organizations with programs to increase society's awareness of the need to protect the elements of natural diversity. Most conservation organizations also carry out this function in one way or another. Those specifically involved with environmental education include the Conservation Education Association, National Association for Environmental Education, Conservation Foundation, National Wildlife Federation, National Audubon Society, and American Institute of Biological Sciences. The National Wildlife Federation, for example, initiated an environmental research grant and fellowship program in 1957 through which financial support is awarded annually to master's, doctoral, and post-doctoral candidates studying environmental topics. During the 1976-77 academic year the Federation awarded 38 research fellowships totaling $76,700.[1]

Environmental education programs at the state and local levels are assisted by chapters of national conservation organizations and by nature centers (environmental education centers) maintained by state governments. Teachers at all levels provide input into the organization and management of these programs. Many colleges allow elementary and secondary schools to use portions of their natural areas or biological field stations to put classroom theory into practice. In other instances, university faculty assist local school systems with the establishment of environmental teaching areas. The Ohio Land Laboratory Program discussed in Section 87.4 is an example.

Another example of a community project that involves educators from four colleges, plus local elementary and high schools, is the Indian Creek Nature Center located in upstate New York. In the mid-1960s a professor at one of the colleges in the area organized a conservation field day for sixth graders throughout the county. This project was well-received and became an annual event, supported by both the expertise of individuals in the community and at the colleges. State and university-owned nature preserves in the area were used to demonstrate field identification techniques, the interrelationships of organisms and their environment, etc.

Within a few years enthusiasm for the project had increased to the extent that teachers were eager to organize a year-round program. The North Country Conservation Education Association was formed, and in 1974 the group signed an agreement with the New York Department of Environmental Conservation for the lease of a 340-acre site owned by the state. It then developed a master plan for the area, which it named Indian Creek Nature Center. Fundraising activities began, including a bike-a-thon which attracted participants and sponsors from the local community and the four colleges. College students helped by posting signs along the border of the Nature Center to inform people that they were welcome on the site as long as they did not disturb the wildlife. The area has marshes, ponds, and a successional forest for visitors to explore. Eventually a nature center building will be erected, to include solar heating if a grant can be obtained to fund installation. There are many other examples of this type of involvement in communities throughout the country.

Although field trips certainly help reinforce the theories and concepts learned in the classroom, teachers unable to participate in such programs should still try to assist their students in developing an "ecological conscience"--moral values consistent with ecological principles.

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[1] *Conservation News*, 41(15):8-10, August 1, 1976.

87.2 Watchdogging

Many individuals engage in watchdogging (ecosystem) guarding activities, particularly at a local level, but there are few academic organizations using this protection tool. As is the case with private conservation organizations, watchdogging is often included as one of an organization's objectives rather than as its sole purpose for existence.

Examples of watchdogging activities are many. The Ohio Biological Survey has a committee which is inventorying prairies throughout the state and keeping tabs on their status.[2] Other academic organizations have committees which monitor endangered species habitats. The Laboratory of Ornithology at Cornell University has collected data on birds throughout the United States since 1965. More than 250,000 record cards on nests are on file in the computerized Nest Record Card Program. Although the Laboratory does not monitor a specific type of habitat, it indirectly engages in watchdogging by using avian birth-rates as indicators of environmental conditions. This enables the Laboratory to spot a deteriorating ecosystem quickly and enlist aid in determining the cause and protecting the area from further harm.

The National Audubon Society and the Cornell Lab have collaborated in organizing another project, the Colonial Bird Register. Since colonial birds depend on a variety of wetland habitats currently under pressure from development projects, the Register assists those interested in monitoring and protecting the birds. The Register provides information for the preparation of environmental impact statements so that colonies can be protected during the planning stages of a project. Detailed information concerning characteristics of colonies located in areas of proposed land use change is also available.

University-affiliated student groups occasionally monitor specific elements of natural diversity. The University of Colorado Wilderness Study Group takes an active part in the "Adopt a Roadless Area" program of the New Mexico Wilderness Study Committee.[3] The group serves as a resource for the Chama-South San Juan region. The Minnesota Public Interest Research Group, a coalition of 22 colleges, has monitored the Boundary Waters Canoe Area on an informal basis.[4] The Society for the Protection of Endangered Wildlife at the College of Lake County in Illinois has actively supported the protection of endangered habitats; in particular, the group is currently monitoring the status of several bogs in Lake County. One of them, Volo Bog, is a dedicated state Nature Preserve and a National Natural Landmark.[5]

B. Consciousness-raising Programs

87.3 Society for the Protection of Endangered Wildlife

The Society for the Protection of Endangered Wildlife (SPEW) is one of the largest and most active student groups at the College of Lake County in Illinois. Each semester members evaluate the priorities and then channel their efforts into two or three worthwhile projects, in addition to continually encouraging the appreciation and conservation of the elements of natural diversity. Their purpose, as stated in the bylaws, is threefold:

> (1) To educate the public about the value of predators, prey and their role in the ecosystem;
> (2) To advocate further preservation of open space and wetlands;
> (3) To work for reform of government predator control programs and for enforcement of laws protecting wildlife and wilderness.[6]

SPEW has several committees, including an education committee which coordinates and develops programs to be presented to school audiences and other

[2]See Chapters 81 and 86.

[3]See Chapter 79 for further information concerning the New Mexico Wilderness Study Committee.

[4]See Chapter 88 for further information on Public Interest Research Groups.

[5]See Chapter 85: Dedication for further information on Volo Bog.

[6]See Technical Appendix 87.7(d).

groups in the community. They have participated in environmental teach-ins at local high schools. Members of SPEW are encouraged to attend scientific and environmental meetings throughout the state and region to increase their knowledge of endangered species and habitat protection. These meetings have involved lectures at the Chicago Academy of Sciences, the Great Lakes Chapter of the Sierra Club, and the Audubon Society, and a symposium on threatened and endangered species in North America, held in Washington, D. C., in 1974.

In addition to supporting the Audubon Society and Sierra Club, SPEW has participated in activities of the Illinois Dunesland Preservation Society, Eagle Valley Environmentalists, Fund for Animals, and Illinois Environmental Council. It has mounted promotional campaigns for the enforcement of the Illinois Endangered Species Protection Act and the Rare Animal Relief Effort (of the National Audubon Society).

An annual "Walk for Wilderness" is held to raise money to support certain projects. The 1974 walk-a-thon raised over $4,700 which was donated to the Eagle Valley Environmentalists and the Clem and Jethro Memorial Park Foundation. The Eagle Valley Environmentalists used its portion to purchase several acres of land in Wisconsin to be preserved as an eagle roosting site.

Funds are also acquired from the group's recycling projects and from the college's inter-club funds. SPEW annually receives $200 from the latter. In 1974 the students started a prairie restoration project on campus; 30 acres were set aside for this purpose. An initial $500 fund was established to aid in the collection of seeds, minimum required fencing, printing of trail guides, etc. A master plan was developed to outline the purposes of and implementation plan for the project.[7] Prairie restoration experts will be consulted throughout so the goal of reestablishing a prairie on the open land will be achieved with a minimum of problems.

In keeping with their main purpose of educating the public, members of the Society for the Preservation of Endangered Wildlife have recently started a letterwriting campaign to help preserve Volo Bog (and other bogs in the county) from the potential damages of a proposed highway construction project. They also are active in monitoring the progress of a proposed lakeshore marina which ecologists feel may have a detrimental impact on the shoreline and lake waters.

SPEW hopes to encourage more students to join its efforts. Those who are now members are extremely active and dedicated.

87.4 Ohio School Land Laboratories

In the 1950s an Ohio high school teacher mentioned to the state's supervisor of outdoor education that he was interested in setting aside a portion of the school's property for outdoor environmental education activities. The proposed plan was discussed by a committee consisting of the teacher, the state's supervisor of outdoor education, representatives of the Soil Conservation Service, the Ohio Forestry Association, and the Ohio Department of Natural Resources. Their discussion resulted in an effort to establish school land laboratories throughout the state.

As of 1977, more than 160 land labs had been established. They consist of open fields, forests, streams, and creeks. The sites range in size from a few to 100 acres. Most are located on land already owned by the school; they are not always next to the school building, although that would minimize transportation problems. In rural areas which have consolidated schools, often the land lab is a field located on the school's property. If the land had been originally purchased from a farmer, the site frequently consisted of additional acreage behind the road frontage lot where the school would be located. Farmers were usually eager to sell the parcel as a complete package, so the additional land behind the school site would have been offered at a lower price per acre.

Personnel in the state's Department of Education, along with representatives of the other organizations mentioned above, formed a committee which assists schools that are interested in establishing land labs. The state committee meets with the local committee to plan and discuss goals for the site. (The Ohio Department of Education pays the

[7]See Technical Appendix 87.7(g).

travel expenses and salary of the state employee responsible for assisting the local committees.) The local committee should include several teachers, administrators, local citizens, and the school's maintenance personnel.

Proper planning is essential. To help ensure that there is minimal disturbance to the site over the years, a master plan is prepared. In addition, the land lab committee usually seeks the approval of the Board of Education. This also helps ensure, but does not guarantee, that the site will not be used for a parking lot or sold as excess property.

Some Boards of Education have specified a small portion of the school budget for maintenance and use of the area; others seek grants for this purpose. Having the backing of local organizations such as garden clubs, sportsmen clubs, and other conservation groups is an asset financially and otherwise.

Over the years some land labs have been disestablished for varying reasons, mainly that of poor planning. Often the interested teacher who had assisted in initiating the project leaves the school to assume an administrative role or transfers to a different school district. Those who have worked with the land lab program agree that it is better to name a faculty position, rather than an individual, to the committee. Then if a committee member leaves the school, the vacancy on the committee will be filled by the incoming faculty member.

Land owned by the state was also set aside as a demonstration school forest and land laboratory. A 100-acre site located near Columbus in central Ohio contains a stream, marsh, ponds, and beech-maple climax forest. It serves as a model for educators seeking to develop a school land laboratory. The state is also currently surveying all the schools which now own land labs to determine where they are located and how they are used. While the state supports these activities, the school is responsible for any other financial assistance required to maintain a land lab.

C. Information and Bibliography

87.5 Key information contacts

Director
Cornell Laboratory of Ornithology
159 Sapsucker Woods Road
Ithaca, New York 14853
(607) 256-5556

Robert Finley
196 East Weisheimer Street
Columbus, Ohio 43214
(614) 268-6231
Re: Ohio Land Laboratories (retired supervisory of outdoor education)

John Hug, Ph.D.
Supervisor, Environmental Education
Ohio Department of Education
65 South Front Street
Columbus, Ohio 43215
(614) 466-5015

Chairman
North Country Environmental Educators Association
P. O. Box 69
Canton, New York 13617

Society for the Protection of Endangered Wildlife (SPEW)
c/o College of Lake County
19351 West Washington Street
Grayslake, Illinois 60030
(312) 223-6601

Mary (Cheena) Stavins
Department of Biological and Health Sciences
College of Lake County
19351 West Washington Street
Grayslake, Illinois 60030
(312) 223-6601, ext. 427
Re: SPEW (Faculty advisor)

University of Colorado Wilderness Study Group
University Memorial Center, 188
Boulder, Colorado 80309
(303) 492-6870

Debra Walton
c/o Ohio Natural Heritage Program
Ohio Department of Natural Resources
Division of Natural Areas and Preserve
Fountain Square, Building F
Columbus, Ohio 43224
(614) 466-8970

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(b) "The North American Nest Record Card Program." Cornell Laboratory of Ornithology: 159 Sapsucker Woods Road, Ithaca, New York 14853.

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Chapter Eighty-eight

Legislative and Legal Fighting

A. Introduction

Legislative fighting, especially lobbying, and legal action are tools that colleges and universities rarely use to protect natural areas. However, individuals within these institutions do play an active role. Faculty, students, and administrators are often members of the private conservation groups which engage in legislative fighting.[1] In addition, they are often asked to provide expert testimony.

The Environmental Defense Fund[2] frequently requests university professors to provide scientific evidence for the lawsuits it files. These individuals often devote considerable time and effort to meeting these requests, including occasionally traveling some distance to testify. In these instances the Environmental Defense Fund pays for the travel, although it does not pay a consulting fee. This situation often proves to be an asset for the defense, since it shows that the witness is an interested party (especially where the opposition witness may be receiving several hundred dollars to testify).[3]

Restrictions placed on faculty members by an institution's administration vary from college to college and case to case. Private colleges and universities are often more tolerant than state-affiliated ones. Those with liberal arts programs are frequently more lenient than those focusing on applied sciences. A professor at a state school in Texas had to get subpoenaed in order to testify against an Army Corps of Engineers' project in the South. Since the university frequently contracted with the Corps to conduct surveys and inventories, the professor was concerned he might lose his job if he testified voluntarily. In other cases, faculty are not pressured by the college or university as long as they fulfill their academic commitments.

Examples of the suits in which university staff have been involved are numerous. Several water projects, including the proposed Tennessee-Tombigbee Barge Canal, the Tellico Dam, the Dickey-Lincoln Dam, and the now-defunct project for a Cross Florida Barge Canal. The Committee for Leaving the Environment of America Natural (CLEAN), a private conservation organization set up by several university professors and local citizens, is fighting the "Tenn-Tom" project.[4] With the assistance of the Environmental Defense Fund, CLEAN filed a lawsuit in 1971 to get a preliminary injunction against Corps' activities. In 1976 another lawsuit was filed to halt construction of the barge canal. (Despite these efforts, in April 1977 Congress reappropriated funds for the Tenn-Tom canal and construction was to be continued as of that time.)

Academic organizations at local and regional levels occasionally become involved with legislative and legal fighting, but not on a regular basis. (This activity has been discussed briefly in another chapter.[5])

B. Legislative Fighting

88.1 Public Interest Research Groups (PIRGs)

As indicated above, academic institutions and organizations rarely become involved in legislative fighting. However, student groups at colleges throughout the country have increased their lobbying efforts during the last 12 to 14 years, although much of their effort has been spent on consumer protection and pollution issues rather than on natural area legislation. Further, their activities more often involve grassroots than direct lobbying. That is, they encourage the general public to support particular legislation, as opposed to attempting to influence legislation through contact with the individuals formulating it.

One type of student organization which has gained in popularity and effectiveness in more than 30 states is

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[1]See Part 10, Chapter 77: Legislative, Legal, and Administrative Fighting.

[2]*Ibid.*

[3]J. D. Williams, personal communication, March 1977.

[4]An ichthyologist at Mississippi State University is currently president of this organization.

[5]See Chapter 86: Environmental Analysis.

the Public Interest Research Group (PIRG). Using the techniques of public protection developed by Ralph Nader's organization, Public Citizen, these student-financed and directed organizations began appearing in 1971. Professional staffs of scientists, lawyers, journalists, and organizers are employed to work on issues of public concern. Issues include consumer protection, reform of utilities, government accountability, and environmental protection.

In order to organize a Public Interest Research Group (PIRG), a majority of students at various university campuses in a state must express their approval of the PIRG concept and be willing to pay a fee each year to support the organization's activities. By gathering signatures and submitting a petition to the state board of education and each participating college's board of trustees, students request the use of the school's fee collection system to collect the annual operating fee (currently ranging from $2.00 to $6.00 per student). Rather than relying on a voluntary checkoff procedure (similar to the campaign fund option on federal income tax forms), a mandatory fee is collected in most cases. Students wishing not to contribute must request a refund.

Once the PIRG is established in a state, a student board of directors is elected which then hires the full-time professional staff. Professional staff are often recent graduates of law school or other graduate-degree programs; their average salary is $7,000 to $8,000 per year. In 1975 statewide PIRG budgets ran from $20,000 to $300,000. The Minnesota group (MPIRG) collected $180,000 to maintain a staff of 12 professionals. Students often volunteer for research projects or become involved on a work/study basis; that is, they receive academic credit for their work plus a small stipend.[6] PIRGs qualify for 501(c)(4) tax status which enables them to lobby.

88.2 Illustrative example: Boundary Waters Canoe Area Protection Act

The Minnesota Public Interest Research Group (MPIRG) lobbied extensively at the state level for the original state Boundary Waters Canoe Area Protection Act which was to preserve the unique wilderness of one million acres lining the Minnesota-Canadian border for approximately 100 miles. It was the only large area in Minnesota which remained a true wilderness. Since passage of that Act it has also become the largest federally designated wilderness area east of the Rocky Mountains. Within the area is a 600,000-acre virgin pine forest. Endangered species living in this ecosystem include timber wolves, fishers, bald eagles, and pine martens.

MPIRG is now fighting to prevent further logging and change to forest vegetation, in addition to copper-nickel mining and peat harvesting in other sections of the wilderness area. A bill was introduced into the Minnesota legislature which would have prevented development of the resources in this area.[7] Despite the lobbying efforts of MPIRG, both the state's House and Senate committees substantially amended the original bill, and a compromise bill banning only mining and peat harvesting was passed and signed into law. During 1976 a Minnesota congressman introduced a bill into the U. S. House of Representatives to secure full wilderness status for the entire Boundary Waters Canoe Area. During the spring of 1977 MPIRG planned to support it by working through the Friends of Boundary Waters Wilderness, a coalition of individuals and groups interested in preserving the area. Wilderness status was secured in 1978 with passage of the Boundary Waters Canoe Wilderness Act, P.L. 95-495.

The Boundary Waters Canoe Area is unlike other wilderness areas in that non-wilderness uses are permitted, including logging, snowmobiles, and motorboats. Three lawsuits have been filed challenging the way the Forest Service is administering the area. One was filed by MPIRG in 1972 in attempt to stop commercial logging in the virgin pine forest sections. Logging was temporarily halted, but in September 1976 the Eighth Circuit Court of Appeals over-

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[6]Reich, Peter, "Success on a Shoestring," *Juris Doctor*, July/August 1975, p. 46.

[7]The Boundary Waters Canoe Area Protection Act, H.F. 922 and S.F. 865, as published by the Minnesota Public Interest Research Group, Minneapolis, Minnesota in 1975.

ruled a previous district court decision, deciding that logging was legal. MPIRG attorneys have filed a petition asking the U. S. Supreme Court to hear the case. A forum was also sponsored by MPIRG at which timber companies were requested not to proceed with logging. The companies agreed to a 6-month moratorium while Congress considered the bill requesting full wilderness status.

C. Legal Action

88.3 Florida Defenders of the Environment

A coalition of volunteer experts known as Florida Defenders of the Environment (FDE) was organized in 1970. It is not affiliated with any specific academic institution or consortium of colleges and universities, but the majority of its members are university professors. Biologists, geologists, lawyers, economists, and other specialists volunteer their time and skills to support protection of environmental quality. FDE, with its headquarters in Gainesville, is staffed entirely by volunteers; funds go solely to environmental action. Monetary support comes from the $10 annual dues and other contributions.

Florida Defenders of the Environment initially concentrated its efforts on halting further construction of the $20 million Cross-Florida Barge Canal. The group published a 118-page report, "The Environmental Impact of the Cross-Florida Barge Canal with Special Emphasis on the Oklawaha Regional Ecosystem." The report was written by 26 scientists, economists, and land planners. With its issuance, the organization received national recognition and support from other conservation groups. The Florida scientific community was mobilized in an effort to encourage others to prepare similar documented reports on specific environmental problems throughout the state.

Members of Florida Defenders of the Environment provided expert testimony at a lawsuit filed jointly with the Environmental Defense Fund. This suit resulted in a temporary injunction halting construction of the Canal. Four days later, on January 19, 1971, President Nixon issued a directive to stop construction. While in 1974 a U. S. District Court judge ruled that Congress, not the President, had the authority to determine the permanent fate of the project, he also granted Florida Defenders of the Environment and the Environmental Defense Fund a permanent injunction against further canal construction, pending the preparation of a new environmental impact statement by the Corps of Engineers.

FDA specialists carefully reviewed the draft impact statement as each section became available during 1976. Hundreds of hours of free consulting time were donated to prepare critiques and make suggestions on the various subjects under review. Particular attention was paid to the sections covering the canal's impact on the Oklawaha River Valley ecosystem and the Floridan Aquifer. The economic feasibility section was carefully analyzed to ensure that the assessment of the benefit/cost ratio was up-to-date.

In September 1976 an eight-page summary of Florida Defenders of the Environment's position on the Cross-Florida Barge Canal was issued.[8] It held that although the draft environmental impact statement "contains much information confirming FDE's contentions that the canal project is economically and environmentally undesirable, it also has serious deficiencies." These were listed and explained.

FDE scored a major victory in mid-December 1976 when Florida's top state officials voted six to one against completing the project. In addition to recommending that Congress deauthorize it, the Cabinet directed the Department of Natural Resources to head a state-federal task force to restore land damaged by already constructed portions of the canal.[9]

In addition to providing expert testimony on other issues before U. S. Congressional committees and commissions, FDE experts have presented testimony at major state hearings, including those on the Big Cypress and the Ocala National Forests.

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[8]See Technical Appendix 88.6(g).

[9]"Cross-Florida Barge Canal Loses, 6-1," *Gainesville Sun*, December 18, 1976, Gainesville, Florida.

The FDE has also designated an innovative program to assist elected officials in making informed decisions. An editorial board of volunteer experts reviews the current literature and prepares abstracts of pertinent environmental information. These abstracts are sent to teams of citizens who bring them to the attention of elected officials in their districts.

Florida Defenders of the Environment received a commendation from the Council on Environmental Quality stating

> Citizen participation is absolutely essential if our participatory democratic system is to work. Nowhere is this principle better or more forcefully illustrated than with environmental concerns. It was the citizens' concern--not that of government--which brought about the tremendous environmental gains of the early 1970s. It was the citizens' concern expressed effectively to their congressmen which led Congress to pass the landmark environmental laws that we have--sometimes over the direct opposition of the administration. It has been citizens' participation at the local level--as FDE has been doing--which has resulted in the environmental laws becoming effective.

In achieving these goals, Florida Defenders of the Environment has worked with other conservation organizations, including the Florida Audubon Society, Sierra Club, and the St. Johns River Coordinating Council. Individual members serve on many environmental advisory boards throughout the state.

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James D. Williams, Ph.D.
Fish and Wildlife Service
Office of Endangered Species
U. S. Department of the Interior
Washington, D. C. 20240
(703) 235-1975

Katharine H. Bowers, Executive Secretary
Florida Defenders of the Environment, Inc.
P. O. Box 12063
Gainesville, Florida 32604
(904) 372-6965

Michael Milgrom, Staff Attorney
Minnesota Public Interest Research Group
2412 University Avenue Southeast
Minneapolis, Minnesota 55414
(612) 376-7554

Citizen Action Group
1346 Connecticut Avenue, N. W.
Washington, D. C. 20003
(202) 833-3934

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(e) Anderson, Jack. "Student Activism: 'Idealism is Not Dead'." *The Washington Post* (Washington, D. C.), September 22, 1976, B8.
(f) "Cross-Florida Barge Canal Loses, 6-1." *Gainesville Sun* (Gainesville, Florida), No. 166 (December 18, 1976).
(g) "Summary of FDE's Position on The Cross-Florida Barge Canal." Florida Defenders of The Environment, Inc. (FDE): P. O. Box 12063, Gainesville, Florida 32604, September 1976.

Part Twelve

The Role of Local Governments

Chapter Eighty-nine

Introduction

A. Overview

B. Level of Activity

C. Local Government Characteristics

89.1 Diversity
89.2 General purpose activity
89.3 Flexibility

D. Local government funding

E. Information and bibliography

89.4 Bibliography
89.5 List of technical appendices

A. Overview

Local governments discussed in this section include the general governing units of counties, cities, and towns, as well as specialized administrative boards and other units brought into existence or given authority to operate in a more limited jurisdiction than a state. Covered are all governmental bodies except federal and state governments and their associated administrative units.

The number of such local governments in the United States is enormous. There are over 3,000 county governments alone, which account for approximately 4 percent of all local governments.[1] Because of this huge number, a comprehensive survey of all local governments was not attempted. The information for this section (Part Twelve) was obtained by contacting over 150 individuals, institutions, associations, and local governments active in natural area or open space preservation. Individuals were asked to describe local programs with which they had some familiarity; local government administrators described their involvement in natural area protection.

The role of local governments in natural area protection is varied, as might be expected from the number of different units involved. Because local government units are not organized along departmental lines or according to an administrative hierarchy, it is difficult to compare and classify the variety of programs for natural area protection they do undertake. In general, the shared characteristics in local government natural area protection are methodological rather than jurisdictional. The two large urban systems discussed in Chapter 93 are involved in a significant way in natural area programs. Most other local governments are far less active.

Local efforts are examined here in terms of the "tools for preservation" which they use. While these tools may vary somewhat in their specific application, they do have a number of discrete attributes which can be classified. These will be described generally and are illustrated by specific examples in this section.

[1]National Association of Counties, From America's Counties Today, 1973, Washington, D. C., pp. 1, 5.

B. Level of Activity

The importance of local governments in the total effort to protect natural areas is difficult to gauge. One reason is that there is no generally accepted unit of measure. To a local government, a "natural area" can include places of critical biological and ecological significance, or open spaces of no particular significance which are kept in their natural condition. The type of protection which local governments can provide varies from mere concern for natural area preservation to the operation of a system which permanently preserves land in a natural state. In addition, as states have become more active in legislating the protection of natural areas, local governments have become more involved in the administration of programs that are not really local in nature but which would not be workable without a local component. This joining of local and state programs increases the importance of local activities but does not produce results solely attributable to local action.

In terms of numbers, local governments sponsor more natural area acquisition projects than state governments and their agencies but are involved with less acreage. One indicator is the number of projects funded by the U. S. Department of the Interior. The Department maintains records of projects it has funded by intended use of the land included in the project. Of those projects with a natural area component funded before September 30, 1976, approximately 700 were sponsored by local government and approximately 600 by state governments or agencies.[2]

The records do not indicate the acreage of the natural area component of each project funded, so a comparison of protected acreage is impossible. However, total acreage in state projects is much greater than in local ones, assuming a comparable proportion of natural area to other components in state and local projects.

[2]See Technical Appendix 89.5(a).

Clearly, though, acreage acquired is not the only factor to consider in measuring the importance of natural area protection by local governments. Local governments are probably in one of the more critical and difficult positions for protecting natural areas. Local government exists in areas where the human population is large enough to require natural area protection. Because they tend to be in more populated areas, they are necessarily involved in protecting areas that are most immediately threatened by development.

In terms of their potential role, it cannot be denied that one of the major roles of local governments for protecting natural areas can be to consider significant ecological areas in existing regulatory-permitting processes. The extent to which this is done was not analyzed for this report.

89.1 Diversity

The thousands of local governments in the United States do not share a systematic method for dealing with natural area protection. One reason for this is that there has never been a mass popular outcry to save natural areas. Therefore, there has never been a commonly understood definition of the purposes of natural area protection that local governments could identify with and act upon. In general, natural area protection concerns have been the domain of the scientist and only recently have become popularized. Another reason is that local governments have neither had the resources nor been in a position to identify areas worthy of protection. In general, the inventory and selection processes for areas which protect a state or nation's natural diversity require greater than local perspectives. A state or national program could indicate to a local government what natural features to look for and protect, but it has only been with the advent of national and state heritage programs and federal endangered species programs that this level of identification has been made possible. The result has been that local governments normally become interested in natural area protection only when it is expedient or popular.

Although broad programs that plan for or aid in the preservation of natural diversity may be initiated locally, in most cases they are based upon state or federal statutes. Florida's Land and Water Management Act,[3] for example, requires that local governments with jurisdiction over specified areas which are of critical concern to the state enact land use regulations based upon land management principles devised by the state land planning agency. Because there is very little official horizontal coordination between local governments which would allow local agencies to act upon regional problems, state governments, regional commissions, and private associations of government agencies such as the state associations of conservation commissions in New England can and are acting to coordinate local governments to deal with problems of greater than local scope.

Where local agencies do not act together, the normal course is for governments to handle the most visible aspects of open space and recreation problems before tackling the more critical but less visible problems of preservation of diversity. To date it is not accurate to describe local governments in any way coordinated to fill in the gaps in the overall effort to protect natural diversity in the United States. Although in fact local governments may fill gaps, they do not do so by design or in conjunction with an overall program.

89.2 Natural area/general purpose activity

Local governments have more limited administrative capacity than state and federal governments. In most cases no specialized local agency exists to deal just with natural areas. The emphasis locally is upon preservation activities which are both direct and visible. Visibility is usually associated with providing visitor use and recreational opportunity. For example, the Essex County Park Commission which maintains five areas that could be classified as natural or quasi-natural, summarizes its philosophy in the introduction to its biannual report for 1973-1975:

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[3]Florida Environmental Land and Water Management Act, c. 380, Florida Statute.

> The Park System exists neither as a static monument to the past nor as an environmental museum in which nature's gifts can be seen but not utilized. Rather, it is a "living and growing" Park System that continuously interacts with the needs of the many and varied publics for whom it functions . . .[4]

Local governments are likely to limit their actions to general projects with a scope broader than natural area protection. Special programs for such purposes have not usually been designed because preservation of natural diversity has a comparatively narrow base of support and local governments have relatively low administration and fiscal budgets. While there may be programs that include natural area protection, that is not their sole focus.

Protection of property which may contain natural features of significance by local governments is usually done to allow for its development as a park or nature center. The primary purpose is to provide the community with educational opportunities rather than to preserve natural features, *per se*. Two of the areas discussed here--the Mobile, Alabama, Environmental Study Center and the Schenectady County, New York, Natural and Historic Preserve--are for educational purposes or have educational components. While they are managed so as to maintain an environment apparently unaffected by man, some natural processes such as natural succession are still controlled to provide educational demonstrations.

Compromises between satisfaction of public demand and maintenance of "pure" natural areas can be found in most local parks. Although the natural area components of parks are to be protected from adverse impact, they may also have to be available for passive recreation or other uses. One method to minimize any impact is to designate special areas for natural area management which are kept closed to all activities that would change the natural characteristics.

Local governments were found to be most active in natural area maintenance when that activity provided direct, tangible benefit to the community, though there are exceptions. The borough of Stone Harbor, New Jersey, has a bird sanctuary that draws up to 130,000 bird-watchers each year. The area is fenced to preserve its capacity to attract birds.[5] In Boulder, Colorado, where there is a strong popular support for environmental protection, the county has taken steps to develop a system for natural area protection. It has formally adopted six natural area studies conducted by the University of Colorado as guides for natural area acquisition.[6] The norm for local governments, though, is to combine projects that result in natural area protection with programs that are likely to be directly appealing and useful to a local constituency.

89.3 Flexibility

One important difference between local programs and those administered by a higher level of government is that at the local level there is more opportunity for citizen participation and input into decisions on a particular piece of property. There may also be more options available for preservation. Communication with the owners of land may be easier, and local entities may have fewer procedural requirements. For example, the Rockland Conservation Commission in Maine was able to get good results by notifying and encouraging landowners to act voluntarily to preserve land. Flexibility is a characteristic of most local government systems, especially in smaller jurisdictions. Even with large local systems, efforts to preserve natural areas may be more innovative and imaginative than those of federal or state governments.

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[4]Essex County Park Commission, "A Touch of Sanity," *Bi-Annual Report of the Essex County Park Commission 1973-1974, 1974-1975*, Newark, New Jersey, 1975, p. 3.

[5]"Stone Harbor Bird Sanctuary," Borough of Stone Harbor, Stone Harbor, New Jersey.

[6]Will Ulman, personal communication, January 1977.

D. Local Government Funding

Funding for local government activities is likely to come from a variety of sources. Traditionally local governments have obtained revenue principally from real property taxation and funds distributed by other levels of government. The origin of funds for natural areas is the same. One problem with preserving land in a natural state is that it is no longer taxable at its previous high rate. Local governments with no special sources of funds for natural areas may feel the cost of saving a site twice: first when it is set aside and there is the loss of potential tax income; and then, because of the expense of management. If the land must be purchased, an additional cost for acquisition is involved.

However, development of land for non-natural area uses also has costs, often ignored because of the increased tax base. The true price of preservation should, therefore, be computed as the amount by which preservation exceeds that of development. Under special circumstances it may, in the long run, be economically more beneficial for a community to keep an area in its natural state than to allow development for some other purpose. For example, The Nature Conservancy has been involved in a project in the Virginia Barrier Islands which required purchase of land for preservation in its natural condition. Although this type of purchase may have reduced the taxable land base, the research activities and payroll generated by the site caused an overall increase in the area's income.[7] Even where preservation does not generate additional income, it has the advantage of not generating additional costs that could result from developing land with distinctive natural features for alternative uses. Typical development costs include additions of educational facilities to handle the increase in population resulting from development, other public facilities, and public services such as policy and fire protection, recreational opportunities, transportation, and local administration.[8]

On the other hand, if a local government wishes to acquire property for natural area preservation, it is possible to obtain financial assistance through programs sponsored by state or federal governments. For example, the Land and Water Conservation Fund, administered by the Department of the Interior, provides matching grants-in-aid for the acquisition and development of areas and facilities for outdoor recreation at the state and local levels.

Recreational use is defined broadly enough that natural area preservation can be included under the program if the area provides for educational or other non-destructive recreational activities as well. Projects can be sponsored by local government through the Department of the Interior's representatives in the states, the "State Liaison Officer." Similar state initiated programs are available to provide financing or incentives; one such is the Green Acres program in New Jersey.

One result of the increased ability of local governments to pay for development of outdoor facilities is that in general local parks and recreation programs are becoming more important. County expenditures for parks and recreation have increased more rapidly than expenditures for any other function of county government.[9] This is perhaps the beginning of a trend away from the project-centered natural area programs typical of the past. The increased leisure time of most of the population, higher incomes, and increased mobility may also be leading to more emphasis on open space in general and recreation in particular.[10]

Where funds cannot be secured from a higher level of government, some local governments have reported problems convincing constituents that a particular piece of property that appears to be nothing more than open space is worth saving. In Holden, Massachusetts, for example, the Conservation Commission has

[7]The Nature Conservancy, The Virginia Coast Reserve Study, Arlington, Virginia, 1976.

[8]The Nature Conservancy, "The Hidden Costs of Development," Arlington, Virginia.

[9]National Association of Counties, From *America's Counties Today*, 1973.

[10]*Ibid.*, p. 44.

found a strong feeling on the part of the public that there appears to be plenty of open space and that preservation is not necessary.[11] This sentiment is most common in rural areas.

Another problem faced by local jurisdictions is that because there are state and federal programs which can protect areas as effectively as local ones, local governments are encouraged to adopt a wait and see attitude. This was the case with efforts to preserve Thorn Creek Woods near Chicago. Local and state representatives each waited for the other to make the first commitment.[12] While waiting does not cost anything in real terms, it can potentially result in an area of known significance being lost.

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[11] Hilda M. Appleton, personal communication, February 1977.

[12] Platt, Rutherford H., *Open Land in Urban Illinois: Roles of the Citizen Advocate*, Northern Illinois University Press, 1971, p. 43.

Chapter Ninety

Notification/Education

A. Introduction

A number of local governments or agencies authorized by local governments have conducted inventories of the natural features in their jurisdictions. In some states such as Oregon and Colorado this has been done in response to requirements of state laws calling for protection of specified areas by local units of government. The inventories have provided local governments with a list of the locations of rare or unique ecological features in their jurisdictions.

Because most land in local jurisdictions is privately owned, many of the identified features are found on private land. Having this information provides local governments with an opportunity to tell landowners of natural features on their land of which they are unaware. Once notified, the owner might be prompted to manage the land so as to protect those elements of natural diversity.

On the other hand, if the occurrences of significant features are perceived as a threat to the property's development potential or marketability, notification may hasten destruction of the very features which the local entity wishes to see protected. Consequently, some local governments have attempted to keep secret the locations of unusual species of plants or animals identified in their jurisdiction. For example, an inventory of areas of environmental concern or potential concern prepared by the Herkimer-Oneida, New York, Counties Comprehensive Planning Program identifies the existence of areas of significance, but keeps their exact location classified.[1] The fear is that if the locations were made known, collectors or careless observers might destroy some fragile species or habitats.

In general local governments do not engage in the type of notification most likely to be successful--personal contact with a landowner to inform him of the significant natural features on his land. Such notification is more commonly carried out by private organizations with an interest in persuading owners to cooperate in conservation.[2] An exception to this general rule is the personalized notification often carried out by some less formal government agencies, such as the New England Conservation Commissions. The Rockport, Maine, Conservation Commission project discussed in this chapter is an example.

What is more typically done by local governments, however, in the way of notification, involves more general programs of environmental education and consciousness-raising. The value of such efforts is difficult to judge and may be somewhat low in the short-term. However, public education programs like that of the Mobile County, Alabama, Public School System (see Section 90.2) do serve to make people aware of the interrelationships of natural elements. It can be argued that development of this awareness, especially in younger people, should make notification a more effective tool for the preservation of natural diversity on lands in private hands. The educational programs of local governments, therefore, are important in any analysis of the environmental protection mechanisms of local government because public education of one sort or another is the technique most commonly used by local agencies concerned with environmental protection. In New York, for example, a list of programs prepared by the state for its Environmental Management Councils in 1976 showed that 20 of the 25 councils carried out educational activities.[3]

The success of notification as a means of preserving natural areas is related to the relationship existing between the notifying agency and the landowner. Because government taxes property and enacts zoning laws, an adversary relationship may exist between it and a property owner which could make it difficult to persuade an owner that he should cooperate in the wise use of his land.

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[1]Herkimer-Oneida Counties Comprehensive Planning Program, Areas of Environmental Concern: Areas of Potential Environmental Significance in Herkimer and Oneida Counties, Utica, New York, 1975.

[2]See Chapter 69: Notification.

[3]New York State Department of Environmental Conservation, *Environmental Management Councils in New York State: A Summary*, Albany, New York, February 1976.

B. Notification

90.1 Rockport, Maine, Conservation Commission—The Rockland Bog

(a) Background

In the New England states, conservation commissions have been organized which may be in a better position than other government agencies to gain cooperation from citizens for voluntary land preservation. The commissions in Maine were authorized by legislation enacted in 1965 in response to the increasing development of the state. Municipalities were granted authority to establish commissions which would have responsibility for coordinating the activities of local conservation organizations, for conducting research into local land areas in conjunction with planning boards and for making the results of the research public. In addition to these traditional functions, the commissions were to

> . . . have the care and superintendence of the public parks and, subject to the approval of the municipal officers, direct the expenditure of all moneys appropriated for the improvement of the same.[4]

The conservation commissions are designed to work closely with local governments and, at a minimum, serve as advisory boards for problems involving land use and the environment. Natural area protection falls within the scope of commission responsibilities.[5]

Commission officers in Maine are unpaid. Municipalities may appoint five members to serve for three-year terms. Their responsibilities, by statute, are to research and coordinate conservation activities, to index all open spaces within their jurisdictions with a view to recommending action by the municipality, and to publish their findings. Commissions may acquire land in the name of the municipality for preservation purposes, although they have not yet done so very widely. The program is still relatively new, and most commissions are inexperienced with acquisition.

In their educational advisory capacity, Maine commissions have worked with both governments and the public. In 1976, for example, representatives from 70 towns participated in a natural resources inventory class sponsored jointly by the University of Maine and the Maine Association of Conservation Commissions.[6] Generally, the early value of commissions wherever established has been to delineate natural resources problems. Doing so has forced governments to deal with them.[7] Maine commissions have also created a public awareness of preservation needs and methods for setting land aside.

Part of the success of the New England commissions may be attributable to a strong tradition of local government, but equally important is the relationship between them and local governments and planning boards. Because the relationships may vary, successes may also vary. Relations are influenced by the personality of commissioners, by technical competence, and by the amount of communication between commissioners and other officials. In Maine, for example, these relationships run from outstanding to poor.[8]

Commissions in Maine are unusual in that, although they operate with little official power, they have organized both citizens and government toward the goal of saving valuable natural areas from destruction.

(b) Illustrative example: Rockland or Oyster River Bog

The Greater Rockland, or the Oyster River, Bog consists of 6,000 acres in the townships of Rockport, Warren, and Thomaston, Maine. About two-thirds of

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[4] 30 Maine Revised Statutes, Section 3851.

[5] Scheffey, Andrew J., *Conservation Commissions in Massachusetts,* The Conservation Foundation, Washington, D. C., 1969, pp. 36-45.

[6] Dow, Sterling, III, *Newsletter,* Maine Association of Conservation Commissions, No. 15, Spring 1976, Kennebunkport, Maine, p. 1.

[7] *Op. cit.*, Scheffey, p. 36.

[8] Dow, Sterling, III, Executive Director, Maine Association of Conservation Commissions, Kennebunkport, Maine, personal communication, February 1977.

the greater bog is in the city of Rockland. It is a wetland area formed from a dead lake overgrown with a soggy blanket of peat moss. In places the peat deposits are up to 20 feet thick. The area has been of historical importance since before it was settled by the Europeans and supports 25 tree species and several hundred types of plants. It is one of the last large wild areas remaining in that part of Maine.[9]

To preserve it, the Rockport Conservation Commission engaged in a large-scale education effort aimed at making people aware of the bog's importance as a wild, natural resource and significant historical resource of the area. The newly-formed commission had made some efforts to work with the local governments in the area, but was most successful when it concentrated its efforts on organizing and persuading some 60 persons who held property interests in the bog to take the initiative in its preservation.[10] The key to the effort was to present the case for the bog so that owners were encouraged to become personally involved in planning for preservation.

The first step had been to survey the environmental resources. Based on that effort the commission concluded that the bog was the most valuable and perhaps most vulnerable property in the area. In early 1975 it formed an *ad hoc* study group composed of representatives from the communities that had an interest in the bog. The purpose was educational.

> Our purpose was originally--and remains--one of education. It is not our intent to advise other communities in the area on how to proceed to preserve the wild character of this tract. However, we do appeal to the citizens and landowners in the Bog to consider the dangers of non-action. Here in Maine, we still enjoy the luxury of time to plan for the wisest use of our undeveloped land, but we cannot wait for future decades to solve today's problems. The experiences in other sections of the nation have demonstrated that massive development is all but irreversible.[11]

With the active support of one of the largest landowners of the bog, the conservation commission and the study group were able to put together an audio-visual presentation and booklet[12] featuring the bog. The booklet presented the history of the area, along with notes on the plants, birds, and mammals found there. Some 2,000 people in the area were made aware of the bog through the efforts of the commission and the study group, and many developed a sense of responsibility toward the land.[13]

The educational effort also included brief explanations of conservation easements and Maine land use laws which could be applied to secure permanent protection for the bog area.

The original study group has now been replaced by the present association, incorporated as the Oyster River Bog Association. It consists of bog landowners and other interested persons and is carrying on the original purposes of preserving this natural area. The Association encourages conservation easements and recommends putting the land under the protection of the Tree Growth Tax Law[14] and the Farm and Open Space Land Law.

The Conservation Commission has not taken any easements itself and will probably not do so, but will arrange for the township of Rockport or the state Department of Inland Fisheries and Game to take them.[15]

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[9]Rockport Conservation Commission, "A Special Place: The Study of the Oyster River Bog," Town of Rockport, Maine, pp. 6, 7, 13, 14, and 25.

[10]Lew Deitz, Chairman, Rockport Conservation Commission, Rockport, Maine, personal communication, February 1977.

[11]*Op. cit.*, Rockport Conservation Commission, p. 3.

[12]See Technical Appendix 90.6(a).

[13]Dietz, Lew, personal communication, February 1977.

[14]Maine Revised Statutes 36:571-584 provides for a reduction in taxes to land with trees.

[15]Dietz, Lew, personal communication, February 1977.

C. Education

90.2 The Mobile County, Alabama, Environmental Studies Center

Mobile County, Alabama, has developed an Environmental Studies Center under the control of the Board of School Commissioners of the county.[16] The center is located on a section of property originally set aside for school use by the U. S. Congress in the 1800s.

Two-fifths of the 640-acre tract is classified as a "natural area." It consists of relatively undisturbed pine and bay forests and is used as a feeder zone for wildlife and as a study area for natural history projects. The rest of the tract consists of an instructional area, where most student activities take place, and a "management area," a section of land covered by long leaf pine which serves as a study site for basic forest management. A 20-acre lake in the instructional area is used for basic ecological studies. Nature trails are located near the lake and are used for access to natural habitats and for field exercises. Although there are similar environmental education programs elsewhere, Mobile's is one of the most extensive.[17]

Interest in a site for outdoor and environmental education was first indicated in 1965, spurred initially by a federal curriculum development grant. By 1970 the School Board had undertaken surveys and begun consultation with the University of South Alabama concerning land use for the center. By 1973 members of local conservation agencies, educational institutions, industries, and government had become involved in planning the center, the physical facilities needed, and the role that it would have in the instructional program. A committee consisting of members of the faculty of the University of South Alabama and Mobile College was established to analyze the habitats on the center and make recommendations for the use of the area, considering its resources.

Nature trails and markers were added in 1974. By then the approximately 4,000 students had made educational field trips to the site. In 1975 the School Board granted $250,000 for improvements. An instructional building was also scheduled to be built, to be completed and ready for use by September 1977.

The center is used for day field trips for students in grades 1, 3, 5, and 7. The trips are geared to supplement the material that is taught in the Mobile school system. For example, basic concepts such as the idea of change in nature are taught at the elementary levels and illustrated by occurrences at the center. More advanced classes perform soil analyses, studies of the dynamics of natural communities, and research into soil erosion.

Tours of the center are conducted by special environmental education staff or by regular classroom teachers, depending on the availability of the special staff.

90.3 Summary

The education and notification programs in Rockport and Mobile illustrate two quite different techniques that local units of government have used to make people aware of the natural environment around them.

The result of the Rockport notification effort can be seen in the actions of the owners of the bog who were motivated to preserve the area. Rockport's project did as much as could be reasonably expected from notification: it made the owners aware of the need to protect a valuable resource and offered them assistance in doing so while the property remained in private ownership.

Mobile's program is so new that no results have yet been seen. However, even after it has been in operation for several years it is unlikely that its impact on preservation of natural areas will be measurable, since the program is designed to educate rather than motivate preservation activities.

While education is not equivalent to notification, it may create a desire by

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[16] Scott, David L., *Administrative Concerns Inherent in Design of Multidisciplinary K-12 Environmental Study Center* (mimeo), Mobile County Public Schools, Mobile, Alabama.

[17] David L. Scott, Environmental Education, Board of School Commissioners of Mobile County, Mobile, Alabama, personal communication, March 1977.

individuals to exercise prudent land stewardship and may create an atmosphere of support for public preservation efforts such as acquisition and dedication. General education is probably the least certain and least immediate of all methods of natural area protection, and it is not necessarily the most inexpensive. Notification efforts that directly involve property owners are more measurably effective in the short-term.

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90.4 Key information contacts

Lew Dietz, Chairman
Rockport Conservation Commission
Town of Rockport, Maine 04856
(207) 236-3575

Sterling Dow III, Executive Director
Maine Association of Conservation Commissions
Box 347
Kennebunkport, Maine 04046
(207) 967-3705

David L. Scott
Environmental Education
Board of School Commissioners of Mobile County
Box 1327
Mobile, Alabama 36601
(205) 438-6011

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Chapter Ninety-one

Registration/Designation

A. Introduction

A wide range of programs exists which could be described as systems for registration or designation. These range from programs which maintain unofficial inventories or lists of the natural resources in an area with recommendations as to their use to programs which maintain official lists or designations and require an agreement between a property owner and the agency maintaining the registry or managing the designated sites. The common characteristic of registration/designation programs is that they operate to give some official recognition to an area with unique, outstanding, or fragile natural features.

Listing, designation, and registration are somewhat similar to notification in that

(1) they depend for their success upon the voluntary cooperation of a landowner;[1]

(2) they provide no legal guarantee that the listed property, public or private, would be maintained in any particular state.[2] The only protection comes from public attention and pressure on the voluntary cooperation of the owner. The only sanction which can be applied when an action destroys the natural significance of a listed property is to remove it from the list.

Nevertheless, listing still can help by assuring that a valuable area is not destroyed accidentally because no one is aware of its significance.

> The alternative to the listing of areas of potential environmental significance is not to list these areas. This alternative is untenable in that it could result in the destruction of environmental areas simply through the ignorance of their environmental significance.[3]

Identification and listing of natural areas can also provide a focus for general community concern about environmental preservation and enable more rational decisions to be made about natural area preservation. Given that monetary constraints will in most cases preclude preservation of all desired areas, communities and local governments can be aided by establishing a realistic set of priorities. This set of priorities can usually be derived from inventories of natural areas conducted by federal, state, and (rarely) local groups. These inventories generally include the information government officials need to make intelligent choices.

As a case in point, ratings were assigned to natural areas identified in New Castle County, Delaware:

> An advisory committee was assembled to assist with the study. This committee has rendered invaluable service in review, consultation, and supply of information. Criteria were developed to provide a basis for on-site judgment of each area. These include: air quality, water quality, noise level; visual appeal, degree of recent or unhealed manmade disturbance, unusualness, rarity, or uniqueness, educational potential, research potential, and, where applicable, forest maturity.
>
> Field survey by a research team was followed by a numerical rating of each area. Based upon the numerical rating an index was developed for purposes of assigning a broad priority ranking.[4]

In another example, the Conservation Commission of the Town of Lincoln, Rhode Island, after completing an index of open spaces within the town, developed a list of areas that warranted priority attention for preservation:

> This section includes a priority listing which considers among other things, active recreation requirements, protection and preserving of significant natural resources, and

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[1]See Chapter 90.

[2]See Chapter 70 for a discussion of one voluntary program: The National Natural Landmarks.

[3]Oneida County Environmental Management Council, "Areas of Environmental Concern: Areas of Potential Environmental Significance in Herkimer and Oneida Counties," 1975, p. 52.

[4]Delaware Nature Education Center, "New Castle County Natural Areas Study," 1975, p. 1.

fiscal resources of the community. The priority listing is intended to be flexible in order that it can be adjusted within the framework of the existing capital budget program and to take advantage of other methods of protecting and acquiring areas either through easements, first refusal, donations, subdivision requirements, or through the zoning ordinances.[5]

As mentioned earlier, identification in a local inventory does not in itself protect an area. Identification simply creates awareness of the need for protection. In the Lincoln, Rhode Island, inventory, for example, 11 areas were assigned priority. Of these, two have been purchased by the town, two have been protected by the state wetlands act, one has been donated to the town, two are under study or being negotiated for by the state, and one has become the subject of a combined effort of a committee of private individuals organized by the Urban Field Center of the University of Rhode Island who want to preserve it for historic and natural area purposes.[6]

B. Types of Designation Programs

Some local governments participate in listing or registration programs carried out by other levels of government. For example, 14 sites totaling 10,442 acres listed on the National Register of National Natural Landmarks as nationally significant are owned by local governments who have signed registration agreements. However, local government owners of another 12 sites totaling 46,894 acres registered as National Natural Landmarks have not been willing to sign protection agreements.[7]

Lands of local governments have also been designated for special treatment under other state or federal registration programs. For example, Marinette County, Wisconsin, had a 40-acre tract designated as a scientifie area under the Wisconsin Scientific Areas Program of that state.[8] Once so designated, management of the area is arranged by the state Scientific Areas Preservation Council; sites designated as scientific areas can be used only for scientific research, as habitats for rare and vanishing species, as places of natural and historic interest, and as living illustrations of the state's original heritage.[9]

In other localities, local governments have set up designation programs in order to classify or restrict their own lands for special management and preservation. The Hamilton County Park District in Ohio, for example, has a procedure for designating outstanding natural areas in its park system as nature preserves and wildlife sanctuaries so they will remain in a natural state and not be used for recreation.[10]

Local governments frequently collect information about natural resources in conjunction with other physical planning programs. However, there is no evidence of local governments establishing a formal process for registering privately owned natural areas to encourage voluntary conservation efforts.

While simple educational approaches to encourage private conservation efforts can be effective and involve minimal costs, local governments have traditionally focused on direct acquisition or regulatory approaches to resource protection.

Local planning and zoning programs generally focus on so many competing issues such as tax base, schools, public safety, etc., that specific natural areas receive little or no direct attention. Local officials also may feel that natural area protection is the responsibility of the state or federal government. Nevertheless, the absence of formal programs to promote voluntary conservation efforts at the local level

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[5]Lincoln Planning Board, "Recreation and Conservation Plan," 1976, p. 31.

[6]James Ferguson, personal communication, March 1977.

[7]The Nature Conservancy, National Data Ban-, April 1977. See Technical Appendix 91.5(d).

[8]Scientific Areas Preservation Council, "Wisconsin Scientific Areas," 1973, p. 35.

[9]See Chapter 63.3, Volume II, *Preserging Our Natural Heritage*, for a discussion of the Wisconsin Scientific Areas Preservation Council.

[10]See Technical Appendix 91(a).

may be due to inadequate information about the potential for achievements.

Local capabilities, constraints, and motivations to adopt formal educational programs for private natural area protection need to be more carefully examined in relation to the potential at the state, county, and regional levels. Similarly, the need for specific enabling legislation should be examined as well as the potential for adoption of such programs under some general authority. In any case, development of some model legislation, proposed program structure, and documented case studies outlining costs and benefits could help to encourage local initiatives for natural area registry and protection through voluntary efforts of private owners.

C. Local Government Inventories

Some local governments compile lists of natural areas in conjunction with studies for comprehensive planning. These inventories are generally intended to provide a basis for decisions about desirable land use patterns. For example, two studies explained their purpose as follows. The first--

> It is the intent of this report to provide information on the Town of Holden's natural resources and to give an in-depth study into the areas of land discussed (in the report) and the reasons for proposed acquisitions or other protection.[11]

The second--

> This interim technical report has been prepared in order to gather together into one course all existing available information on those areas in Herkimer and Oneida Counties (New York) which may have some potential significance as areas of environmental concern . . . .
>
> . . . The purpose of this report is to provide a basic inventory of possible areas of environmental concern so that in the future a comprehensive list might be prepared.[12]

If an inventory is carried out locally to meet the requirements of a state law (to protect wetlands, for example), the areas designated in the inventory would receive the full protection of the state regulation. If the inventory is strictly local, protection will depend on what steps the local government decides to take. That, in turn, will in most cases depend on the makeup of the local government and the willingness of local officials to act.

Initially, identification is important in providing an official "red flag" or signal as to the environmental value of an area. The fact that a local government conducts an inventory demonstrates a realization that open space and natural areas can disappear and that plans should be made for their preservation. The introduction to the Ontario County, New York, Open Space Index puts it this way:

> On the other hand, the County is growing. Instead of farms, sparkling brooks, winding roads, animals in abundance, the County is in a metamorphic state. The "rural" atmosphere is being converted into urbanization.
>
> This metamorphic change has changed the "scene" of the County. Farmland is now converted to subdivisions. Swampland has been turned into industrial parks or shopping centers. Historical landmarks and large stands of hardwoods have been razed for new highways or apartment complexes.
>
> Fortunately, thus far, the growth in population has occurred in limited areas in the County. Unfortunately, present proposals and future plans will accentuate this growth.
>
> Knowing that growth is inevitable and not necessarily detrimental, the Ontario County Planning Board and Environmental Management Council enlisted a joint planning endeavor--indexing unique areas or sites that

[11] The Holden Natural Resources/Recreation Function Sub-Committee, "Community Development Action Plan, Natural Resources/Recreation Function," 1973, p. 7.

[12] *Op. cit.*, Oneida County Environmental Management Council, 1975, p. 1.

should be maintained for future generations.[13]

If lists are incorporated into a local master plan or official report for the general government body, they have the additional effect of bringing sites to the attention of local officials who will decide what type of development to allow and what plans to make for community recreation and conservation. In theory at least, this recognition should result in some measure of protection. The expressed intent of the authors of the Ontario County, New York, Open Space Index was to put information before official reviewers:

> The establishment of the Open Space Index is an extremely useful planning tool for local planning boards and environmental commissions. The index and priority will permit the municipality to review project proposals as they may affect the maintenance of various open space areas or sites . . .
>
> The index also will permit local governments, environmental groups, and other interested citizens to develop an active open space program in their respective municipalities.[14]

An inventory in Oneida County was also designed to produce information that would enable better decisions to be made:

> In general, this report would result in a beneficial environmental impact in that those potentially significant areas included herein will, at a minimum, be examined in detail by the appropriate environmental review agencies prior to any potential development.
>
> If this listing had not been prepared, these review agencies might not even be aware that the area in question may be a potentially significant environmental area.[15]

[13]Ontario Environmental Management Council, "Ontario County Open Space Index," 1972-73, p. 1.

[14]*Ibid.*, p. 49

[15]*Op. cit.*, Oneida County Environmental Management Council, 1975, p. 52.

D. Examples of Local Listing and Identification

91.1 Oneida County, New York, Wetlands Inventory: A Methodology for Evaluation

(a) The project

In the spring of 1975, the Massachusetts Audubon Society, the Oneida County, New York, Environmental Management Council and Utica College conducted a cooperative study of wetlands in Oneida County. As stated in the introduction to this study:

> A study was designed to bring to light the present status of wetlands in the county, identifying those wetlands that are endangered by development, that are highly valuable as a natural resource and that are desirable for preservation . . . .
>
> The findings of this study serve to increase the awareness of the Environmental Management Council and ultimately to educate the community on the wide range of values associated with Oneida County wetlands. This report should also serve as a guide to continuing wetlands evaluation for the county.[16]

(b) Inventory

Wetlands were identified in several ways: by topographic location and name, where names existed, and by type (natural, enhanced, artificial, isolated, bog, ponded streamside, or deltaic), by vegetation, by hydrologic characteristics (slope of the surrounding land, underlying geology, and soil permeability), based on information derived from water quality measurements. Unique characteristics such as glacial features, gorges, cliffs, bog plants, existence of mature forests, spawning areas, deer yards, and ornithological values were also noted. Checklists were made of the types of fish, mammals,

[16]Oneida County Environmental Management Council, "Wetland Inventory: Oneida County, New York," 1976, p. 1. See Technical Appendix 91.5(b).

birds, and plants present within an area and the areas classified according to the rarity of these elements. These checklists were not used in rating the sites.

(c) Evaluation

The criteria employed in rating the wetlands were different from those traditionally used for wetlands evaluations. Normally, wetlants are evaluated in relation to some specific attribute such as capacity for waterfowl production.[17] In this study, wetlands were evaluated in three categories:

> Each wetland was rated for its hydrologic importance, biologic value and human usage, an original category that includes educational considerations, scenic quality and recreational potentials. In this method, the character of each wetland may be quantified into three equally important categories. Subsequent comparison of wetlands will then be more meaningful and useful because distinction among three value scores allows additional, specific contrasts to be made.[18]

Wetlands were thus evaluated separately in the three categories mentioned: biologic value, hydrologic importance, and human usage (looking at surrounding land uses and accessibility to man). For each category a set of criteria was devised. A significance coefficient was assigned to each criterion in a set. For example the criteria in the biologic evaluation category were[19]

Biologic Value	Significance Coefficient
Wetland Vegetation Type Richness	3
Wetland Vegetation Subtype Richness	2
Wetland Size	2
Wetland Type	2
Surrounding Land Use	2
Vegetative Interspersion	1
Water Total Alkalinity	1
Water pH	1
Unique Characteristics	1

Each element in the set of criteria for an evaluation category is rated and assigned a subscore ranging from 1 to 5, based on the field inventory. If a wetland supports a great vareity of major vegetative types, it would be assigned a subscore of 5, which would be multiplied by the "Wetland Vegetation Type Richness" significance coefficient of 3 to produce a score of 15. The scores for each element, similarly derived, are totaled to yield an overall score. This is done, in turn, for the other two evaluation categories.

(d) Recommendations

On the basis of the inventory it was discovered that most wetlands were of the streamside variety. Additional conservation measures were recommended for rarer types such as bogs and ponded and deltaic areas.

> An analysis of value differences among wetland types is presented . . . Similarly, individual wetland value ratings are presented . . . Only the deltaic wetlands scored consistently high in all three categories. It is recommended that they be considered for protection and possible acquisition. Immediate action is needed for those like the Mohawk Marsh, that are found in urbanized areas of the Mohawk River floodplain.[20]

Especially fragile areas were identified and recommended for passive and recreational uses that would not affect the area, although public access is an

[17] *Ibid.*, p. 4
[18] *Ibid.* See Technical Appendix 91(b).
[19] *Ibid.*, p. 19.

[20] *Ibid.*p. 26.

important local government consideration. The study indicated that almost all wetlands were potentially valuable for human use.

> All wetland types appeared to score well in human use evaluation suggesting that wetlands, regardless of their origin or position in the landscape, offer significant and unique natural resources to man. Ponded, streamside and bog wetlands seemed particularly important. Bogs offer several educational and aesthetic values. Due to their fragile nature and rarity, attempts should be made to set these wetlands aside for educational uses and nature study.[21]

91.2 Holden, Massachusetts, Inventory

(a) Introduction

A Natural Resources/Recreation study was undertaken by Holden, Massachusetts, as part of its Community Development Action Plan. The study was divided into three phases. The first involved the collection of raw data such as location, size, and types of natural resources in the jurisdiction. The second consisted of an evaluation of the data in terms of realistic goals for town development and the development of recommendations. The third was implementation of the recommendations.

The study began with the identification of the town's natural resources and conservation and recreational needs. Six objectives were devised for achieving community needs.

> (1) The protection and development of water resources.
>
> (2) The development of human resources through the expansion of year-round recreational opportunities and educational programs.
>
> (3) The protection and development of land for special use.
>
> (4) The development of an awareness, appreciation, and understanding of the town's natural resources.
>
> (5) The maintenance and improvement of the environmental quality of land, air, and water resources.
>
> (6) The protection of plant and animal communities through preservation of their natural habitat.[22]

The study evaluated potential sites according to the objectives. Priorities for protection were established based on the perceived threat to an area. Sites were then classified into four groups, with the protection priority proportional to the degree of threat. Sixty-two sites were recommended for preservation.[23]

(b) Conclusion

The Holden inventory went beyond listing--it also involved the development of a reasonable plan of action for preservation of the resources. However, there is no guarantee that the recommendations of the Holden Natural Resources/Recreation Function Sub-Committee will be followed. The opposite may be closer to the truth. The chairman of the Conservation Commission has indicated that many of the sites have already disappeared into developments and under blacktop.[24] However, the recommendations illustrate that a listing need not be confined to description but may be combined with recommendations as to the use of identified areas.

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[21] *Ibid.*

[22] *Op. cit.*, The Holden Natural Resources/Recreation Function Sub-Committee, 1973., p. 8.

[23] See Technical Appendix 91.5(c).

[24] Hilda M. Appleton, personal communication, March 1977.

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91.3 Key information contacts

Hilda M. Appleton, Chairman
Town of Holden Conservation Commission
Causeway Street
Jefferson, Massachusetts 01522

James Ferguson
25 Earle Street
Lincoln, Rhode Island 02865

Michael Gapin, Principal Planner
Oneida County Environmental Management Council
Oneida County Office Building
800 Park Avenue
Utica, New York 13501
(315) 798-5713

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(a) "Land Management Policy." Hamilton County Park District: 10245 Winton Road, Cincinnati, Ohio 45231, January 1976.

(b) "Wetland Inventory: Oneida County, New York." Bruce Gilman. Oneida County Environmental Management Council: 800 Park Avenue, Utica, New York 13501, 1976, pp. 1-31.

(c) "Community Development Action Plan Natural Resources/Recreation Function." The Holden Natural Resources/Recreation Function Subcommittee: Town of Holden, Massachusetts, 1973, pp. 27-42.

(d) Summary listing of areas designated by National Registry programs on local government land, April 1977. Unpublished list from The Nature Conservancy data bank. The Nature Conservancy: 1800 North Kent Street, Arlington, Virginia 22209.

Chapter Ninety-two

Fee Acquisition

A. Introduction

92.1 Overview

Perhaps the most obvious way to maintain a piece of land or water in its natural state is to obtain ownership of the whole fee and hold it forever. In general, acquisition is a very effective method of protection, but there are some drawbacks, the cost of purchase being the primary one for local governments.

An alternative is acquisition of a less-than-fee interest, such as the development rights, which may be a less expensive approach. The additional expense of the full fee is often based on factors which are seldom related to the land's value as a natural area and hence are not interests that have to be acquired. For example, external, man-made factors such as proximity to a center of concentrated urban population can cause the difference.

In some cases, however, it is precisely the natural beauty of an area that makes it valuable, *i.e.*, for vacation or second homes. The land is therefore vulnerable to commercial development. The development right may constitute such a high percentage of the total value that whole fee purchase appears as attractive. Partial fee prices are most likely to be highest where development offers the most return from the land and the threat of development is immediate. The same can be said of whole fee prices.

Partial fee acquisition may similarly be less desirable where it is a relatively untested method of obtaining an interest in a site, or where the rights reserved by the owner could potentially conflict with future preservation.

The benefits of whole over partial fee ownership are the greater certainty of what is owned and the probability that fewer problems will arise over use of the property in the future.

However, one weakness of total fee acquisition, even when by a governmental body, is that the agency acquiring the site may be unable to retain perpetual ownership. The amount of protection depends on the power of the agency relative to others. If others can take the land by eminent domain, the protection of fee acquisition is minimal.

Where farsighted local agencies have acquired open space greatly in advance of a demand for any particular use, taking by eminent domain is especially likely to occur. Natural areas or parklands held for long periods of time may represent a bargain for another agency needing land. While land in general will have increased in value, another agency need only pay the original purchase price, or that price plus an unrealistically low amount of appreciation. The land becomes vulnerable to a taking for adverse use.[1] A case in point was the Cook County (Illinois) Forest Preserve District. When a question of taking by eminent domain arose, the price for land within the preserve, according to the valuation formula, was set at the original price per acre plus 10 percent plus the value of any improvements. Because the district had held the land since 1914, the valuation formula provided a cheap way for other public agencies to acquire land. It also probably led them to acquire less suitable land because more suitable alternatives were more costly. In 1946 the Cook County Forest Preserve Commission passed a resolution recommending that in the future value be set at the full market price of the property plus the cost of improvements.[2]

92.2 Recreational Demand

A problem somewhat unique to government landowners is the difficulty, because of limited funding, of maintaining natural areas relatively unaltered when such lands are also appropriate for public recreation. A government may find it more politic to provide access and improvements such as picnic grounds and ball fields than to limit access and uses. Even where a local mandate allows sites to be kept in their natural condition and to be managed locally, recreational requirements may play a determining role in what land is acquired for preservation. Acquisitions of natural areas are most easily justified when they provide some educational or non-intensive recreational use to a fairly large population center nearby. Thus,

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[1]See Technical Appendix 92(a).

[2]Forest Reserve District, Cook County, Illinois, "Land Policy," Revised 1962, p. 11. See Technical Appendix 92(b).

local governments may attempt to preserve large tracts near metropolitan centers even though their natural area acquisition funds are limited and the lands being purchased are among the most commonplace and least in need of protection. This need to justify preservation points up a political reality faced by local governments interested in natural area preservation--it is difficult to preserve an area solely on the basis of unique natural features.

Once land is acquired, its maintenance may also have to be justified in terms of recreational resources. Even though passive recreational use should not be discounted as a reason for preserving a natural area, local governments sometimes emphasize accessibility and size of an area as criteria for acquisition to the extent of diminishing the importance of uniqueness and natural diversity.

Another factor that creates a greater recreational orientation is state and federal programs which provide funds for the purchase and development of natural areas. They often require showing a recreation purpose. The Heritage Conservation and Recreation Service makes grants from the Land and Water Conservation Fund for acquisition and development of recreational property by state and local governments. Although funds are available for acquisition of land for passive uses such as studies of nature and other forms of recreation which will not alter the land, a project is more likely to be considered for funding if it offers a broad variety of recreational activities. For that reason, local agencies applying for funds may propose that the land will be used in as many ways as are compatible with its capacity instead of keeping it as a natural preserve.

Local government agencies can only acquire land as authorized by law. For some natural area owners, use is mandated by statute. More often, however, an agency's authorization permits different uses. That is, the authorizing act is broad enough that use is left largely to the agency's discretion. In such cases, the success of natural area preservation will depend on the current philosophy of the agency and the views of program administrators.

The act which provided for the creation of Forest Preserve Districts in Illinois is an example of a mixed purpose authorization. It allows a district to acquire land in fee simple

> . . . for the purpose of protecting and preserving the flora, fauna, and scenic beauties within said district, and to restore, restock, protect, and preserve the natural forests and said lands together with their flora and fauna, as nearly as may be in their natural state and condition, for the purpose of education, pleasure, and recreation of the public . . . .[3]

While the statute requires that Forest Preserve land be kept in a natural state, the purposes for which it is to be used include public recreation. One district, the Cook County Forest Preserve District, has on its land golf courses, swimming pools, and nature center buildings, as well as a large amount of acreage which is not easily accessible, and by default retains its natural character. A public agency not constituted and programmed specifically to protect and hold natural areas but rather to serve recreational needs will obviously give priority to its primary interests. This has been somewhat the case in metropolitan Cook County, although the Forest Preserve Commission has taken steps to modify the impact on natural areas.

92.3 Local failure to recognize the value of natural lands

A problem for some local governments, especially small governments in rural areas, is that people live surrounded by open space and are not usually inclined to tax themselves to provide more of it for natural area preservation. In Holden, Massachusetts, the Conservation Commission reported that the residents, who are predominantly farmers, do not favor preservation of open space because so much land is in that state now.[4] This situation suggests the need to educate people that land is valuable because of

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[3]Ill. Rev. Stat. c. 57 1/2. Sec. 5. See Technical Appendix 92(c).

[4]Correspondence, Holden Conservation Commission, 1977.

its natural features and is therefore worth preserving.

It may also be that where funding is scarce and the danger of destruction not imminent, methods other than outright purchase may be equally effective. For example, notification and encouragement of proper stewardship of land in private hands could turn out to be more effective.

92.4 Acquisition using private aid

A problem with acquisition is that funds are not always available when a site comes on the market or a threat is imminent. This problem, combined with the irregular nature of the property market, means that it is uncertain whether a local government will be able to implement elements of its acquisition plan at the most economically and ecologically opportune time.

In such situations, local governments have at times sought the assistance of private landholding organizations such as The Nature Conservancy or the National Audubon Society.[5] The basic procedure is for an agency to approach the landholding organizations, usually at a local level, with a proposal that the organization temporarily acquire or otherwise preserve the property until the government is in a position to do so.

Methods of temporary preservation vary. Two of the most widely used are to purchase an option to buy the land outright, an option which is transferable to a government agency, and to purchase the land in fee simple for resale to the agency. A transaction may include provisions for leasing or subleasing structures to owners who wish to remain on the property, or may reserve a life estate for a resident on the property. Arrangements may also be made to lease the property and have it managed by a local government which will eventually take a fee interest. All these techniques are designed to buy time for a local government which could adequately maintain a natural area.

[5]See Chapter 72: Fee Acquisition--The National Audubon Society, The Nature Conservancy.

92.5 Acquisition by eminent domain

Eminent domain is the power a government has to force a sale of property even against the will of its owner. It is a procedure of last resort because it can produce undesirable delays and generate the ill-will of owners or residents. It may also anger local or municipal governments if the land to be preserved is being removed from their tax base, sometimes the case where the agency exercising eminent domain is independent of them.

On the other hand, eminent domain may be essential for the creation of a planned system of parks or protected zones. Without it, the owner of a key parcel could conceivably hold out for an unrealistic price or simply refuse to sell. Further, the potential for condemnation can motivate a negotiated sale.

As prime open space disappears and alternative sites of significant natural features are reduced, it is probable that eminent domain will be employed more frequently.

92.6 Gifts of land

Most local government agencies authorized to acquire land can do so through gifts. The success of a program to encourage donations of land will depend to a large extent on the reputation of the agency, the degree of protection it can offer, and the amount of work it does to solicit gifts. Since, in many cases, a gift implies a personal interest on the part of a landowner in the future of his land and his community, a gift acquisition program will depend more than with other types of acquisition on the goodwill generated by agency staff and their personal qualities. Smaller agencies of government with more intimate knowledge of local land and the community may be able to pursue gifts more effectively than a relatively anonymous, larger agency.

B. Examples of Acquisition

92.7 Acquisition in general

Acquisition in general seems to be most effective, or at least is carried out

most frequently in those jurisdictions where a special park or natural area agency exists apart from the general local government and where funding for land purchase is available. The agencies to be discussed in this section--the Cook County Forest Preserve Commission (in Illinois) and the Hamilton County Park Commission (in Ohio)--have been picked because they are able to acquire relatively large amounts of land, and do so fairly frequently, to set aside potential areas. In addition, both agencies appear committed to maintaining land mainly in a natural state. They are, however, atypical in that they can issue bonds independently and because their jurisdictions include large urban areas (Hamilton County contains Cincinnati and Cook County, Chicago).

92.8 Cook County Forest Preserve District

(a) History[6]

The Cook County Forest Preserve District is one of the oldest such special districts in the nation. It developed out of the urban parks movement of the 19th century in response to the rapid growth and attendant destruction of natural features in the area surrounding Chicago.

By 1890, the need for park lands had become evident. Lands to the south of the city were commonly being used for recreation, albeit without the permission of the owners. The World's Fair in 1893 led Chicagoans to develop a sense of civil pride and resulted in beautification of the city and creation of parks throughout the areas. By the turn of the century a Special Park Commission, financed by private citizens, began making annual reports on the condition of lands outside the city and addressed the necessity for parks. A plan was developed in 1903 for a belt of park lands to encircle the city.

Shortly thereafter, legislation was proposed, based on the plan, to allow outlying areas to create forest preserve districts. Although the legislation was enthusiastically supported and approved by the voters, it was declared inoperative by the governor of the state in 1906. Efforts to create forest preserve districts continued after 1906, and in 1913 an act allowing the formation of forest preserve districts became law.

The Cook County District thereafter began to acquire land though it was hindered by lack of funds. Quite early, it began to use its power of condemnation, instituting 30 proceedings by the end of 1919.

As visitor use of its land increased, the District began to make improvements to accommodate the numbers of people. Highways were built through the preserves by state and county authorities. The philosophy toward use was that all lands on the preserve should be made available to the public. However, as the numbers of people increased, this idea had to be abandoned; and the Forest Preserve Commission began restricting heavy use to specified areas so that the larger preserve could be adequately protected. Thus, from the early days the policy that gradually evolved was to preserve the land as much as possible in its natural state.

Recently, the most serious threats to the integrity of preserve lands have come from special interest groups desiring privileges beyond those granted to the public.[7] Because the authority of the Forest Preserve Commission as the governing body of the Forest Preserve District has been well-established and because the Commission does not share its powers with other government agencies, it has not acceded to those threats and has continued to meet the interests of public education, pleasure, and recreation only insofar as those do not conflict with the policy of preservation.

(b) Program objectives

The broadest objective of the Cook County Forest Preserve District, as stated in the description of the current philosophy of the Forest Preserve Commission, is to maintain the natural physical integrity of land near the Chicago

[6]William D. Hayes, Development of the Forest Preserve District of Cook County, Illinois, 1949.

[7]*Op. cit.*, Forest Preserve District, Cook County, Illinois.

metropolitan area.[8] The commission has a record of consistently opposing proposals which would require modifying the natural state of district lands. That policy goes back to a resolution adopted unanimously by the Board of Forest Preserve Commissioners on June 11, 1946. The resolution states in essence that the Commission would resist action to sever land from the Forest Preserve District and that, where an attempt was initiated by a public agency with eminent domain powers, the commission would request its advisory committee to perform "an exhaustive analysis" of the matter and place a report of it in evidence in court.[9] That resolution has established a precedent which has discouraged applications for adverse uses of the land.

The Cook County District now holds 65,000 acres of open space and is authorized to acquire enough additional land to bring its total holdings to 75,000. Acquisition has proceeded under a statute that allows the Forest Preserve Commission to acquire land capable of reforestation. Under that definition almost any open space could qualify, and in recent years much of the land acquired has been corn fields, of educational value in the short term as successional areas and in the long term as restored natural areas. The pressures of growth and use from the Chicago metropolitan area has required that lands be acquired as it becomes available in relatively large parcels rather than because of an intrinsic value as a natural area. Like other government agencies in metropolitan areas, the Cook County Forest Preserve District has had serious problems in finding any large blocks of land and has therefore been opportunistic in its acquisition policies.

Prior to a change in the statute in 1961 that allowed acquisition of land capable of reforestation as a forest or natural area, approximately 87 percent of the land in the forest preserve was relatively unaltered. Total holdings at that time were in the neighborhood of 50,000 acres. Recent purchases have diluted that percentage.

(c) Forest preserve district operations

A Forest Preserve District is an area within a county containing a natural forest or park which is incorporated as a Forest Preserve District. Incorporation is accomplished by petition and election by the voters of the county. The district is managed by a board of commissioners appointed by the head of the general governing body of the county. Forest Preserve Districts are corporate entities with powers to acquire and hold personal and real property through gift, grant, purchase, demise, or condemnation.

The purpose of the Forest Preserve District is to protect and preserve flora, fauna, and scenic beauty within the District by maintaining forest preserves as nearly as possible in their natural condition. However, there is some latitude in the uses allowed in some areas of the Preserve System. For example, picnicking and snowmobiling may be permitted. Land may be acquired to join two or more forest preserves and then be improved by forestation or construction of roads or paths to facilitate public access, enjoyment, or use. For the most part, however, the Cook County District has not carried out elaborate development on preserve lands, despite challenges by agencies and individuals.[10]

Protection results from the management plan developed by the Forest Preserve Board of Commissioners. The board is the corporate authority of the district and has the power to pass and enforce rules and regulations for management.[11] Present board policy is to oppose severance of Forest District Lands

> for . . . municipal, school, park, and similar public uses for which such public bodies have power to

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[8] Charles G. Sauers, "The Uses and Limitations of Cook County Forest Preserves," November 1, 1961.

[9] *Op. cit.*, Forest Preserve District, Cook County, Illinois, for Resolutions of the Board, June 11, 1946.

[10] *Ibid.*, for description of numerous proposals to use the land for purposes that would require a change from natural condition which have been defeated by the Commission.

[11] Illinois Rev. Stat. c.57 1/2, Sec. 58. See Technical Appendix 92(c).

> finance and acquire needed lands, and . . . [to] ask for an exhaustive analysis and report on the matter by the Advisory Committee.[12]

No legislative authority exists for agencies of the state to take Forest Preserve property by condemnation, so acquiescence of the Board is essential for any proposed uses of District lands.

Where serious attempts have been made to acquire Forest Preserve land, the board has in most cases either avoided giving any land or substantially reduced adverse impact through consultation and negotiation.[13]

(d) Acquisition of Forest Preserve land

The Cook County Forest Preserve District has been able to carry on a program of acquisition almost from its inception. The Commission is authorized by statute to acquire land that remains in a naturally forested condition or, as noted earlier, which is capable of being restored to forest. Because most land surrounding Chicago can be reforested, a great deal of land has been acquired which would not otherwise have been considered eligible.

In selecting land for acquisition, the board must consider its mandate to provide areas accessible to the public for education, recreation, and pleasure. Therefore, the land most desirable for purchase is that which can easily be reached by a great number of people. Land is also sought that is large enough to allow heavy recreational use at its fringes while preserving its interior.

Eminent domain is used more often now than in the past, perhaps because of the disappearance of suitable land. As the availability of land has decreased, it has become necessary to acquire appropriate land whether or not the owner desires to sell. Approximately 10 percent of the district's land has been acquired by eminent domain.[14]

(e) Funding

The Cook County Forest Preserve District is authorized by statute to issue bonds supported by the taxing authority of the district to be used to acquire new property.[15] As such, funds are consistently available and a continuous program can be carried out.

92.9 Hamilton County Park District[16]

(a) Background

Hamilton County, Ohio, contains the City of Cincinnati. Much of the character of the land acquisition program of the Hamilton County Park District has been and is determined by the increasing urbanization there. Land is rapidly becoming more costly; prime land is disappearing. Given these pressures, the park district has had to acquire land when it has become available or there has been an immediate threat. Unlike the Cook County Forest Preserve District, the Hamilton County Park District has not acquired land by eminent domain, although by law it could do so.

The Ohio Revised Code authorizes voters in a county who want a park district to apply to the county probate court for creation of the district.[17] Following proper notice and public hearing, the court may order its establishment.[18] The board is empowered to:

> . . . acquire land either within or without the park district for conversion into forest reserves and for the conservation of natural resources of the State . . . and afforest, develop, improve, protect and promote the use of the same in such manner as the board deems conducive to the general welfare . . .[19]

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[12] *Op. cit.*, Forest Preserve District, Cook County, Illinois, for Resolutions of the Board, June 11, 1946.

[13] *Ibid.*, for a list of requests to develop which have been denied.

[14] Roland Eisenbeis, personal communication, February 1977.

[15] Illinois Rev. Stat., c. 57 1/2, S. 13. See Technical Appendix 92(c).

[16] See Technical Appendix 92(d) for a description of Hamilton County sites.

[17] ORC S 1545.02. See Technical Appendix 92(e).

[18] ORC S. 1542.05. See Technical Appendix 92(e).

[19] ORC S. 1545.11. See Technical Appendix 92(e).

The statute itself emphasizes that park districts are primarily intended for conservation.

(b) Program objectives

The Board of the Hamilton County Park District has developed a policy of land management that centers around conservation and that emphasizes preservation of land in its natural state. The foremost acquisition priority is for areas of open space of high quality, especially natural areas.[20] Recreation is of secondary importance, and recreational facilities must be compatible with conservation of natural resources and preservation of natural areas. They are not placed in unique areas where rare flora, fauna, or geological features are present, in wildlife sanctuaries and special preserves, in areas providing unusual habitats, or in areas supporting any endangered species of plants or animals. Locations of recreational facilities are selected according to a master plan approved by the board and are built with the utmost concern for the environment.[21]

Any damage to the landscape from construction must be repaired and the area returned as nearly as possible to its natural condition. Park policy is that, on the whole, 75 to 80 percent of the total acreage of each park in the district system is to be preserved in a natural condition and never developed. However, the goal is that 80 to 85 percent of the land be kept in a natural state.[22] The overall philosophy of the board is that park district land should be managed to maintain large areas as natural ecological reserves. While it is conceivable that the management policy of the park district could change in the future, its long-term investment in a preservationist program makes a shift from its present orientation unlikely.

A site acquisition study prepared by the Hamilton County Planning Commission in 1974 and revised in 1975 set out recommendations for future park district lands in light of the growing recreational demands of the area. The study distinguished between the types of recreational opportunities to be provided.

> While regional parks will provide active recreational opportunities, their fundamental purpose is preservation and maintenance of the physical features and natural amenities of the landscape for typically less active recreational endeavors.[23]

Natural areas dedicated into the Ohio State Nature Preserve System receive the greatest degree of protection. Four areas owned by the Hamilton County Park District have been dedicated into the system and are thereby afforded more protection. According to the terms of the articles of dedication, they must remain in their natural state in perpetuity and will be protected from encroachment by the State of Ohio.[24] Property is considered for dedication according to a priority system based on (1) size of an area; (2) amount of buffer area available; (3) danger of alteration; (4) management needs; (5) presence of unique or outstanding geological or topographical features; (6) presence of rare or endangered species of plants or animals; (7) esthetic considerations; (8) amount of consideration; and (9) number of alterations.[25]

In addition to successful dedication into the state system, the park district has also made efforts to dedicate areas which have not been accepted by the state into its own system. However, efforts to dedicate into the state system will continue,[26] because of the high level of protection afforded (especially from eminent domain).

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[20]Board of Park Commissioners, Hamilton County Park District, "Land Management Policy." See Technical Appendix 92(f) for copy of Resolution of May 15, 1975.

[21]*Ibid.*

[22]W. E. Canedy, letter January 12, 1977.

[23]Hamilton County Regional Planning Commission, "Site Acquisition Study, Hamilton County Park District," 1975, p. 5. See Technical Appendix 92(g).

[24]See Volume II, *Preserving Our Natural Heritage*, Chapter 49, for a description of the Ohio Natural Area System.

[25]Ohio Natural Areas Council, "Natural Areas Priority Policy System."

[26]*Op. cit.*, W. E. Canedy.

Other land in the park district is protected to the extent that it will always be under the control of the park district. State law does not provide any method for dissolving a park district once created, and no part of a district can withdraw after establishment.[27] In 1976, total acreage in the 10 park district parks was 7,313 acres.[28]

(c) Acquisition

The Hamilton County Park District can acquire land by gift, devise, purchase for cost, purchase by installment payments with or without a mortgage, by entering into lease-purchase arrangements, by lease or without option to purchase, or by appropriation. The board is empowered to act as trustee of the land and to administer it as stipulated by a donor or as provided in a trust agreement.[29] Although there is nothing in the law which prevents the board from accepting a less-than-fee interest in land, it has not done so. The uncertainties involved, especially if the property interest were not to be held in perpetuity, would make it subject to scrutinous review before it would be accepted by the park district.

(d) Criteria for acquisition

The choice of which new lands to acquire is determined by the need for protection and size of lands available. Because the predominant purpose of the park district is to preserve natural resource areas, the primary criterion is acreage sufficient to provide a buffer space as well as a significant area for natural preservation. Small islands of land, unless they are especially unique, are not as appropriate to the purposes of the park district. However, on occasion, when areas vulnerable to development have become available, these have been purchased for preservation.[30]

To guide future park expansion in light of those criteria, the Hamilton County Regional Planning Commission developed a plan for site acquisition as part of a broader plan which formulated priorities for acquisition based on the recreational needs of the area's population. However, the plan did acknowledge the primary purpose of the regional parks in the Hamilton County Park District--preservation and maintenance of physical features and natural amenities. The planning report recommended "Each park site should be relatively large and readily accessible and still incorporate unspoiled features of the natural landscape."[31]

Because recreational uses can be controlled by the commission (as indicated by the plan), acquisition for recreational purposes is likely to be consistent with or emphasize natural protection.

Despite the publication of the location of areas in which the park district is interested in expanding, there has been no increase in speculation that tends to drive land prices up faster than normal. The park district reports that it has received some inquiries as to its potential interest in a particular piece of property, but the parties indicated only a desire to advise owners attempting to sell off the district's interest.[32]

The site acquisition plan recommended bringing the total acreage within the park district to 16,004. Eight large areas were mapped and recommended for acquisition. Eight smaller "special features areas" having special natural qualities were also recommended. The plan is now being implemented as funds become available. At this writing, approximately 2,000 additional acres have been acquired.

(e) Funding

Like the Cook County Forest Preserve District, the Hamilton County Park District is funded in part through a taxing system which authorizes the district to levy on property within the district a

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[27] 1957 OAG No. 845, W. E. Canedy letter. January 12, 1977.

[28] *Annual Report, 1976,* Hamilton County Park District.

[29] ORC S. 1545.11. See Technical Appendix 92(e).

[30] *Op. cit.*, W. E. Canedy.

[31] *Op. cit.*, Hamilton County Regional Planning Commission.

[32] *Op. cit.*, W. E. Canedy.

maximum of one half of one mill, subject to the combined maximum allowed for all purposes otherwise provided by law.[33] Since other government agencies in the area have exhausted available monies, the amount actually available to the park district is three one-hundredths of a mill.

The district is also empowered to submit a special levy to voters in the district for additional funding up to one-half of one mill.[34] The resolution to the voters must specify the purpose for which the funds will be used, and if the levy is approved, the money may be used only for that purpose.

A special levy was passed in 1973 and has produced about $2 million per year for the park district. Of this, approximately $1,200,000 annually has been used for land acquisition. One drawback has been that funding is uncertain and highly dependent upon periodic approval of the special levy.

Revenue is also generated within the park district in the form of fees charged for activities such as golf, horseback riding, fishing, and boating.

(f) Acquisition with help from private groups

In Hamilton County, the site acquisition plan called for the creation of Southeast Park, a 2,200-acre regional park fronting on the Ohio River near Cincinnati. The area was valuable for intensive residential use and therefore vulnerable to development, although not particularly unique in terms of its natural features. The objective of the Park District in acquiring the area was to protect and enhance its wild character through management and removal of some structures on the land. Proximity to Cincinnati made the land more valuable as a park district because of the number of people who would have access to it.

The land was in multiple ownership. The Nature Conservancy, a national nonprofit conservation organization, made the acquisition possible by securing the option and purchasing land for resale as it became available and before it was lost to development.

(g) Gifts of land

In the Hamilton County Park District, gifts of land in 1976 were worth approximately $360,000. The nature of the program is such that it cannot be described except in quite general terms. Negotiations with individual donors are delicate operations, handled exclusively by two individuals, and are never delegated to other staff members.

Some gifts have been initiated because of publicity which made citizens aware that a gift from them could make the district eligible for a matching grant from the Department of the Interior.[35] Private landholding organizations have aided in the acceptance of a gift of land that could qualify for a matching grant by holding land temporarily. In the Southeast Park acquisition, The Nature Conservancy held a gift for the Hamilton County Park District and transferred land to the district after matching funds were approved.

C. Information and Bibliography

92.10 Key information contacts

William Canedy, Director-Secretary
Hamilton County Park District
10245 Winton Road
Cincinnati, Ohio 45231
(513) 521-9866

Roland Eisenbeis
Superintendent of Conservation
Forest Preserve District of Cook County
536 Harlem
River Forest, Illinois 60305
(312) 369-9420

[33] ORC Sec. 1545. See Technical Appendix 92(e).

[34] ORC Sec. 1545.21. See Technical Appendix 92(e).

[35] See Technical Appendix 92(h) for example of the type of publications produced to encourage donations.

92.11 Bibliography

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Ohio Natural Areas Council. "Natural Areas Priority Policy System." Ohio Natural Areas Council, Division of Natural Areas and Preserves: Fountain Square, Columbus, Ohio 43224.

Sauers, Charles G. "The Uses and Limitations of Cook County Forest Preserves," speech presented at a seminar on the future of Northeast Illinois, November 1, 1961.

92.12 List of technical appendices

(a) "Revised Report of Advisory Committee to the Cook County Forest Preserve Commissioners." Forest Preserve District, Cook County, Illinois: 536 North Harlem Avenue, River Forest, Illinois, April 1959, pp. 10-13.

(b) "Land Policy." Revised. Forest Preserve District, Cook County, Illinois: 536 North Harlem Avenue, River Forest, Illinois, 1962, pp. 7-12.

(c) An Act to provide for the creation and management of forest preserve districts and repealing certain acts therein named, Illinois Revised Statutes, Chapter 57.

(d) "Park Guide." Hamilton County Park District: 10245 Winton Road, Cincinnati, Ohio 45231.

(e) Ohio Revised Code, Chapter 1545: Park Districts.

(f) "Land Management Policy." Board of Park Commissioners, Hamilton County Park District: 10245 Winton Road, Cincinnati, Ohio 45231.

(g) "Site Acquisition Study, Hamilton County Park District." Hamilton County Regional Planning Commission: 405 Temple Bar Building, 138 East Court Street, Cincinnati, Ohio 45231. 1975, p. 5.

(h) "Land Acquisition Fund." Hamilton County Park District: Board of Park Commissioners: 10245 Winton Road, Cincinnati, Ohio 45231.

92.13 List of Ohio Park District Sites

Site	Acres
Anderson Park	10
Bedford Reservation-Tinkers Creek Gorge	1,335
Big Creek	380
Blendon Woods Metropolitan Park	577
Blacklick Woods Metropolitan Park	633
Brecksville Reservation	2,500
Bradley Woods	751
Butler County Park District	800
Carlisle Reservation	572
Canal Lands Metropolitan Park	140
Charlemont Reservation	452
Concept Park	6
Darby Creek Metropolitan Park	120
Deep Lock Quarry Metropolitan Park	191
Donnybrook Park	5
Dry Lick Run Reserve	400
Englewood Reserve	1,000
Euclid Creek	351
Farmsworth Metropolitan Park	40
Firestone Metropolitan Park	250
Furnace Run Metropolitan Park	885
Germantown Reserve	700
Gorge Metropolitan Park	250
Goodyear Heights Metropolitan Park	372
Grant Park	60
Hampton Hills Metropolitan Park	278
Helen Hazel Wyman Park	48
Hells Hollow Park	560
Hidden Valley Park	113
Hinckley Reservation	1,890
Hogback Ridge Park	172
Indian Point Park	116
Lake Erie Junior Nature and Science Center	105
Miami Whitewater Forest	1,955
Mother Gooseland Childrens Park	4
Monument Park	16

Nimisilla Park	23
North Chagrin Reservation	1,719
Oak Openings Metropolitan Park	3,200
Old Lane Park	5
O'Neil Woods Metropolitan Park	240
Pearson Metropolitan Park	320
Providence Metropolitan Park	260
Riverview Park	28
Rocky River Reservation	5,395
Sand Run Metropolitan Park	987
Secor Park and Arboretum	500
Sharon Woods	740
Sharon Woods Metropolitan Park	760
Shawnee Lookout	1,010
Silver Creek Metropolitan Park	477
Side Out Metropolitan Park	90
Southeast Park	83
South Chagrin Reservation	614
Spring Hollow Training Center	165
Stadium Park	
Swan Creek Metropolitan Park	410
Taylorsville Reserve	1,200
Virginia Kendall Metropolitan Park	1,575
Willohaven	40
Winton Woods	2,012
Yankee Park	18

92.14 List of natural areas acquired by The Nature Conservancy and subsequently transferred to local governments

Site	Acres
Alabama	
Alabama Rock City	200
Arizona	
Phoenix Mountain Preserve	80
California	
Albert Barnitz Byrne Park	54
Boggs Lake	104
Bouverie Wildflower Preserve	16
Idyllwild-Cubarkin	1,354
Jacks Peak	55
Kent Island	110
Point Reyes National Seashore Addition	39
Riverside County Exchange-Devils Garden	320
Riverside County Exchange-Lake Cahuilla	40
Van Duzen Redwood Grove	390
Colorado	
Garden of the Gods	5
North Star Ranch	174
Connecticut	
Florida Refuge, Hayes Property	26
Holl Property	28
Musumano, Town of Avon	29
Peterson Gorge	12
Sams Woods	1
Florida	
Donnelly Property	1
Fuchs Hammock	25
Longboat Key-Binnacle Point	17
New River Natural Area	2
Sweetbay Swamp	8
West Shore Conservation	502
Georgia	
Ogeechee River Natural Area	4,235
Richmont Hill	26,154
Illinois	
Batavia Path	4
Belmont Prairie	10
Betty Irons Park Addition	2
Braidwood Dunes and Savannah	145
Camp Rotary McQueen	46
Lyons Wet Prairie Addition	72
Maynegaite Park Addition	4
Nelson Lake Marsh	175
Norris Nature Preserve	119
West Chicago Prairie	109
Indiana	
Deep River Preserve	39
Fox Island Addition	166
Kankakee Swamp Wildlife Area	940
Parsons Swamp Woods	17
Spicer Lake	90
Maine	
Cousins Island	17
Falmouth-Foreside Preserve	34
Meadow Mountain Reserve	259
Maryland	
Sullivans Cove	14
Massachusetts	
Minot Woods	47
Sharp Preserve	255
Michigan	
Avalanche Mountain	300
Bear River	7
Big Beaver Creek	16
Donahey Woods	2
Flint River	22
Grass River Natural Area	707
Holloway Reservoir Regional Park	1,537
Marion Island	201
Omena Beach	1
West Wequetonsing Nature Preserve	15
Minnesota	
Lake Elmo Project (Metro Council)	247
Missouri	
Maple Woods	41
Pleasant Valley Cave	40
Montana	
Rattlesnake Creek	8

New Jersey	
Tenafly	274
New York	
Alice Lane Poor Preserve	39
Chester M. Hare Property	76
Clausland Mountain	458
Clay Marsh	339
Dickens Preserve	4
Helen Jahn Memorial Area (Derby Hill)	35
Hoyt Preserve	46
Momsen Sanctuary	44
Wallace Property	4
William S. Clough Nature Preserve	62
North Carolina	
Hymettus Woods	5
Mountain Island Lake	427
Ohio	
Abner Hollow	922
Bradfords Tanglewood Park	83
Burger Nature Preserve	38
Buzzardroost Rock	465
Chagrin River Forest Preserve	148
Charleston Falls	169
Coppess Nature Sanctuary	32
Embshoff Nature Preserve	129
Gahanna Woods State Nature Preserve	102
Glenway Woods Nature Preserve	14
Kniss Nature Park	73
Lang Tract	13
Mentor Marsh	283
Pickerington Pond	155
Resources Center	26
Reivschl Preserve	948
Southeast Park	88
Trumbull Nature Preserve	31
Warren Wells Preserve (Beechwoods)	33
Whitacre Estate	17
Wildwood Estate	464
Withrow Nature Preserve	268
Wyoming Nature Preserve	1
Oregon	
Lower Table Rock	1,680
Wayne Morse Historical Park	26
Pennsylvania	
Rabbit Hollow Preserve	16
Vermont	
Ethan Allen Farms	158
Howe Pond State Park	594
Lake Willoughby	13
Shelburne Farms	200
Virginia	
Bull Run-Occoquan Regional Park (Webb Addition)	468
Davis Tract	50
Powell Tract	92
Ragged Island	1,475
Rann Preserve	81
Signal Hill	13
Washington	
Burnt Bridge Creek Canyon	13
Chase Lake Bog Natural Area	8
Little Spokane River Park Corridor	588
Swan Creek Canyon	38
West Virginia	
Coal River	735
Wisconsin	
Holz Island	3

Chapter Ninety-three

Dedication

A. Introduction

93.1 Overview

Dedication is a process by which uses of property can be limited to those consistent with specified purposes. What makes dedication valuable for natural area preservation is that the restrictions can be enforced legally or administratively against a property owner and cannot be changed unless a court or administrative review board finds that the change meets a definite standard of necessity.

Normally, an ordinance which establishes a dedication process also establishes how restrictions can be enforced. For example, the dedication statute in the State of Ohio contains this provision:

> The attorney general upon request of the director of natural resources may bring an action for injunction in any court of competent jurisdiction to enforce the terms of articles of dedication.[1]

Action to force compliance with the terms of a dedication agreement can be brought either by the owner of the dedicated land or by a private person who can show an interest in the dedicated property which has been or will be lost because of noncompliance.

The strength of a dedication system varies with the requirements that must be met before the dedicated property can be used for a purpose inconsistent with dedication. More rigorous requirements make it less likely that allowable uses will be changed. However, the efficacy of a dedication program should not be judged merely by the statutory standard for changing uses. While a statute may require a finding of unavoidable public necessity prior to any change in use, that standard is meaningless if such a finding can be routinely turned out. Procedural requirements may provide a better indication of strength. Where a change can only be accomplished through a process that involves a number of check and balance points, protection is probably strong.

For example, dedication programs require that articles of dedication be filed with the County Recorder and executed in the same manner as a conveyance of property. This assures that a person who later takes over a dedicated property will be aware of the dedication, making protection more certain. However, a dedication program may not require the filing of articles. The Schenectady County program discussed later is an example of one which does not.

93.2 Local government role in dedication

A local government can establish a dedication program by ordinance, or it can dedicate land which it owns into a state system. One advantage of dedicating into a state system is that property so dedicated cannot be used by the state for any purpose other than that specified in the articles of dedication. A disadvantage of a purely local dedication system is that local government which derives its powers from the state may still be vulnerable to having property dedicated into the local system taken by the state through eminent domain. In spite of this disadvantage, locally sponsored dedication can still increase the amount of protection afforded property owned by a local government.

B. A County Dedication System

93.3 The Schenectady County, New York, dedication system

(a) Introduction

The County of Schenectady, New York, has established a County Nature and Historic Preserve with a procedure for bringing property into it. In the language of the ordinance, properties can be added by acquisition or "designation."[2] However, before property can be removed from the preserve or any change made in its use, the ordinance requires that

[1] Ohio Revised Code S. 1507.05.

[2] See Technical Appendix 93.6(a). Local Law No. 5-1974, Schenectady County, New York, S.4(3).

fairly elaborate procedural requirements be met, that public hearings be held, and that a finding be made that the removal or change is wise, appropriate, and necessary for the public good. Management of dedicated property must proceed according to a plan which has to be developed within 90 days after acceptance into the preserve.[3]

Although it is not necessary to file articles of dedication for property included in the preserve, and although the statutory language does not include the term "dedication," the protection afforded property in the preserve is so similar to that of dedication programs that Schenectady's preserve can be considered to be using dedication.

(b) History

Schenectady County, New York, faced with population growth and diminishing open areas, including places free enough from human impact to be classified as natural areas, addressed these problems in part in 1974 by adopting an ordinance to preserve and maintain land of significant scenic, esthetic, and historic value.[4]

The ordinance was considered by the County Board of Representatives at the same time that the Physical and Environmental Planning Committee of the Board was discussing how best to use a 102-acre forest in county ownership.[5] That property had been in county hands since it was taken for back taxes in the 1930s and no management program had ever been worked out. A Red Pine monoculture had developed on about 35 acres, eliminating the native ground cover in that area (the pines had been planted by the Work Projects Administration in 1933).[6] The pines were so thick that their own growth was impeded. Management was desirable to make better use of the forest.

Members of the Physical and Environmental Management Committee requested the County Environmental Advisory Council, a body of appointed volunteers who work with the County Planning Department, to recommend whether the forest would be suitable for inclusion in the proposed County Nature and Historic Preserve.[7] The Council made a favorable recommendation.[8] By the time it was received, legislation had been adopted establishing the County Preserve. The forest was made a part of the preserve by resolution of the County Board of Representatives.[9]

(c) Criteria

At the time the county forest was included in the preserve, no guidelines existed for determining in a systematic way what land should be included. The forest had been recommended because it possessed "significant historical and esthetic qualities"[10] and provided a magnificent view of nearby mountains. The language of the ordinance is extremely broad concerning criteria for designation of property as a part of the preserve and sheds little light on the selection process:

> It is the interest of this law to create a Schenectady County Nature and Historic Preserve which shall serve to ensure the preservation and maintenance of those open lands, spaces, and structures deemed appropriate for inclusion therein by the County Board of Representatives.[11]

The Nature and Historic Preserve Ordinance authorizes the County Environmental Advisory Council to recommend

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[3] *Ibid.*, S. 5.

[4] *Ibid.*, S. 1.

[5] Letter from Joseph E. Mastrianni to Donald McClenahan, Chairman, Schenectady County Environmental Advisory Council, December 6, 1974.

[6] "Schenectady County Forest: An Interim Use Plan."

[7] *Op. cit.*, letter from Mastrianni to McClenahan.

[8] Letter from Donald McClenahan, Chairman, Schenectady County Environmental Advisory Council to Richard Lewis, Chairman, Physical and Environmental Planning Committee, Schenectady County Board of Representatives, March 6, 1975.

[9] Resolution 111-75 of the Board of Representatives of Schenectady County, adopted May 14, 1975.

[10] *Op. cit.*, McClenahan, March 6, 1975.

[11] *Op. cit.*, Schenectady County Law No. 5-1974, S. 1.

sites to the County Board of Representatives.[12] The council is made up of appointed volunteers who serve in an official advisory capacity to the board. In practice, recommendations do come from the council. Because of its advisory role, it works closely with the County Planning Department and uses that group's expertise and facilities in arriving at recommendations for the board.[13]

The council, in order to systematically evaluate in a rational fashion potential additions to the preserve, developed recommended guidelines for site evaluation.[14] Although the guidelines were not adopted by the Board, they do indicate the factors which the council uses in recommending land for designation. In general, sites are evaluated according to four categories of criteria; conservation, historic, recreation, and economic. Conservation characteristics include the following:

> (1) Viability--the ability of the area to survive as an integral natural system over time considering whether (a) the area is large enough and is sufficiently buffered; (b) there is a major threat to the area, but remedial measures exist; or (c) several threats to the area make viability uncertain.
>
> (2) Diversity--the range of habitats, species, or features represented. (a) Are there numerous habitats or a large diversity of species? (b) Is there a major habitat with good diversity of species? (c) Does the area have only limited diversity?
>
> (3) Rarity--ecosystems, ecological preserves, special natural features, or special manmade features within the region. Will it be (a) the only protected area of its kind? (b) one of less than five such areas? (c) one of five or more such areas?
>
> (4) Defensibility--ability to protect the area from human destruction or alteration. Will protection (a) be relatively easy? (b) be possible with some effort under most conceivable circumstances? (c) require constant vigilance, effort, and probably full-time patrolling?[15]

Historic criteria are used to evaluate the significance of an area in county history. Economic criteria include the initial cost, development cost, and maintenance cost. Recreation criteria were left out of the recommended guidelines pending completion of a study by the Schenectady County Planning Department. However, the preserve ordinance requires that preserves enhance public recreational opportunities.

(d) Dedication process[16]

Proposals for inclusion of property in the County Nature and Historic Preserve may be made to the council by a township, conservation commission, or any interested party. The council refers proposals to its Land Use and Open Space Subcommittee for evaluation in terms of its criteria. Because a "use plan" must be developed for property if it is to be included, the County Planning Commission usually begins to consider appropriate uses at this stage.

The subcommittee forwards its recommendation to the full council which passes a resolution concerning the proposal which is in turn delivered by the Physical and Environmental Committee to the County Board of Representatives. The board can then pass a resolution to include the property in the preserve.

(e) Use plan

After a property is included in the preserve, the Advisory Council in conjunction with the County Planning Department

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[12] *Ibid.*, S. 2(4).

[13] New York State Department of Environmental Conservation, "Sample Land Law for a County Environmental Management Council," 1975, p. 3; also personal communication with David Foster, February 1977.

[14] See Technical Appendix 93.6(b), "Schenectady County Nature and Historic Preserve Recommended Guidelines," Schenectady County Planning Department, Schenectady, New York.

[15] *Ibid.*, p. 2.

[16] This section is based on a personal communication with David Foster, February 1977.

has 90 days to publish a use plan.[17] Terms of the Nature and Historic Preserve Ordinance require that

> Preservation or improvement of the existing environment of such areas shall be the foremost consideration in use classification. The use plan shall make specific recommendations regarding the environmental impact of any proposed usages and physical development, such as footpaths, trail markings, camp fires, toilet facilities, and all such other activities and facilities as may bear upon reserving the ecological integrity of an area.[18]

A change of use can only be accomplished by following the same procedures required for sale of the property, as described earlier.

After publication of the use plan, the Advisory Council is required to hold a public hearing within 60 days. Within 30 days after that, the Advisory Council and the Planning Department are to publish final use recommendations, to be forwarded to the County Board of Representatives for adoption.[19]

(f) Change in use

When land is included in the preserve, a change in use or sale of the land can only be accomplished through the following process. The Advisory Council must hold an initial public hearing, the scope of which is almost unrestricted. The ordinance requires that "all information pertaining to (a proposed) sale or change shall be heard."[20] After due deliberation following that hearing, the council must publish a preliminary determination as to whether the change is wise, appropriate, and necessary for the public good. At that point, the Advisory Council must undertake at least one additional public hearing not less than 90 days from publication of the initial determination. After that, the council must render a final opinion urging the County Board to permit or deny the proposed change of use, sale, or other disposition.[21]

Although not strictly in accordance with the terms of the ordinance, a citizen may request a change in a use by petitioning representatives on the board directly or by making a proposal at a regular meeting of the Advisory Council. An additional indirect method is through modification of the management budget. Budget requests are reviewed annually.

(g) Use plan for Schenectady County Forest

The plan for the Schenectady County Forest, a part of the preserve, recommends multiple uses. The plan takes into account the results of soil and topographical analyses, a flora inventory, and considerations of alternative uses.

The forest is located at one of the highest points in the county, about 1,400 feet above sea level. The land is generally flat, but drops away quickly outside the boundaries of the forest to meet the Mohawk River. Within the forest the 45-year-old red pine monoculture covers about 35 acres. Elsewhere there are examples of plants rare to the area; these include Rattlesnake plantain and large Cinnamon ferns. The area was farmed about 150 years ago. Stone fences can be found in the forest as can fruit trees.[22]

The basic recommendation of the use plan is that the forest be made available as an outdoor laboratory and classroom to give people in the area an opportunity to become familiar with native cultural and natural successional features. One management alternative calls for thinning the stand by about two-thirds over the next 10 years to reduce the chance of loss by disease and windfall. Thinning is recommended where the soil is most able to bear the impact of thinning equipment and where the hazard from windfall is greatest. Another is to leave the farm lands consisting of brush and wetlands which con-

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[17] *Op. cit.*, Schenectady County Law No. 5-1974, S. 4(3).

[18] *Ibid.*

[19] *Ibid.*

[20] *Ibid.*, S. 5.

[21] *Ibid.*

[22] See Technical Appendix 93.6(c). "Schenectady County Forest: An Interim Use Plan," Schenectady County Planning Department, County Office Building, Schenectady County, New York.

tain apple and pear trees and various briers to attract wildlife. These plants are prime food producers, and the soil in the area indicates a good potential for creating and maintaining a wildlife habitat.[23]

If thinning is attempted, one development option contained in the use plan is to convert the logging trails to touring trails for hiking where it would be relatively easy to do so and not be prevented by seasonal wetness. Interpretive and teaching aids could be placed along the trails.[24]

(h) Cost to Schenectady

The ordinance authorizes the Advisory Council to recommend acquisition of areas listed on its inventory of open spaces in the county. Recommendations are to include the cost and method of acquisition and a preliminary use plan. As of this writing, the only land which has been considered for inclusion in the preserve is that already owned by the county or some other governmental body in the county. Thus, no expenses for acquisition have been involved. However, nothing in the ordinance prevents outright purchase of land by the county. It must be done by the board, though, because the environmental Advisory Council itself is not authorized to hold or acquire real property. The board may purchase land through negotiation or by condemnation, upon written recommendation of the council.

Maintenance costs for the county are budgeted according to the use plan for the area, these costs being subject to board review. Maintenance is the responsibility of the County Commissioner of Engineering and Public Works and is monitored by the Advisory Council. It must be designed "to preserve, protect, and enhance the ecological integrity of the area and to foster environmentally compatible public use of preserve areas . . ."[25] Environmentally compatible uses are defined by the use plan.

Recommendations for acquisition, development, operation, and maintenance expenses must be submitted by the Advisory Council to the County by July 15 of each year for his consideration in preparation of the county budget.[26]

(i) Protection provided

The primary benefit of the ordinance adopted in Schenectady is that it provides a program for identifying and giving special treatment to areas that have natural or historic features of unusual value. The actual protection that results depends almost entirely on the terms of the use plan developed for a specific area. Merely taking an area into the preserve does not guarantee that it will be maintained in a particular manner.

The ordinance itself sets out only the most general guidelines for identifying areas suitable for inclusion in the preserve. The characteristics considered by the Environmental Advisory Council are also quite broad. Thus, there is virtually no limit on the type of open space that may be taken into the preserve. Because of the possible diversity of preserve property, use plans are necessary to provide rules for preserving properties. In this respect, the use plan plays a role analogous to the articles of dedication in other dedication programs. The use plan is a vehicle for specifying how unique features of a particular property will be treated.

The valuable feature about taking property into the preserve is that once in and governed by a use plan, its status cannot be changed except through a process that requires considerable citizen input and consideration of alternatives.

C. Information and Bibliography

93.4 Key information contact

David Foster
Schenectady County Planning Department
County Office Building
Schenectady, New York 12307
(518) 382-3286

[23] *Ibid.*

[24] *Ibid.*

[25] See Technical Appendix 93.6(a). Local Law 5-1974, Schenectady County, New York, S. 6.

[26] *Ibid.*, S. 2.

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93.6 List of technical appendices

(a) Local Law No. 5-1974, Schenectady County, New York.

(b) "Schenectady County Nature and Historic Preserve Recommended Guidelines," Schenectady County Planning Department: County Office Building, Schenectady, New York.

(c) "Schenectady County Forest: An Interim Use Plan." Schenectady County Planning Department: County Office Building, Schenectady, New York.

93.7 List of local government sites dedicated into state natural area systems

Site	Acres
Illinois	
Black Partridge Woods Nature Preserve	80
Busse Forest Nature Preserve	440
Cap Savers Holdings Nature Preserve	1,520
Cranberry Slough Nature Preserve	400
Edward L. Ryerson Nature Preserve	150
Jurgensen Woods North Nature Preserve	120
Lockport Prairie	
Paw Paw Woods Nature Preserve	105
Russell M. Duffin Nature Preserve	160
Sand Ridge Nature Preserve	70
Salt Creek Woods Nature Preserve	245
Shoe Factory Road Nature Preserve	9
Spring Lake Nature Preserve	560
Thornton-Lansing Road Nature Preserve	440
Weston Cemetery Prairie Nature Preserve	5
Indiana	
Bendix Woods	27
Fox Island	220
Hemmer Woods	106
John G. Dobbs Memorial Grove	25
Ohio	
Mentor Marsh	755
Mentor Marsh	283

Chapter Ninety-four

Environmental Analysis

A. Introduction

Local governments are involved with environmental analysis in two ways. They can comment on federal or state environmental impact analyses for projects affecting the local level. The purpose of all environmental reviews is to guarantee that no project covered by the authorizing environmental review law will proceed until a statement concerning its probable impact has been made available to responsible government agencies. The analyses themselves do not provide a mechanism for avoiding undesirable environmental consequences. Rather, the assumption is that if information is supplied to the proper people, it will result in action that will avoid or ameliorate undesirable consequences. Action documents to amend or eliminate a project because of probable undesirable effects disclosed by environmental impact analysis are prepared separately from the analysis. Some state statutes such as New York's required that the environmental impact findings be substantive before a proposed action can go forward.[1]

It is through this environmental assessment mechanism that local governments can play a significant role in protecting our natural heritage. On the one hand, as will be shown in Section 94.2 on the A-95 process, local governments are given the opportunity to provide information on natural features and areas of local value and interest for externally initiated projects (federal/state/regional). On the other hand, local governments through state mini-NEPA processes or their own independent impact assessment procedures provide mechanisms which encourage participation and environmental input from outside inventory sources on natural features of concern to the nation or state. These environmental concerns can then be addressed and translated into local land use planning and control processes.

[1]State Environmental Quality Review Act, Handbook for Local Government, New York State Department of Environmental Conservation, Albany, New York, October 1976, p. 10.

B. Local Participation in Federal Environmental Impact Analysis

94.1 NEPA

The National Environmental Policy Act of 1969 (NEPA)[2] is the fundamental law on environmental impact analysis in the United States. Most state and local environmental impact analysis requirements are patterned after it.[3] In brief, it requires an impact statement be produced for all major federal actions significantly affecting the environment. Impact statements must assess the following:

> (1) The environmental impact of the proposed action.
> (2) Any adverse environmental effects which cannot be avoided.
> (3) Alternatives to the proposed action.
> (4) The relationship between local short-term use of man's environment of long-term productivity; and
> (5) Any irreversible or irretrievable commitments of resources which would be involved in the proposed action should it be implemented.[4]

NEPA requires that an impact statement include comments from federal, state, and local agencies authorized to develop and enforce environmental standards and that these accompany the statement through the normal agency review process.[5] Although the act itself does not indicate how the required comments are to be obtained, the Council on Environmental Quality has developed regulations which provide a procedure. The federal agency making the proposal must prepare a draft environmental impact statement that is as complete as possible and circulate it among appropriate federal, state, and local government agencies and the public for comments. Their views must be included in the

[2]42 U.S.C. Sec. 4321 *et seq.* 1972.

[3]Yost, Nicholas C., "Nepa's Progeny: State Environmental Policy Acts," *Environmental Law Reporter*, p. 50092.

[4]42 U.S.C. Sec. 4332(2) (c) (1970).

[5]*Ibid.*

final statement which will accompany the proposal through agency review.[6]

It is unclear how effective the environmental review process is in causing substantive change in federal proposals.[7] In theory, local government officials representing localities to be affected by a proposed project can bring their views to the attention of federal decisionmakers through the comment and review process. However, to date, local governments often do not receive adequate opportunity to comment. This problem was pointed out in an analysis of the experiences of federal agencies under NEPA published by the Council on Environmental Quality in 1976:

> Although the EIS process is judged to be generally beneficial, the states believe that it can be better. A major problem is that federal agencies do not consistently use the state clearinghouses established by OMB Circular No. A-95 to alert state and local governments to EIS actions. Notices of intent to prepare an EIS and lists of negative declarations are usually not sent to the clearinghouses, which makes early state or local participation in the EIS process very difficult.
>
> Often states must wait upon the draft EIS for notice of a proposed action. By then it is unnecessarily difficult for the states to participage in federal decisionmaking.[8]

94.2 OMB A-95 Clearinghouses

The clearinghouses set up on state government agencies to which the CEQ report referred are entities required by the Office of Management and Budget Circular No. A-95 (Revised).[9] The A-95 procedure itself was designed to evoke comments concerning the environmental impact of a project. Subparagraph (c) of paragraph 5, Part I, of the circular suggests that comments should consider the following:[10]

> (1) Appropriate land uses for housing, commercial, industrial, governmental, institutional and other purposes.
>
> (2) Wise development and conservation of natural resources, including land, water, mineral, wildlife, and others.
>
> (3) Balanced transportation systems, including highway, air, water, pedestrian, mass transit, and other modes for the movement of people and goods.
>
> (4) Adequate outdoor recreation and open space.
>
> (5) Protection of areas of unique natural beauty, historical and scientific interest.
>
> (6) Properly planned community facilities, including utilities for the supply of power, water, and communications, for the safe disposal of wastes, and for other purposes.
>
> (7) Concern for high standards of design.

In addition, subparagraph (d) suggests that comments be concerned with the factors required for consideration in an environmental impact statement prepared in compliance with NEPA.[11] The clearinghouses called for under the A-95 circular have their statutory basis in the Intergovernmental Cooperation Act of 1968[12] and are intended to provide a mechanism for coordinating the involvement of various governmental units in activities using federal funding.[13] Any state or local government or member of the public desiring federal assistance must notify the appropriate clearinghouse of any intention to apply for aid at least 60 days before the application would be accepted. Copies of notices of intent to apply for federal aid are then

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[6] 40 C.F.R. Sec. 1500 *et seq.*

[7] Council on Environmental Quality, "Environmental Impact Statements: An Analysis of Six Years' Experience by Seventy Federal Agencies," Washington, D. C., March 1976, p. 21

[8] *Op cit.*, Council on Environmental Quality, 1976, p. 54.

[9] See Technical Appendix 94.9(a) for a synopsis of the A-95 procedure.

[10] Office of Management and Budget, "Office of Management and Budget Circular A-95, What It is--How It Works," U. S. Government Printing Office, Washington, D. C., July 1, 1976, Part I(5)(c).

[11] *Ibid.*, Part I(5)(d).

[12] 42 U.S.C. Sec. 4231 *et seq.* (1970).

[13] *Op cit.*, Office of Management and Budget (1976), p. 4.

sent by the clearinghouses for comment and review to state agencies and local governments which might be affected by the proposal. They are also sent to local chief executives on request. Copies must be sent to state and local environmental agencies for projects which may require an environmental impact statement.

Direct federal action proposals must also be processed through a clearinghouse. The clearinghouses are to review the project proposals and comments received from reviewers and indicate within 30 days if there are any likely issues. The clearinghouses also review the completed applications and evaluate them in relation to state, areawide, or local plans.

The purpose of the procedures is to allow the agencies an opportunity to comment upon an intended proposal in advance of distribution of a draft environmental impact statement so the applicant may become aware of potential environmental factors that will have to be considered. If comments are not adequately resolved in conference between the applicant and the party making them, they must accompany the application when it is submitted to the appropriate federal agency for aid. Clearinghouse comments, like comments to a draft environmental impact statement, are advisory only.

The CEQ regulations require federal agencies, as part of their early investigations known as the "scoping" process, to invite the participation of affected state and local agencies. In addition, these regulations require making draft environmental statements available to local governments for comment. The regulations specifically suggest use of the A-95 clearinghouses for this, although a federal agency may prefer to deal directly with appropriate local agencies.[14]

The advantage of having federal projects go through a clearinghouse is that local governments are more likely to receive notice before the formal application is submitted or a draft statement is prepared. They therefore have more time to comment and can become involved in the review process at an earlier stage.

In addition, through A-95, local governments may be alerted both to non-federally-funded projects (*e.g.*, state funded projects which may have significant impacts to the environment) and to federal projects determined not to have a significant effect on the environment (Finding of No Significant Impact--FONSI). Local governments would not normally receive notice of these under the NEPA procedures.

Local governments may not be very aware of the A-95 process. According to a 1972 study[15] in which agencies in all cities and counties in the United States with populations in excess of 25,000 were polled, more than a third indicated no knowledge of A-95 requirements for project notification and review.

C. Local Participation in State "Mini"-NEPAs

94.3 General

Since the adoption of NEPA in 1969, the number of similar laws enacted by state governments has grown steadily.[16] Although there may be some variations, the procedures for preparing environmental impact statements are essentially the same under state NEPA laws as under the federal one.

Some state laws go beyond NEPA, however, requiring that local governments prepare environmental impact statements for projects they undertake solely on their own or which require a permit or license from the local permitting body.[17] These laws extend the review process beyond the federal level to control the most pervasive methods of land use control zoning, planning, building permits,

[14] 40 C.F.R. Sec. 1500.

[15] Jeff Morgenthaler, "OMB Circular A-95: A Neglected Environmental Assessment Tool Provides an Early Public Pressure Point," *Environmental Law Reporter*, 4, 1974, p. 50043, citing B. Harman, Areawide Review of Federal Grant Applications: Implications for Urban Management, Urban Data Service, 1972, p. 5.

[16] Burchell, Robert W. and David Listokin, *The Environmental Impact Handbook*, Rutgers University, New Brunswick, New Jersey, 1975, p. 8.

[17] California (Pub. Res. Code Sec. 21000 *et seq.*), *Friends of Mammoth vs. Board of Supervisors of Mono County*, 500 P. 2d. 1360 (1972), modified 502 P. 2d. 1049 (1972).

conditional uses, and variances which are administered and enforced by local governments. Subjecting those traditionally local functions to environmental impact analysis means improved land-use decisions at a grass roots level and extension of responsibility for environmental protection beyond government to private individuals.

Variables which are important in determining the effectiveness of a state environmental impact law include

(1) type of elements required for consideration in the environmental impact statement;

(2) whether impact statements are required for local government actions; and

(3) the scope of government activity, including governmental functions which merely sanction or support private activity, for which an impact statement must be produced.[18]

94.4 California

In states where a mini-NEPA requires a government agency to prepare an impact statement before giving a permit for a private action which may have a significant effect upon the environment, the local governments are required to set up an environmental impact analysis system for commenting on and writing analyses. In California this necessity was established suddenly as a result of a court interpretation of the state impact statement law.[19] Local governments, caught unprepared, needed a moratorium in order to develop the proper procedural and staffing machinery for enforcement.[20]

The system, as it operates in California, requires counties and municipalities to make an initial determination of the need for an environmental impact statement. If one is required, they must prepare it or have it prepared, circulate it for comment, and then prepare a final statement which incorporates comments on the draft. The initial determination is made on the basis of whether the activity will have a significant effect on the environment, whether it is supported by public monies or requires a permit or license, whether it is discretionary or ministerial by the government, and whether it is specifically exempted from provisions of the state law. (Exempted activities include construction of single-family homes in non-critical areas, minor alterations to land, and governmental regulation of resources.[21]

94.5 New York

(a) General requirements

In New York, the State Environmental Quality Review Act requires that the Department of Environmental Conservation establish statewide rules and regulations for its implementation.[22] Each agency of state and local government is then responsible for establishing its own procedures for implementation.[23]

The law is being phased in gradually. By June 1, 1977, it was to apply to all actions directly undertaken by local governments and all actions for which permits or licenses were required from local or state governments.[24]

(b) Procedures

The steps involved are similar to those in California. The law requires that local governments determine whether actions they want to undertake may have a significant impact on the environment.[25] Certain actions are exempted by statute and may be listed either statewide or locally as actions that do not

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[18] *Op. cit.*, Nicholas C. Yost, 1973, p. 50092.

[19] *Friends of Mammoth vs. Board of Supervisors of Mono County,* 500 P. 2d. 1360 (1972), modified 502 P. 2d. 1049 (1972).

[20] Ralph Catalano and Richard Reich, "Local Government and the Environmental Impact Report: The California Experience," 8 *Urban Lawyer* 367, 1976.

[21] *Op. cit.*, Catalano and Reich.

[22] New York Environmental Conservation Law, Section 8-1301.

[23] *Ibid.*, paragraph (3).

[24] *Ibid.*, Section 8-1307.

[25] 6 NYCRR Part 617.9. See Technical Appendix 94.9(b).

have a significant effect on the environment. Other actions may be exempted if they are to be reviewed under NEPA. However, a local agency official may require a statement under the state act even if one was already required under NEPA if he believes the NEPA statement is inadequate.[26] Ministerial governmental actions are exempted from consideration.[27]

If a local government determined that a proposed action will not have a significant effect on the environment, a negative declaration may be written, and no more steps need be taken.[28] However, if it is found that it might have a significant effect, a draft environmental impact statement (DEIS) must be prepared either by the applicant requesting action by the agency or by the agency itself.[29] The agency must offer the applicant the option of preparing an impact statement himself. If it prepares the statement, the agency may require the applicant to provide any necessary information.

The statement must consider the following:[30]

(1) Description of the action or alternatives and environmental settings.

(2) Environmental impact of the action or alternatives.

(3) Unavoidable adverse environmental effects.

(4) Alternatives to the proposed action.

(5) Irreversible and irretrievable commitments of resources.

(6) Mitigation measures.

(7) Growth-inducing aspects.

(8) Effects on the use and conservation of energy.

(9) Materials obtained and used in preparation of an EIS.

(10) Organizations and persons consulted.

The DEIS must be filed with the appropriate regional office of the Department of Environmental Conservation, with the Commissioner of the Department of Environmental Conservation, and in the office of the municipal or county clerk whose jurisdiction most closely corresponds with the agency considering the proposal.[31]

The agency which prepares the DEIS must provide a "notice of completion" to all agencies involved in the action as well as to other persons who have requested one. The Notice must indicate that the DEIS has been completed and is on file and that public comment will be accepted for a period specified by the state law.[32] After the draft statement has been completed and filed, the agency which filed it may hold a public hearing. Comments received in the review process and at the public hearing, if one is held, must be included with the final environmental impact statement which is to be filed in the same manner as the draft statement.[33]

If a decision is made to permit an action which has been the subject of an environmental impact statement, the agency involved must make a written determination that[34]

(1) the action to be carried out is consistent with essential considerations of state policy;

(2) from among the reasonable alternatives, the action to be carried out minimizes adverse environmental effects; and

(3) all practicable means will be taken to minimize those adverse environmental effects.

Because substantive administrative findings are required, it appears that the New York requirement is more than merely procedural. What local governments must enforce is not only the consideration of environmental factors, but that the decisions with respect to a proposed action be made according to their potential effect on the environment.

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[26]New York Department of Environmental Conservation, "State Environmental Quality Review Act Handbook for Local Government," 50 Wolf Road, Albany, New York, October 1976, p. 5.

[27]*Ibid.*

[28]*Ibid.*

[29]*Ibid.*, p. 12

[30]*Ibid.*, pp. 20-25.

[31]6 NYCRR Part 617.7 (f).

[32]*Ibid.*

[33]6 NYCRR Part 617.7 (g).

[34]*Op. cit.*, New York Department of Environmental Conservation, p. 10.

D. Independent Local Government Environmental Impact Assessment

94.6 General

It is possible for local government bodies to implement requirements for environmental review which are separate and independent of any requirements imposed by state or federal law. Though unusual, when done it is normally achieved by amending traditional land use control mechanisms such as zoning ordinances and subdivision controls to include an impact analysis feature.[35] A 1975 national survey of state and local environmental impact requirements disclosed that as many as 19 local governments had enacted ordinances to require a minimum of environmental impact analysis under certain circumstances.[36]

As with state requirements that must be met when a local permit or funding is required, completely local requirements are likely to affect a large number of people directly because they touch the public through zoning and other local regulatory devices. Ironically, strictly local requirements may be less encompassing than some state mini-NEPA requirements because local ordinances are likely to be applicable only to specific types of local action or come into play only for proposals above a certain threshold level. For example, County Ordinance 1002 for the County of Hawaii, Hawaii, requires impact statements for "large projects such as resorts or industrial projects."[37] In the City of Pocatello, Idaho, a modified impact statement is called for in connection with issuance of a conditional use permit applicable to any structure over three stories high or any public building.[38]

94.7 Local government enforcement

When the only government action required is issuance of a permit or license, responsibility for conducting environmental assessments at the local level is normally vested in the zoning or planning agency. Authority for assessing projects funded wholly or in part by the local government is usually vested directly in the agency which would undertake the project if approved.

One study of California local government assessment procedures has indicated that representatives from planning departments, public works departments, and health departments are most often found on environmental review committees.[39] The same study indicated that cities, except for very large ones with extensive municipal bureaucracies, tend to use planning department personnel for environmental assessments. Counties, which are generally larger and have a more specialized bureaucracy, tend to use personnel from a specific agency.

The State Environmental Quality Review Handbook for Local Government for New York suggests[40]

> Many villages, towns, cities, and counties will probably find it efficient to designate some office such as the conservation commission, planning department, health department, or public works department to be responsible for fulfilling various parts of its SEQR (State Environmental Quality Review) responsibilities.

Because the authority for impact assessments of strictly local actions is usually derived from an amendment to a traditional land use regulation,[41] delegation of environmental impact assessment duties to planning and zoning commissions is not surprising. Placement of responsibility for environmental assessments in these offices may well serve to standardize and improve procedures for reaching decisions about how to use fairly traditional land use control mechanisms. However, local experience

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[35] *Op. cit.*, Burchell and Listokin, p. 11.

[36] *Ibid.* See Technical Appendix 94.9(d).

[37] *Ibid.*

[38] *Ibid.*

[39] *Op. cit.*, Catalano and Reich.

[40] *Op. cit.*, New York State Department of Environmental Conservation, p. 11.

[41] *Op. cit.*, Burchell and Listokin, p. 11.

with environmental impact analysis is limited, and information is still needed before an accurate assessment can be made.[42]

E. Information and Bibliography

94.8 Bibliography

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94.9 List of technical appendices

(a) Project Notification and Review System, Part One of "Office of Management and Budget Circular No. A-95, What It Is--How It Works." Office of Management and Budget, U. S. Government Printing Office: Washington, D. C. 20402, 1976, 209-479/6351.

(b) 6 NYCRR Part 617.9.

(c) "State Environmental Quality Review Act Handbook for Local Governments." New York State Department of Environmental Conservation: 50 Wolf Road, Albany, New York 12233, October 1976.

(d) *The Environmental Impact Handbook, Exhibit 2-1*. Burchell, Robert W., and David Listokin. Rutgers University: New Brunswick, New Jersey 08903, 1975.

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[42] *Op. cit.*, Catalano and Reich, p. 374.

Organizations

CONTENTS

ORGANIZATION	CODES* 1	2	3	4	5	6	7	8	9
Alabama									
Alabama Conservancy 1818-A E. 28th Avenue, South Birmingham, Alabama 35209 205-871-0389	●	●			●		●		
Alabama Trails Association 938 South 80th Street Birmingham, Alabama 35206		●						●	
Audubon Society Attn: Ms. Ann Tate 3500 River Bend Road Birmingham, Alabama 35243 205-967-0304	●						●		
Bass Anglers Sportsman Soc. P. O. Box 17900 Montgomery, Alabama 36141 205-272-9530		●			●				
Concerned Property Owners Attn: Herman Wooten Spring Creek Area Route 4, Box 924 Alabaster, Alabama 35007		●							
Conservation Florence State University Florence, Alabama 35630 National Ecological Society Cave Avenue Huntsville, Alabama 35810						●			
Ruffner Mountain Nature Coalition 1214 South 81st Street Birmingham, Alabama 35206									
Alaska									
Alaska Center for the Environment 1069 West 6th Avenue Anchorage, Alaska 99501									
Alaskan Conservation Foundation 308 G Street, Room 301 Anchorage, Alaska 99501									
Alaska Conservation Society Attn: Robert Weeden P. O. Box 80192, College Sta. Fairbanks, Alaska 99708	●	●			●			●	
Anchorage Audubon Society Attn: John Pitcher 2839 Telaquana, #1 Anchorage, Alaska 99503	●	●							
Brooks Range Trust Attn: Ruth Schmidt 1040 C Street Anchorage, Alaska 99501	●						●		

ORGANIZATION	CODES* 1	2	3	4	5	6	7	8	9
Alaska, continued									
Cordova Lands Coalition Attn: Oliver Osborn Box 1183 Cordova, Alaska 99574									
Denali Citizens Council Box 39 McKinley Park, Alaska 99755		●			●				●
Fairbanks Environmental Ctr. Attn: John Adams 218 Driveway Fairbanks, Alaska 99701									
Friends of Glacier Bay Attn: Greg Streveler Box 94 Gustavus, Alaska 99826		●							
Friends of the Earth 1069 West 6th Avenue Anchorage, Alaska 99501 907-272-7335		●			●	●			
Greenpeace Alaska 308 G Street, Suite 313 Anchorage, Alaska 99501									
Kachemak Bay Conservation Society Attn: Kenton Bloom Box 846 Homer, Alaska 99603		●							
Kenai Peninsula Conservation Society Attn: Bill Schrier Box 563 Soldotna, Alaska 99669									
Lynn Canal Conservation, Inc. P. O. Box 37 Haines, Alaska 99827									
National Audubon Society Alaska Regional Office 308 G Street, Suite 219 Ahcorage, Alaska 99501 907-276-7034	●	●							
North Gulf Oceanic Society Attn: Craig Matkin P. O. Box 22 Gustavus, Alaska 99826		●			●	●			
Nunam Kitlutsisti Protector of the Land Attn: Harold Sparck P. O. Box 267 Bethel, Alaska 99559									

*CODES: [1]Acquisition; [2]Consciousness-Raising, Watchdogging, and Notification; [3]Dedication, Trust Dedication; [4] Environmental Assessment / Review; [5]Legislative, Legal, and Administrative Fighting; [6]Inventory; [7]Less-than-Fee Acquisition; [8]Registration; [9]Funding.

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Alaska, continued									
Sierra Club, Alaska Chapter, c/o Lowe 1603 Atkinson Anchorage, Alaska 99504 907-333-8815		•		•	•				
Southeast Alaska Conservation Council Attn: Jim Stratton Box 1692 Juneau, Alaska 99802									
Tongass Conservation Society attn: Peter Mjou P. O. Box 2282 Ketchikan, Alaska 99901									
Trustees for Alaska Attn: Rob Mintz 935 D Street, Suite 202 Anchorage, Alaska 99501 907-276-4244					•				
Upper Cook Inlet Chapter of ACS Attn: Pat Wennikens 2110 Dawnlight Court Anchorage, Alaska 99501									
Izaak Walton League Attn: Sam McDowell P. O. Box 4 - 316 Anchorage, Alaska 99509									
Arizona									
Arizona Natural Heritage Program 30 North Tucson Boulevard Tucson, Arizona 85716 602-323-0867				•		•			
Arizona Open Land Trust Attn: Ed McCulloch Box 2231 Tucson, Arizona 85702	•						•		
Arizona Wilderness Study Committee 1131 South Butte Tempe, Arizona 85281		•			•			•	
National Audubon Society Appleton-Whittell Research Ranch P. O. Box 44 Elgin, Arizona		•	•			•			
Sierra Club, Grand Canyon Chapter, c/o Colton 1355-E East Fort Lowell Tucson, Arizona 85719 602-323-7414		•		•	•				
The Nature Conservancy, Arizona Chapter P. O. Box 40326 30 North Tucson Tucson, Arizona 85717		•							•

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Arkansas									
Arkansas Audubon Society, Inc. 2600 Riviera Circle Fort Smith, Arkansas 72903		•	•						
Arkansas Natural Heritage Inventory Continental Bldg., Room 514 100 Main Little Rock, Arkansas 72201					•	•			
Audubon Society, Arkansas Valley Chapter Attn: Bob Kirkwood Box 1721, UCA Conway, Arkansas 72032		•	•						
Arkansas Society for the Preservation of Natural Resources Attn: W. D. Brainard P. O. Box 9335 Little Rock, Arkansas 72209			•			•			
Illinois River Property Owners Attn: Otto Weyl R. R. #6 Fayetteville, Arkansas 72701			•						
Ozark Society, Inc. P. O. Box 2914 Little Rock, Arkansas 72203 501-562-4053						•			
Whooping Crane Conservation Association 300 Meadowlark Drive Sierra Vista, Arkansas 85635 602-458-0971			•						
Arkansas Native Plant Society Attn: Don Culwell Conway, Arkansas 72032						•			
California									
Big Sur Land Trust Attn: Brian Steen P. O. Box 1645 Carmel, California 93921 408-625-5523		•	•		•				
California Coastal Conservancy Attn: Don Rubenstein 1212 Broadway, Room 541 415-464-1015									
California Native Plant Society Attn: Alice Q. Howard 2380 Ellsworth, Suite D Berkeley, California 94704 415-642-2465					•	•			

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
California, continued									
California Natural Areas Coordinating Council 1505 Sobre Vista Drive Sonoma, California 95476 707-996-4411					•		•		•
California Natural Diversity Data Base 987 Jed Smith Drive Sacramento, California 95819 916-322-2493					•		•		
California Trout, Inc. P. O. Box 2046 San Francisco, Calif. 94126 415-392-8887	•						•		•
California Tomorrow Attn: Weyman Lundquist 681 Market Street San Francisco, Calif 94105									
Carmel Valley Land Preservation Association Attn: Don E. Harrison 24523 Castro Lane Carmel, California 93923 408-624-0416									
Conservation Associates 1500 Mills Tower 220 Bush Street San Francisco, Calif. 94104	•								
Desert Fishes Council 407 West Line Street Bishop, California 93514 714-873-4095									
Desert Protective Council, Inc. Attn: Glen Vargas P. O. Box 4294 Palm Springs, Calif. 92263 OR Box 33 Barring, California 92220									
Desert Tortoise Council 5319 Cerritos Avenue Long Beach, California 90805 213-422-6172		•		•		•			
Desert Tortoise Preserve Committee, Inc. P. O. Box 453 Ridgecrest, California 93555 714-446-6275	•	•							
East Orange Open Space Management Corporation Shirley L. Grindle, President 19051 Glen Arran Orange, California 92669 714-752-7500	•	•			•		•		

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
California, continued									
Environmental Defense Center 10005 Santa Barbara Street Santa Barbara, Calif. 93101 805-963-1622					•				
Environmental Defense Fund 2606 Dwight Way Berkeley, California 94704		•			•				
Friends of the Earth 124 Spear Street San Francisco, Calif. 94105 415-495-4770		•		•	•				
Friends of the Earth 1107 Ninth Street, Room 1023 Sacramento, California 95514 916-446-3106		•		•	•				
Friends of the Sea Otter P. O. Box 221220 Carmel, California 93922 408-625-3290		•			•				
Hammonds Meadow Preserve Bob Whitney, Treasurer 808 East Cota Street Santa Barbara, Calif. 93103 805-963-8968	•	•			•		•		
Humboldt North Loast Land Trust Albert C. Holt, President Drawer B c/o Harbor Light Bldg, Supply Trinidad, California 95570 707-677-3636	•	•			•		•		
Izaak Walton League of America, Inc. California Division 2240 Sandalwood Place Anaheim, California 92806 714-774-8399		•			•				
Jefferson Land Trust Marylee Bytheriver, Secretary/Treasurer Box 490 Barberville, Calif. 95440 707-986-7498	•	•			•		•		
Lake Tahoe Attn: Joan Lundquist Box 212 Homewood, Calif 95718 916-525-6377	•						•		
John Muir Institute for Environmental Studies, Inc. 743 Wilson Street Napa, California 94558 707-252-8333					•				•

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
California, continued									
The Land Trust of Santa Cruz County Ziggy Rendler-Bregman, Pres. 519 Van Ness Avenue Santa Cruz, California 95060 408-427-1644	•	•			•		•		
Marin Agricultural Land Trust Paul Maxwell, Exec. Dir. P. O. Box 809 Point Reyes Station, California 94956 415-663-1158	•	•			•		•		
Mendocino Community Land Trust Box 1094 Mendocino, California 95460	•								
More Mesa Land Trust, Inc. Box 6786 Santa Barbara, Calif. 93111 805-964-2904	•								
Mono Lake Committee P. O. Box 29 Lee Vining, California 93541 714-647-6356		•							
Napa County Land Trust P. O. Box 2903 Yountville, California 94599 707-944-2597	•	•			•		•		
National Land for People Attn: George Ballis 2348 Carnelie Fresno, California 93711 209-233-4727									
Natural Resources Defense Council, Inc. 25 Kearney Street San Francisco, Calif. 94108 415-421-6561		•		•	•				
Northern California Land Trust Attn: Steve Bridge 2708 Sunset Avenue Oakland, California 94601 415-534-6076	•								
Peninsula Open Space Trust Robert Augsburger, Exec. Dir. 3000 Sand Hill Road Menlo Park, California 94025 415-854-7696	•	•			•		•		
Save-the-Redwoods League 114 Sansome Street, Room 605 San Francisco, Calif. 94104 415-362-2352	•			•	•			•	
Save San Francisco Bay Association P. O. Box 925 Berkeley, California 94701 415-849-3053		•							

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California, continued									
Sierra Club 530 Bush Street San Francisco, Calif. 94108 415-981-8634		•		•	•				
Sierra Club, Angeles Chapter 2410 West Beverly Boulevard, Suite 2 Los Angeles, Calif. 90057		•		•	•				
Sierra Club Foundation 530 Bush Street San Francisco, Calif. 94108 415-981-8634	•								•
Sierra Club, Kern-Kaweah Chapter, c/o Geyer 501 Pebble Beach Drive Bakersfield, Calif. 93309 805-831-3894		•		•	•				
Sierra Club Legal Defense Fund 311 California Street Suite 311 San Francisco, Calif. 94104 415-398-1411		•			•				
Sierra Club, Los Padres Chapter P. O. Box 30222 Santa Barbara, Calif. 93105		•	•		•				
Sierra Club, Loma Prieta Chapter 2253 Park Boulevard Palo Alto, California 94306 415-327-8111		•			•				
Sierra Club, Mother Lode Chapter P. O. Box 1335 Sacramento, California 95806 916-444-2180		•		•	•				
Sierra Club, Redwood Chapter P. O. Box 466 Santa Rosa, California 95402		•		•	•				
Sierra Club, San Diego Chapter 1549 El Prado San Diego, California 92101 714-233-7144		•	•	•	•				
Sierra Club, San Francisco Bay Chapter 6014 College Avenue Oakland, California 94618 415-658-7470		•		•	•				
Sierra Club, Santa Lucia Chapter Eco 510, 985 Palm Street San Luis Obispo, Calif. 93401		•		•	•				

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California, continued									
Sierra Club, Tehipite Chapter P. O. Box 5396 Fresno, California 93755		•		•	•				
Sierra Club, Ventana Chapter Box 5667 Carmel, California 93921 408-624-8032		•		•	•				
Society for Preservation of Birds of Prey Box 891 Pacific Palisades, CA 90272		•							
Sonoma Land Trust Leslie Hood, President 1505 Sabre Vista Road Sonoma, California 95476 707-996-4411	•	•			•		•		
The Nature Conservancy California Field Office 156 - 2nd Street San Francisco, Calif. 94105 415-777-0487	•	•			•	•	•		
The Nature Conservancy Northern California Chapter 156 Second Street San Francisco, Calif. 94105	•	•				•	•		•
The Nature Conservancy Southern California Chapter P. O. Box 921 712 Fair Oaks Boulevard South Pasadena, Calif. 91030	•	•				•	•		•
The Nature Conservancy Western Regional Office 156 - 2nd Street San Francisco, Calif. 94105 415-777-0541	•	•			•	•	•		
Trout Unlimited California Council 1458 Hudson Street Redwood City, Calif. 94061 415-366-6405		•			•				
Trustees for Conservation 251 Kearney Street San Francisco, Calif. 94108 415-392-2838		•							
Trust for Public Land 82 Second Street San Francisco, Calif. 94105	•						•		
The Wilderness Society California-Nevada Regional Office Star Route, Box 202 5277 Ocean View Drive Trinidad, California 95570 707-677-3324		•	•	•	•	•		•	

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
California, continued									
Western Society of Malacologists 1217 Waller Street San Francisco, Calif. 94117			•						
Colorado									
American Association for Conservation Information 6060 Broadway Denver, Colorado 80216			•						
Boulder Audubon Society P. O. Box 2081 Boulder, Colorado 80306	•		•						
Colorado Mountain Club 2530 West Alameda Denver, Colorado 80219 303-922-8315			•						
Colorado Natural Heritage Inventory 1550 Lincoln, Room 106 Denver, Colorado 80202 303-866-5883					•		•		
Colorado Open Land Foundation 5803 South Pearl Street Denver, Colorado 80101	•								
Colorado Open Space Council 2239 East Colfax Denver, Colorado 80206 303-393-0466/0467			•			•			
Eagle County Land Conservancy Box 7 Vail Colorado 81658									
Environmental Defense Fund 1657 Pennsylvania Avenue Denver, Colorado 80203 303-831-7559			•			•			
Friends of the Earth 2239 East Colfax Avenue Denver, Colorado 80206 303-399-2288			•		•	•			
Izaak Walton League Colorado Division 13685 East Dakota Avenue Aurora, Colorado 80012 303-364-4089			•			•			
Mesa County Land Conservancy Harry Talbott, President 3544 East 1/2 Road Palisade, Colorado 81526 303-464-7372	•		•			•		•	
Open Lands Real Estate 428 East 11th Avenue Denver, Colorado 80203 303-393-0550	•								
Palmer Foundation P. O. Box 997 Colorado Springs, Colo. 80901									

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Colorado, continued									
Pitkin County Park Trust Attn: Connie Harvey Capital Creek Snowmass, Colorado	●								
Public Lands Institute 1740 High Street Denver, Colorado 80218 303-388-4171					●				
Ridgeway-Telluride Box 66 Telluride, Colorado 81435	●								
Rocky Mountain Bighorn Soc. P. O. Box 1086 Denver, Colorado 80201		●							
Sierra Club Rocky Mountain Chapter 2239 East Colfax, #206 Denver, Colorado 80206 303-321-8292		●		●	●				
Society for Range Management 2760 West Fifth Avenue Denver, Colorado 80204 303-571-0174		●							
The Nature Conservancy Colorado Field Office and Chapter 1732 Pearl Street Denver, Colorado 80203 303-837-0505		●		●		●			
Thorne Ecological Institute 4860 Riverbend Road Boulder, Colorado 80301 303-443-7325	●	●			●	●	●		
Trout Unlimited 1740 High Street Denver, Colorado 80218 303-392-0218		●			●				
Trout Unlimited Colorado Council 2719 East Third Avenue Denver, Colorado 80206 303-399-1960		●			●				
The Wilderness Society Southwest Regional Office 1657 Pennsylvania Street Denver, Colorado 80203 303-837-0902		●	●	●	●			●	
Upper San Juan Land Reliance Jack Jacober Arboles, Colorado 81121									
Wilson Ornithological Society Department of Fish/Wildlife Biology Colorado State University Fort Collins, Colorado 80523 303-491-7196		●							

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Connecticut									
Aspetuck Land Trust, Inc. P. O. Box 444 Westport, Connecticut 06880 203-226-4838	●	●			●		●		
Avon Land Trust P. O. Box 267 Avon, Connecticut 06001 203-677-0392	●	●			●		●		
Barkhamsted Land Trust Attn: Jay Weintraub 2 Wintonbury Mall Bloomfield, Connecticut 06002	●	●			●		●		
Bethany Conservation Trust, Inc., c/o H. P. Welch 375 Sperry Road Bethany, Connecticut 06525	●	●			●		●		
Bethel Land Trust, Inc. c/o Kellogg 23 Rushwell Road Bethel, Connecticut 06801	●	●			●		●		
Bethlehem Land Trust Roger Branson, President Woodcreek Road Bethlehem, Connecticut 06751	●	●			●		●		
Branford Land Conservation Trust, Inc. Box 254 Branford, Connecticut 06405	●	●			●		●		
Brockfield Open Space Legacy Box 176 Brockfield Center, CT 06805 203-775-9784	●	●			●		●		
Canton Land Conservation Trust, Inc. P. O. Box 38 Canton, Connecticut 06019 203-693-4891	●	●			●		●		
Cheshire Land Trust, Inc. P. O. Box 781 Cheshire, Connecticut 06410 203-272-6483	●	●			●		●		
Clinton Land Conservation Trust, Inc. P. O. Box B Clinton, Connecticut 06413 203-669-7859	●	●			●		●		
Connecticut Audubon Council 20 Union Street Seymour, Connecticut 06483 203-888-3124	●								
Connecticut Audubon Society 2325 Burr Street Fairfield, Connecticut 06430 203-259-6305		●							

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Connecticut, continued									
Conservation and Research Foundation Box 1445 Connecticut College New London, CT 06320 203-873-8514									●
Connecticut Land Trust Service Bureau P. O. Box MMM Wesleyan Station Middletown, CT 06457 203-344-9867		●							
Connecticut River Watershed Council, Inc. 125 Combs Road East Hampton, MA 01027	●	●					●		
Deep River Conservation Trust c/o Hawthorn L. Smyth Long Hill Road Essex, Connecticut 06426	●	●			●		●		
Essex Conservation Trust, Inc. Box 373 Essex, Connecticut 06426 203-767-8520	●	●			●		●		
East Granby Land Conservation Trust, Inc. P. O. Box 39 East Granby, CT 06026 203-653-7597	●	●			●		●		
East Haddam Land Trust c/o Dr. Richard Goodwin Box 1445, Connecticut College New London, Connecticut 06320	●	●			●		●		
Enfield Land Conservation Trust Old Abbe Road Warehouse Point, CT 06088 203-623-0965	●	●			●		●		
East Lyme Land Conservation Trust, Inc. P. O. Box 645 Niantic, Connecticut 06375 203-739-2114	●	●			●		●		
Farmington Land Trust, Inc. P. O. Box 1 Farmington, Connecticut 06032 203-677-7713	●	●			●		●		
Flanders Nature Center Attn: Edward Briggs Flanders Road Woodbury, Connecticut 06798	●	●			●		●		
Goshen Land Trust, Inc. P. O. Box 111 Goshen, Connecticut 06756	●	●			●		●		
Granby Land Trust, Inc. P. O. Box 23 Granby, Connecticut 06034	●	●			●		●		

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Connecticut, continued									
Great Meadows Conservation Trust, Inc. 400 Hartford Avenue Wethersfield, CT 06109 203-529-0263	●	●			●		●		
Haddam Land Trust, Inc. Old County Road Haddam, Connecticut 06438 203-345-4324	●	●			●		●		
Hamden Land Conservation Trust, Inc. P. O. Box 6152 Whitneyville Hamden, Connecticut 06517	●	●			●		●		
Harwinton Land Conservation Trust, Inc. P. O. Box 131 Harwinton, Connecticut 06790	●	●			●		●		
Heritage Land Preservation Trust P. O. Box 596 Torrington, Connecticut 06790	●	●			●		●		
Joshua's Tract Conservation and Historic Trust c/o Willimantic Trust Co. Main Street Williamantic, CT 06226	●	●			●		●		
Killingsworth Land Conservation Trust 344 Roast Meat Hill Road Killingsworth, CT 06417	●	●			●		●		
Kongscut Land Trust Attn: Dana B. Waring Highmead Glastonbury, CT 06033	●	●			●		●		
Land Conservancy of Ridgefield, Inc. P. O. Box 566 Ridgefield, Connecticut 06877 203-438-3830	●	●			●		●		
Land Trust of Darien, Inc. P. O. Box 1074 Darien, Connecticut 06820 203-655-0191	●	●			●		●		
Litchfield Conservation Land Trust, Inc. P. O. Box 55 Hadlyme, Connecticut 06439	●	●			●		●		
Madison Land Conservation Trust, Inc. P. O. Box 561 Madison, Connecticut 06443 203-245-2446	●	●			●		●		

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Connecticut, Continued									
Manchester Land Conservation Trust, Inc. 55 Bruce Road Manchester, Connecticut 06040 203-646-2223	●	●			●		●		
Mashantucket Land Trust, Inc. P. O. Box 49 Mystic, Connecticut 06372	●	●			●		●		
Monroe Fields and Wood Association, Inc. 190 Hammertown Road Monroe, Connecticut 06468 203-268-6060	●	●			●		●		
Naromi Land Trust, Inc. Leach Hollow Road Sherman, Connecticut 06784	●	●			●		●		
New Hartford Conservation Trust, Inc. P. O. Box 272 New Hartford, CT 06057	●	●			●		●		
Newtown Forest Association, Inc. P. O. Box 213 Newtown, Connecticut	●	●			●		●		
North Branford Land Conservation Trust, Inc. c/o Edmund Pantani North Hill Road North Branford, CT 06471 203-484-9056	●	●			●	●	●		
North Haven Land Trust, Inc. 88 Fitch Street North Haven, CT 06473 203-288-0946	●	●			●		●		
Norwalk Land Conservation Trust P. O. Box 34 Rowayton, Connecticut 06853	●	●			●		●		
Old Lyme Conservation Trust, Inc. P. O. Box 163 Old Lyme, Connecticut 06371	●	●			●		●		
Orange Land Trust, Inc. P. O. Box 785 Orange, Connecticut 06477	●	●			●		●		
Peace Sanctuary Trust, Inc. 233 River Road Mystic, Connecticut 06355 203-442-4491	●	●			●		●		
Plymouth Land Trust, Inc. c/o Matthew Malley South Street Extension P. O. Box 311 Plymouth, Connecticut 06782 203-283-5918	●	●			●		●		

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Connecticut, Continued									
Pond Mountain Trust, Inc. Fuller Mountain Road, RFD 1 Kent, Connecticut 06757	●	●			●		●		
Pootatuck Land Trust 66 Jefferson Street Stratford, Connecticut 06497 203-375-1790	●	●			●		●		
Redding Land Trust, Inc. P. O. Box 76 Redding, Connecticut 06875 203-938-2273	●	●			●		●		
Roxbury Land Trust, Inc. Painter Hill Road Roxbury, Connecticut 06783 203-354-9771	●	●			●		●		
Salisbury Association c/o Mr. William Merrill Belgo Road Lakeville, Connecticut 06039		●							
Saybrook Land Conservancy, Inc. P. O. Box 425 Old Saybrook, CT 06475	●	●			●		●		
Shelton Land Conservation Trust, Inc. P. O. Box 2276 Huntington Station Shelton, Connecticut 06484 203-929-1652	●	●			●		●		
Sierra Club Connecticut Chapter 69 Lafayette Hartford, Connecticut 06106 203-527-9788		●		●	●				
Simsbury Land Conservation Trust P. O. Box 634 Simsbury, Connecticut 06070	●	●			●		●		
Somers Land Trust Attn: Mrs. Richard DeBell 177 Gulf Road Somers, Connecticut 06071	●	●			●		●		
Southington Land Conservation Trust, Inc. P. O. Box 406 Southington, CT 04689	●	●			●		●		
South Windsor Land Conservation Trust Tim Shepard, Chairman J. E. Shepard Company 200 Sullivan Avenue South Windsor, CT 06074	●	●			●		●		

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Connecticut, continued									
Stamford Land Conservation Trust, Inc. c/o Ralph Nichol, Esq. Cummings and Lockwood 1 Atlantic Street Stamford, Connecticut 06901	●	●			●		●		
Swampfield Land Trust, Inc. c/o Mrs. Phillip Wiedel 25 Long Ridge Road Danbury, Connecticut 06810	●	●			●		●		
Steep Rock Association, Inc. P. O. Box 133 Washington, Connecticut 06793 203-868-7431	●	●			●		●		
The Connecticut Forest and Park Association 1010 Main Street, Bos 389 Hartford, Connecticut 06108 203-289-3637		●				●			
The Nature Conservancy Connecticut Chapter Science Tower Box MMM, Wesleyan Station Middletown, Conn. 06457 203-344-0716	●	●				●	●		●
Tolland Land Trust, Inc. c/o Robert Hopkins 289 Goose Lane Tolland, Connecticut 06054	●	●			●		●		
Trustees of Roseland Park P. O. Box 163 Mansfield, Connecticut 06250	●	●			●		●		
Wallingford Land Trust, Inc. P. O. Box 611 Wallingford, CT 06492	●	●			●		●		
Weantinogue Heritage, Inc. P. O. Box 242 New Milford, CT 06776 203-354-5004	●	●			●		●		
Woodbridge Conservation Trust, Inc. c/o Mrs. Jean Gregg 11 Old Quarry Road Woodbridge, Connecticut 06525	●	●			●		●		
West Farms Land Trust, Inc. P. O. Box 113 Quaker Hill, CT 06375 203-443-5576	●	●			●		●		
Westbrook Land Conservation Trust, Inc. P. O. Box 360 Westbrook, Connecticut 06498 203-399-9339	●	●			●		●		
West Haven Land Trust c/o Ms. Linda Reilly 155 Athwater Street West Haven, CT 06516	●	●			●		●		

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Connecticut, continued									
Wilton Land Conservation Trust P. O. Box 77 Wilton, Connecticut 06897 203-765-5543	●	●			●		●		
Wyndham Land Trust P. O. Box 333 Pomfret Center, CT 06259	●	●			●		●		
Delaware									
Civic League for New Castle County 701 Shipley Street 1722 A Faulkland Road Wilmington, Delaware 19805		●							
Coalition for Natural Stream Valleys 153 Madison Drive Newark, Delaware 19711 302-366-8059		●			●				
Delaware Nature Education Society Box 3900 Greenville, Delaware 19807 OR Box 700 Hockessin, Delaware 19707 302-239-2334	●					●	●		●
Delaware Wild Lands, Inc. Attn: Holger "Rusty" Harvey Fifth and Main Streets Odessa, Delaware 19730 302-834-1332	●								
Delmarva Ornithological Society P. O. Box 4247 Greenville, Delaware 19807 302-655-8566		●							
Forward Lands, Inc. 810 Blackshire Road Wilmington, Delaware 19805 Attn: Clayton M. Hoff 302-655-2151	●								
Red Clay Creek Valley Association 1760 Unionville-Wowasit Roads West Chester, PA 19380 215-793-1090		●							
District of Columbia									
RD #1, Box 406 Milford, Delaware 19963 302-422-8940		●							
Society of Natural History of Delaware RD #1, Box 137 Hockessin, Delaware 19707						●			

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
District of Columbia									
American Land Forum 1025 Vermont Avenue, #703 Washington, D. C. 20005 202-347-4516		●							
Animal Protection Institute 613 Pennsylvania Avenue, S.E. Washington, D. C. 20003 916-422-1921					●				
American Rivers Conservation Council 323 Pennsylvania Avenue, S.E. Washington, D. C.		●			●				
America the Beautiful Fund 219 Shoreham Building Washington, D. C. 20005 202-638-1649	●								●
Animal Welfare Institute P. O. Box 3650 Washington, D. C. 20007					●				
Barrier Islands Workshop Suite 300, 1717 Massachusetts Avenue, N. W. Washington, D. C. 20036 202-797-4300		●			●				
Botanical Society of America Fish and Wildlife Service Department of the Interior Washington, D. C. 20240				●		●			
Center for Environmental Education, Inc. Suite 206 1925 K Street Washington, D. C. 20006 202-488-4996		●							
Center for Natural Areas 1525 New Hampshire Ave., N.W. Washington, D. C. 20036				●		●			
Defenders of Wildlife 1244 - 19th Street, N.W. Washington, D. C. 20036		●	●		●				
Environmental Action 1846 Connecticut Avenue, N.W. Suite 731 Washington, D. C. 20036 202-833-1845		●			●				
Environmental Action Foundation 724 Dupont Circle Boulding Washington, D. C. 20036 202-659-9682		●							●
Environmental Defense Fund 1525 - 18th Street, N.W. Washington, D. C. 20036 202-833-1484		●			●				

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
District of Columbia, continued									
Environmental Law Institute 1346 Connecticut Avenue, N.W. Washington, D. C. 20036 202-452-9600		●							
Environmental Policy Center 317 Pennsylvania Avenue, S.E. Washington, D. C. 20003 202-547-5330		●			●				
Fund for Animals, Inc. 1765 P Street, N.W. Washington, D. C. 20036 202-234-4002		●	●		●				
Friends of Animals 1707 H Street, N.W., Suite 1005 Washington, D. C. 00006 202-223-8440		●			●				
Friends of the Earth 530 - 7th Street, S.E Washington, D. C. 20003 202-543-4312		●		●	●				
Humane Society of the United States 2100 L Street, N.W. Washington, D. C. 20037		●							
League of Conservation Voters 317 Pennsylvania Avenue, S.E. Washington, D. C. 20006 202-547-7200		●							
National Parks and Conservation Association 1701 - 18th Street, N.W. Washington, D. C. 20009 202-265-2717		●		●	●				
National Park Foundation 1825 K Street, N.W. Washington, D. C. 202-343-6578		●							
National Recreation and Park Association 1601 North Kent Street Arlington, Virginia 22209 703-525-0606									
Natural Resources Defense Council, Inc. 1725 I Street, N.W., Suite 600 Washington, D. C. 20006 202-223-8210		●			●				
National Wildlife Federation 1412 - 16th Street, N.W. Washington, D. C. 20036 202-797-6800		●	●		●	●			
National Wildlife Federation Endowment 1412 16th Street, N.W. Washington, D. C. 20036 202-790-4321		●							●

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
District of Columbia, continued									
Sierra Club Potomac Chapter c/o Hudson 7276 Larrup Court Alexandria, Virginia 22310		●	●		●				
Society for Animal Protective Legislation P. O. Box 3719 Washington, D. C. 20007					●				
Society of American Foresters 5400 Grosvenor Lane Washington, D. C. 20014 301-857-8720								●	
The Conservation Foundation 1717 Massachusetts Ave., N.W. Washington, D. C. 20036 202-797-4300		●		●	●				
The Wilderness Society 1901 Pennsylvania Ave., N.W. Washington, D. C. 20006 202-293-2732		●			●			●	
Wildlife Management Institute 1000 Vermont Avenue, N.W. 709 Wire Building Washington, D. C. 20005 202-347-1774		●							
The Wildlife Society, Inc. 5410 Grosvenor Lane Washington, D. C. 301-986-8700		●			●				
Florida									
American Society of Ichthyologists and Herpetologists Biology Department Florida Atlantic University Boca Raton, Florida 33431				●					
Audubon Society, Appalachee Chapter Attn: R. Marvin Cook, Jr. P. O. Box 1237 Tallahassee, Florida 32302 904-224-6414		●	●						
Charlotte County Conservation Society Attn: James A. Kelly P. O. Box 1285 Punta Gorda, Florida 33950									
Collier County Conservancy, Inc. Attn: Willard V. Merrihue P. O. Box 2136 Naples, Florida 33940 813-262-0304		●	●		●		●		
Columbia County Conservation Council P. O. Box 592 Lake City, Florida 32055 904-752-5974									

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Florida, continued									
Environmental Information Center 935 Orange Avenue Winter Park, Florida 32789 305-644-5377		●							
Florida Audubon Society P. O. Drawer Maitland, Florida 32751 305-647-2615		●	●			●	●		
Florida Conservation Council Attn: T. N. Anderson 1111 North Magnolia, Apt. M101 Tallahassee, Florida 32789									
Florida Conservation Foundation, Inc. Attn: Bill Partington 935 Orange Avenue Winter Park, Florida 32789									
Florida Defenders of the Environment, Inc. Attn: Ms. Marjorie H. Carr 622 North Main Street Gainesville, Florida 32601 904-372-6965			●		●	●			
Florida Keys Land Trust Attn: Jonathan Edwards Suite 11, Vaughn Building Tavernier, Florida 33070									
Florida Forestry Association Attn: Herbert W. McRae P. O. Box 1696 Tallahassee, Florida 32302 904-222-5646									
Florida Natural Areas Inventory 254 East 6th Avenue Tallahassee, Florida 32303 904-224-8207					●		●		
Izaak Walton League Florida Division 1409 - 21st Street, West Bradenton, Florida 33505			●			●			
Martin County Conservation Alliance Attn: John McQuigg North River Shores P. O. Box 1408 Stuart, Florida 33494									
Sanibel-Captiva Conservation Foundation, Inc. Attn: Richard Workman, William L. Webb P. O. Drawer S Sanibel, Florida 33957 813-472-2329		●							

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Florida, continued									
Savanna Wilderness Trust, Inc. 5775 Southeast Nassau Terrace Stuart, Florida 33494									
The Nature Conservancy Florida Field Office and Chapter 1350 Orange Avenue, Suite 224 Winter Park, Florida 32789 305-628-5887	●	●				●	●		●
Sierra Club Florida Chapter c/o Entwistle 2036 Sunset Road Winter Park, Florida 33792		●		●	●				
Volusia Land Trust, Inc. 122 West Michigan Avenue Deland, Florida 32720									
Georgia									
Audubon Society Attn: Elmer Butler 1440 Diamond Head Circle Decatur, Georgia 30033 404-261-1470	●	●					●		
Barrier Island Coalition Attn: Hans Neuhauser 4405 Paulsen Street Savannah, Georgia 31407		●							
Coastal Heritage Society Attn: Rusty Fleetwood P. O. Box 782 Savannah, Georgia 31402									
Emergency Land Fund Attn: Joe Brooks 564 Lee Street Atlanta, Georgia 30310 404-758-5506									●
Georgia Conservancy Attn: G. Robert Kerr 3110 Maple Drive, Suite 407 Atlanta, Georgia 30305 404-262-1967	●	●				●			
Georgia Conservancy Attn: Hans Neuhauser 4405 Paulsen Street Savannah, Georgia 34105 912-355-4840	●	●				●			
Georgia Environmental Council 3110 Maple Drive, Suite 410 Atlanta, Georgia 30305 404-262-1967		●			●				
Hurricane Creek Protective Society Attn: Delano Deen Route 1 Ama, Georgia 31510									

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Georgia, continued									
Koinonia Partners (CLT) Attn: Ted Wisher, George Worth Route 2 Americus, Georgia 31709									
The Garden Club of Georgia, Inc. Attn: Mrs. Robert L. Lewis Route 4 Baxley, Georgia 31513 912-367-2558									
Sierra Club Chattahoochee Chapter P. O. Box 38131 Atlanta, Georgia 30334 404-633-0666		●			●				
The Nature Conservancy Georgia Field Office 7564 Lowilla Lane Lithonia, Georgia 30058 404-482-	●	●			●	●	●		
Trout Unlimited Georgia Council 2816 Spain Drive East Point, Georgia 30344 404-344-4179		●			●				
The Wilderness Society Southeast Field Office 3110 Maple Drive, Suite 407 Atlanta, Georgia 30305 404-262-1357		●	●	●	●	●		●	
Hawaii									
Hawaii Audubon Society P. O. Box 22832 Honolulu, Hawaii 96822 808-395-6409		●							
Hawaiian Botanical Society c/o Botany Department University of Hawaii 3190 Maile Way Honolulu, Hawaii 96822		●		●		●			
Iliali Reforestation Society P. O. Box 4964 Kamnela, Hawaii 96743 808-889-6832		●				●			
Life of the Land 404 Piikoi Street, Room 209 Honolulu, Hawaii 96814 808-521-1300									
Sierra Club Hawaii Chapter P. O. Box 22897 Honolulu, Hawaii 96822		●		●	●				
Idaho									
Clearwater Conservation Forum 215 - 4th Street Lewiston, Idaho 83501 208-743-9948			●						

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Idaho, continued									
Hells Canyon Preservation Council Attn: John Barker 2124 Grelle Street Lewiston, Idaho 83501		●			●				
Idaho Environmental Council Attn: Gerald Jayne P. O. Box 1780 Idaho Falls, Idaho 83401 208-523-6692		●							
Idaho Conservation League P. O. Box 844 Boise, Idaho 83701 208-345-6933		●			●				
Idaho Park Foundation, Inc. Attn: Sharon Huebler 1020 West Franklin Boise, Idaho 83702 208-344-7141	●								
The Nature Conservancy Idaho Chapter Star Route, Box 15 Bliss Idaho 83314	●	●				●	●		●
Western Association of Fish and Wildlife Agencies c/o Robert L. Salter P. O. Box 25 Boise, Idaho 83707 208-384-3771									
Wood River Land Trust Attn: Ms. Ellen Glaccum P. O. Box 1173 Ketchum, Idaho 83340	●								
Idaho Landholder-Sportsman Council Attn: Hugh A. Wilson Box 25 Boise, Idaho 83703									
Wood River Resource Area Association Attn: Everett Ward 131 - 3rd Avenue, East Gooding, Idaho 83330									
Illinois	●	●							
Chicago Audubon Society attn: Marjorie Molyneaux 20 North Wacker Dr., Room 1425 Chicago, Illinois 60606									
Chicago Herpetological Society 2001 North Clark Street Chicago, Illinois 60614		●				●			
Citizens for Conservation Barrington Area Council of Governments 132 West Station Street Barrington, Illinois		●							

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Illinois, continued									
Citizens for Preservation of Knox County c/o Mrs. M. Jane Johnson Rural Route 1 Gilson, Illinois 61436 309-639-4421		●							
Corelands/Open Lands Project 53 West Jackson Street Chicago, Illinois 60604 312-427-4256	●						●		●
Committee on the Middle Fork of the Vermilion River c/o James Yoho 311 West University Avenue Champaigne, Illinois 61820			●	●					
Defenders of the Fox c/o Robert Layer McHenry County Regional Planning Commission Woodstock, Illinois 60098		●			●				
Ducks Unlimited, Inc. P. O. Box 66300 Chicago, Illinois 60666		●					●		
DuPage Forest Foundation 881 West St. Charles Road Lombard, Illinois 60148									●
Eagle Valley Environmentalists, Inc. P. O. Box 155 112 Railroad Street Apple River, Illinois 61001	●					●			
Environmental Conservation Organization c/o College of Lake County 19351 West Washington Street Grayslake, Illinois 60030		●			●				
Evanston Ecology Center McCormick Boulevard Evanston, Illinois 60201									
Field Museum of Natural History East Roosevelt Road and Lake Shore Drive South Chicago, Illinois 60605						●			
Forest Park Foundation 4801 North Prospect Road Peoria, Illinois 61614									●
Friends of the Chicago River c/o Open Lands Project 53 West Jackson Boulevard Chicago, Illinois 60604		●							
Friends of Ryder's Woods P. O. Box 81 Woodstock, Illinois 60098		●							
Friends of the Parks 53 West Jackson Boulevard Chicago, Illinois 60604		●							

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Illinois, continued									
Fulton County Conservation Club Attn: Don Cardosi 950 South 3rd Avenue Canton, Illinois 61520		●							
Garden Club of Illinois, Inc. Thornhill Building The Morton Arboretum Lisle, Illinois 60532									
Green Earth, Inc. Rural Route #2 Murphysboro, Illinois 62966									
Illinois Audubon Society Attn: Warren DeWalt 34 W, 269 White Thorn Road Wayne, Illinois 60184	●	●							
Illinois Dunesland Preservation Society 2460 St. Johns Avenue Highland Park, Illinois 60035		●							
Illinois Prairie Path P. O. Box 1086 616 Delles Road Wheaton, Illinois 60187 OR 295 Abbotsford Glen Ellyn, Illinois 60137									
Illinois Environmental Council 53 West Jackson Chicago, Illinois 60604		●			●				
Izaak Walton League Illinois Division Rural Route #1 Izaak Walton Lake Road Metamora, Illinois 61548							●		
Izaak Walton League of America Endowment, Inc. P. O. Box 535 LaGrange, Illinois 60525	●	●			●				
Jane Addamsland Park Foundation c/o Freeport Park District Read Park Freeport, Illinois 61032									●
Lake Forest Open Lands Association 999 East Rosemary Lake Forest, Illinois 60045		●							
Max McGraw Wildlife Foundation P. O. Box 194 Dundee, Illinois 60118									●
Lake Michigan Federation Judith Kiriazis, Director 53 West Jackson Boulevard Chicago, Illinois 60604		●							

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Illinois, continued									
McHenry County Defenders P. O. Box 503 Crystal Lake, Illinois 60014		●			●				
The Morton Arboretum Route 53 Lisle Illinois 60532									
Natural Land Institute 320 South Third Street Rockford, Illinois 61108 815-964-6666	●	●	●			●			
The Nature Conservancy Illinois Field Office and Chapter 79 West Monroe St., Suite 708 Chicago, Illinois 60603 312-346-8166	●	●	●			●	●		●
The Nature Foundation, Inc. 4433 West Touhy Avenue Lincolnwood, Illinois 60646									●
The Nature Institute 2900 Beltline Parkway Alton, Illinois 62002									
North Branch Prairie Project 1480 West Byron Chicago, Illinois 60613									
Open Lands Project/Corelands Attn: Judith Stockdale, Mary Lou Marzuki 53 West Jackson Boulevard, Suite 850 Chicago, Illinois 60604 312-427-4256		●			●				●
Palatine Conservation Committee Attn: Reuben Riemer 18 South Hickory Street Palatine, Illinois 60067 312-359-1093									
Parklands Foundation Department of Biological Sciences Illinois State University Bloomington, Illinois 61761									●
The Prairie Club Attn: Jerre Doughty 6 East Monroe Street, Room 1507 Chicago, Illinois 60603 312-236-3342	●	●							
Prairie Preservation Society of Ogle County, Inc. c/o Oregon Township Public Library Oregon, Illinois 61061	●	●				●			

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Illinois									
Save the Prairie Society 10327 Elizabeth Street Westchester, Illinois 60153		●							
Save the Valley Association Box 383 Lemont, Illinois 60439		●							
Sierra Club Great Lakes Chapter 53 West Jackson, Suite 1064 Chicago, Illinois 60604		●		●	●				
Thorn Creek Preservation Society P. O. Box 704 Richton Park, Illinois 60471		●							
Vermillion Citizens Conservation League Attn: James E. Rokosch 433 Montclaire Danville, Illinois 61832 217-442-2286		●							
Indiana									
Acres, Inc. Attn: Jane Dustin 1802 Chapman Road Huntertown, Indiana 46748 219-637-6264	●	●	●	●	●				
Committee on Big Pine Creek Attn: William J. Parmenta 900 North 20th Street Lafayett, Indiana 47904 317-447-3407		●							
Community Land Association Attn: Dorothy Metzler Route 1 Duff, Indiana									
Crooked Lake Property Owners Association Rural Route #9 Columbia City, Indiana 46725									
Fox Island Alliance, Inc. 3333 Rosewood Drive Fort Wayne, Indiana 46804	●	●							
Indiana Academy of Science Committee for Preservation of Natural Areas Wabash College 301 West Wabash Avenue Crawford, Indiana 47933						●			
Indiana Audubon Society, Inc. Mary Gray Bird Sanctuary Rural Route 6 Connersville, Indiana 47331 317-825-9788				●	●				

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Indiana, continued									
Indiana Natural Heritage Program Division of Outdoor Recreation Indiana Department of Natural Resources 612 State Office Building Indianapolis, Indiana 46204 317-232-4078		●				●			
Indiana Public Interest Research Group 703 East Seventh Street Bloomington, Indiana 47401 812-337-7575		●			●				
Izaak Walton League Indiana Division 1802 Chapman Road Huntertown, Indiana 46748 219-637-6264	●	●		●	●				
KEEP Rural Route #6 Chapman Road Warsaw, Indiana 46850		●							
Merry Lea Environmental Center P. O. Box 263 Wolf Lake, Indiana 46796 219-799-5869		●							
Miller Citizens Corporation 186 South Sullivan Street P. O. Box 2645 Gary, Indiana 46403 219-938-2285									
Monroe Twp. Conservation Club RR 4, P. O. Box C71 Muncie, Indiana 47302 317-288-1697									
The Nature Conservancy Indiana Field Office and Chapter Route 1, Box 155 Nashville, Indiana 47448 812-988-7547		●	●	●		●	●		●
Olin Lake Advisory Council c/o Dr. and Mrs. Donald Welsh Route 3 Churubusco, Indiana 46723 219-693-2951		●	●						
Pulaski County Search and Rescue P. O. Box 737 Francesville, Indiana 47946 219-693-2951									

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Indiana, continued									
Save the Dunes Council, Inc. Charlotte J. Read, Exec. Dir. P. O. Box 114 Beverly Shores, Indiana 46301 219-879-3937		●			●				
Sierra Club Hoosier Chapter P. O. Box 40275 Indianapolis, Indiana 46240		●		●	●				
Society for Preservation and Use of Resources 801 Elks Road Richmond, Indiana 47374 317-962-3745	●								
Steuben County Lakes Council, Inc. c/o Norma Wiesner, Administrative Secretary Box 96 Fremont, Indiana 46737 219-833-1333		●			●				
Wildcat Creek Federation, Inc. P. O. Box 855 316 Wildwood Lane Lafayette, Indiana 47905 317-448-1169									
Iowa									
Dubuque County Conservation Society Attn: Mr. David Leifker 823 Dubuque Building Dubuque, Iowa 52001									
Iowa Natural Heritage Found. Insurance Exchange Building, Suite 830 505 Fifth Avenue Des Moines, Iowa 50301 515-288-1846		●					●		
Iowa Natural Areas Program Iowa State Conservation Commission Wallace State Office Building Des Moines, Iowa 50319				●		●			
Iowa Academy of Science University of Northern Iowa Cedar Falls, Iowa 50613 319-273-2021		●							
Iowa Ornithologists Union 235 McClellan Boulevard Davenport, Iowa 52803						●			
Iowa Conservation Education Council, Inc. 117 Agronomy Building Iowa State University Ames, Iowa 50011 515-294-1923		●							

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Iowa									
Izaak Walton League Iowa Division R.D. 6, Box 249 Iowa City, Iowa 52240 319-351-7037		●			●				
Sierra Club Iowa Chapter c/o Nicholson 1006 North D Street Indianola, Iowa 50125		●		●	●				
Soil Conservation Society of America 7515 N. E. Ankeny Road Ankeny, Iowa 50021 515-289-2331								●	
The Nature Conservancy, Iowa Field Office and Chapter 424 10th Street, Suite 304 Des Moines, Iowa 50307 515-244-5044	●	●				●	●		●
Kansas									
Grassland Heritage Foundation Attn: Sally A. Delwiche 5450 Buena Vista Shawnee Mission, Kansas 913-677-3326	●						●		
Kansas Advisory Council for Environmental Education Friends University Wichita, Kansas 67213 316-261-5800				●					
Kansas Ornithological Society 1285 MacVicar Avenue Topeka, Kansas 66604 913-232-1847									●
The Land Institute Rural Route 3 Salina, Kansas 67401 913-823-8967									
O-Keet-Sha Trail Conservation Committee P. O. Box 305 Tonganoxie, Kansas 66086 913-845-2038									
Save the Tallgrass Prairie, Inc. 4101 West 54th Terrace Shawnee Mission, Kansas 66205 913-384-3197		●			●				
Sierra Club Kansas Chapter c/o Martin R. R. 2, Box 170 5640 South 103rd Street East Derby, Kansas 67037		●		●	●				

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Kentucky									
Bluegrass Land Trust Attn: Betty Ann Doyle 712 West Short Street Lexington, Kentcuky 40507 606-254-2411	●						●		
Concerned Citizens of Scott County Attn: Mrs. William N. Offult East Main Street Georgetown, Kentcuky 40324 606-863-2020		●							
Kentucky Heritage Commission Attn: Mrs. Eldred Milton 401 Wapping Street Frankfort, Kentucky 40601									
Kentucky Natural Heritage Program Kentucky Nature Preserves Commission 407 Broadway Frankfurt, Kentucky 40601 502-564-2886				●		●			
Licking Valley Protective Association P. O. Box 124 Cynthianna, Kentucky 41301									
The Nature Conservancy Kentucky Chapter 1343 Prather Road Lexington, Kentucky 40502 606-255-6555	●	●				●	●		●
Red River Gorge Legal Defense Fund 610 Silverleaf Drive Lexington, Kentucky 40505					●				
River Fields Foundation Attn: Mrs. Lee Brown Louisville, Kentucky									●
Save Our Land of Floyd County Attn: Irvin Harris Prestonburg, Kentucky 41653									
Save the Valley, Inc. Attn: Martin Thieman P. O. Box 813 Madison, Kentucky 47250		●							
Sierra Club Cumberland Chapter c/o Graddy Route 1, Hedden Road Versailles, Kentucky 40383 606-846-4907		●							
Louisiana									
Catahoula Lake Consv. Club Attn: Pete Thompson Box 68 Ball, Louisiana 71405		●							

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Louisiana, continued									
Citizens for Sound Planning Attn: John R. Hammond P. O. Box 19344 New Orleans, Louisiana 70179		●							
Louisiana Landmarks Society New Orleans Chapter 1440 Moss Street New Orleans, Louisiana 70119		●							
Louisiana Wildlife Federation Attn: L. W. Hammer P. O. Box 233 Buston, Louisiana 71270		●							
St. Charles Environmental Council Attn: M. L. Cambre 402 Marino Norco, Louisiana 70079		●							
Sierra Club Delta Chapter 111 South Hennessey Street New Orleans, Louisiana 70119 504-482-8760		●		●	●				
Tangipahoa Environmental Council Attn: William Graziano 209 Alexander Street Hammond, Louisiana 70401		●							
Maine									
Covenant Community Land Trust Attn: Dick Tracy Box 161A, Star Route Bucksport, Maine 04416 207-469-7961		●						●	
Freeport Conservation Trust Attn: John B. Emory OR Andrew A. Cabot Flying Point Road Freeport, Maine 04032		●						●	
Friends of Nature Attn: Martin R. Haase Brooksville, Maine 04617		●							
Gulf Island Conservancy Attn: Elizabeth M. Brown 665 Main Street Lewiston, Maine 04240									
Holt Mill Pond Project Attn: Lawrence P. Greenlaw, Jr. Stonington, Maine 04681 207-367-2738									
Kennebunkport Conservation Trust Attn: Sterling Dow, III Kennebunkport, Maine		●						●	

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Maine, continued									
Maine Association of Conservation Commissions 125 Auburn Street Portland, Maine 04103		●							
207-797-9075 Maine Audubon Society (AIM) 118 Route 1 Falmouth, Maine 04105 207-781-2330	●					●			
Maine Coast Heritage Trust Attn: Ben Emory Box 426 Northeast Harbor, Maine 04662 207-276-5156	●	●					●		
Monhegan Associates, Inc. Attn: Daniel Rothstein Monhegan, Maine 04852									
Maine Audubon Society Attn: William Ginn 118 U. S. Route 1 Old Gilsland Farm Falmouth, Maine 04105	●								
The Nature Conservancy Maine Chapter 20 Federal Street Brunswick, Maine 04011 207-727-5181	●	●				●	●		●
New England Wildflower Society, Inc. Attn: Mrs. David B. Soule Montsmeag Road Wiscasset, Maine 04578						●			
Ocean Park Conservation Society Attn: John Bird Ocean Park, Maine 04063		●							
Pine Tree Conservation Society Attn: Walter C. Ivancevic 1075 Forest Avenue Portland, Maine 04103		●							
Saco River Corridor Association Attn: Mary Merrill River Bend Farm, Simpson Road Saco, Maine 04072		●							
Save Agamenticus Attn: Mrs. Luna Carne-Ross South Berwick, Maine 03908 207-384-2586		●							
Sheepscot Valley Conservation Association Attn: Joseph Barth P. O. Box 125 Alna, Maine 04535 207-586-5051									

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Maine, continued									
Vaughn's Island Preservation Trust Attn: Sterling Dow III Kennebunkport, Maine 04046		●					●		
Wildlife Preserves, Inc. c/o Richard S. Thorsell, James C. MacDonald, Hubert M. VanDeusen No Address									
Castine Conservation Trust Margaret Booth, President Castine, Maine 04421 207-326-3644		●					●		
Cape Elizabeth Rural Land Foundation c/o Peter Rand 1222 Shore Road Cape Elizabeth, Maine 04107 207-799-4292									●
Boothbay Region Land Trust, Inc. c/o Chester Duff, President Route 96 East Boothbay, Maine 04544 207-633-3187		●					●		
Owascoag Land Conservation Trust Attn: Rebecca Warren P. O. Box 72 Scarborough, Maine 04074		●					●		
Cobbossee Watershed District Attn: Thomas Gordon 15 High Street Winthrop, Maine 04367									
Falmouth Conservation Trust c/o Cynthia McMullin 158 Woodville Road Falmouth, Maine 04105		●					●		
Maryland									
Accokeek Foundation Piscatway Park 3400 Bryant Point Road Accokeek, Maryland 20607 301-645-7542									●
American Fisheries Society 5410 Grosvenor Lane Bethesda, Maryland 20014 301-897-8616						●			
Chesapeake Audubon Society P. O. Box 3173 Catonsville, Maryland 21228	●	●							
Chesapeake Bay Foundation 162 Prince George Street Annapolis, Maryland 21401 301-268-8816	●	●		●	●				

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Maryland, continued									
Chesapeake Environmental Protection Association P. O. Box 84 Edgewater, Maryland 21037		●							
Chester-Sassafrass Foundation, Inc. P. O. Box 160 Chestertown, Maryland 21620									●
Committee to Preserve Assateague Attn: Judith C. Johnson 616 Piccadilly Road Towson, Maryland 21204 301-828-4520		●			●				
Conservation Education Council of Maryland Parole Plaza Office Building Annapolis, Maryland 21401		●							
Izaak Walton League Maryland Division 6700 Needwood Road Derwood, Maryland 20855 301-926-8713		●			●				
Kent Conservation, Inc. P. O. Box 95 Chestertown, Maryland 21620									
Maryland Agricultural Land Preservation Foundation Attn: Alan Musselman Parole Plaza Office Building Annapolis, Maryland 21401									
Maryland Conservation Council 2574 Riva Road, 15-A Annapolis, Maryland 21401 301-225-2397									
Maryland Environmental Trust Stanbalt Building, Suite 1401 501 St. Paul Place Baltimore, Maryland 21202 301-659-6440							●		
Maryland Natural Heritage Program The Nature Conservancy 1800 North Kent Street Arlington, Virginia 22209 703-841-5326				●		●			
Maryland Ornithological Society, Inc. Attn: Cylburn 4915 Greenspring Avenue Baltimore, Maryland 21209						●			
Natural History Society of Maryland, Inc. 2643 North Charles Street Baltimore, Maryland 21218 301-235-6116						●			

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Maryland, continued									
The Nature Conservancy Maryland/Delaware Field Office Chevy Chase Center Office Building 35 Wisconsin Circle, Suite 304 Chevy Chase, Maryland 20015 301-656-3673		●	●				●		●
North American Habitat Preservation Society Attn: Beverly A. Bevan P. O. Box 869 Adelphi, Maryland 20783			●						
Seneca Creek Watershed Association 125 Central Avenue Gaithersburg, Maryland 20760			●						
Sugarloaf Citizens Association Barnesville, Maryland 20703 301-972-8115			●						
Sugarloaf Regional Trails, Inc. Dickerson, Maryland 20753			●					●	
The Valleys Planning Council, Inc. The Conservation Trust, Inc. Attn: Ms. Judy Baer P. O. Box 5402 Towson, Maryland 21204									
Worcester Environmental Trust P. O. Box 38 Snow Hill, Maryland 21863 301-632-2640									
Massachusetts									
Action Conservation Trust, Inc. P. O. Box 658 Action, Maine 01720		●	●				●		
Bolton Conservation Trust, Inc. c/o Mrs. Andrew C. Knowles P. O. Box 14, Nourse Road Bolton, Maine 01740		●	●				●		
Berkshire County Land Trust and Conservation Fund c/o First Agricultural Bank 99 West Street Pittsfield, Maine 01201		●	●				●		
Andover Village improvement Society P. O. Box 90 Andover, Maine 01810		●	●				●		
Boston Natural Areas Fund, Inc. 73 Tremont Street Boston, Maine 02108		●	●				●		

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Massachusetts, continued									
Brookline Land Conservation Trust c/o Eddy Lawrence Ropes and Gray 225 Franklin Street Boston, Massachusetts 02110	●	●					●		
Carlisle Conservation Foundation c/o Grant Wilson Westford Road Carlisle, Massachusetts 01741	●	●					●		
Center for Action on Endangered Species 175 West Main Street Ayer, Massachusetts 01432 (617) 772-0445		●							
Chatham Conservation Foundation, Inc. P. O. Box 137 Chatham, Massachusetts 02633	●	●					●		
Chelmsford Land Conservation Trust c/o Susanne Reade 115 High Street Chelmsford, Mass. 01824	●	●					●		
Cohasset Conservation Trust c/o Charles Fink 17 Summer Street Cohasset, Massachusetts 02005	●	●					●		
The Concord Land Conservation Trust P. O. Box 141 Concord, Massacnusetts 01742	●	●					●		
Connecticut River Watershed Council, Inc. 125 Combs Road Easthampton, Mass. 01027	●	●					●		
Conservation Law Foundation of New England, Inc. 3 Joy Street Boston, Massachusetts 02108 617-742-2540		●			●				
Dartmouth Natural Resources Trust, Inc. P. O. Box P-17 South Dartmouth, Mass. 02748	●	●					●		
Deerfield River Valley Conservation Association Ashfield Road Shelburne Falls, Mass. 01370 413-625-6628		●			●				
Dover Land Conservation Trust c/o N. S. Bartlett, Jr., Treasurer 133 Claybrook Road Dover, Massachusetts 02030	●	●					●		

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Massachusetts, continued									
Essex County Greenbelt Association 82 Eastern Avenue Essex, Massachusetts 01929	●	●					●		
Fennay Community Land Trust 167 Massachusetts Avenue Boston, Masachusetts 02115 617-536-2653, 267-2040	●	●					●		
Friends of the Earth 3 Joy Street Boston, Massachusetts 02108 617-367-9035		●		●	●				
Fund for the Preservation of Wildlife and Natural Areas One Boston Place Boston, Massachusetts 02106	●	●					●		
Grafton Forest Association, Inc. Box 264 Grafton Massachusetts 01519	●	●					●		
Groton Conservation Trust P. O. Box 587 Groton, Massachusetts 01450	●	●					●		
Harvard Conservation Trust Harvard, Massachusetts 01451	●	●					●		
Hingham Land Conservation Trust c/o Mrs. Paul L. Goodrich 634 Main Street Hingham, Massachusetts 02043	●	●					●		
The Kestrel Trust P. O. Box 1016 Amherst, Massachusetts 01004	●	●					●		
The Land Preservation Society of Norton, Inc. Box 204 Norton, Massachusetts 02776	●	●					●		
Laurel Hill Association of Stockbridge c/o Lillian Bender Shamrock Street Stockbridge, Mass 01262	●	●					●		
Lincoln Land Conservation Trust Box 22 Lincoln Center, Mass. 01773	●	●					●		
Littleton Conservation Trust c/o Dr. Henry S. Harvey 1 Wilderness Road Littleton, Mass. 01460	●	●					●		
Madaket Conservation Land Trust c/o Don Connors Choate, Hall, and Stewart Boston, Massachusetts 02108	●	●					●		

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Massachusetts, continued									
Manchester Conservation Trust P. O. Box 1486 Manchester, Mass. 01944	●	●					●		
Massachusetts Audubon Society, Inc. South Great Road Lincoln, Massachusetts 01773	●	●					●		
Massachusetts Farm and Conservation Land Trust 572 Essex Street Beverly, Massachusetts 01915	●	●					●		
Massachusetts Forest and Park Association 3 Joy Street Boston, Massachusetts 02108 617-742-2553					●				
Massachusetts Heritage Program Massachusetts Department of Environmental Management Division of Planning 100 Cambridge Street Boston, Massachusetts 02202 617-727-6268									
Mattapoisett Land Trust, Inc. P. O. Box 31 Mattapoisett, Mass. 02739	●	●					●		
Middlesex Canal and Preservation Society of Woburn, Inc. 4 Hart Street Woburn, Massachusetts 01801	●	●					●		
Nantucket Conservation Foundation, Inc. c/o James F. Lentowski Box 13 30 Main Street Nantucket, Mass. 02554	●	●					●		
Nantucket Land Council, Inc. P. O. Box 502 Old Town Building Washington Street Nantucket, Mass. 02554	●	●					●		
Nashoba Conservation Trust c/o Wesley S. Hills, President Prescott Street Pepperell, Mass. 01463	●	●					●		
Nashua River Watershed Association P. O. Box 126 Ayer, Massachusetts 01432									
Natural Resources Trust of Easton, Inc. P. O. Box 187 South Easton, Mass. 02375	●	●					●	●	

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Massachusetts, continued									
Natural Resources Trust of Mansfield, Inc. Box 685 Mansfield, Mass. 02048	●	●					●		
The Nature Conservancy Eastern Regional Office 294 Washington Street Boston, Massachusetts 02108	●	●					●		
New England Forestry Foundation, Inc. One Court Street Boston, Massachusetts 02108	●	●					●		
New England Wild Flower Society, Inc. Hemenway Road Framingham, Mass. 01701	●	●					●		
Newton Conservators, Inc. P. O. Box 11 Newton Center, Mass 02159	●	●					●		
Nissitissit River Land Trust Box 84 Hollis, N. H. 03049	●	●					●		
Northeastern Bird Banding Association, Inc. c/o Massachusetts Audubon Society Lincoln, Massachusetts 01773 617-259-9500		●							
Orleans Conservation Trust R. R. #1, Box 285 Orleans, Massachusetts 02653	●	●					●		
Plymouth County Wildlands Trust c/o Robert L. Shea, Esq. 60 Summer Street Plymouth, Mass. 02360	●	●					●		
Provincetown Conservation Trust P. O. Box 307 Provincetown, Mass. 02657	●	●					●		
Reading Open Land Trust 341 Franklin Street Reading, Massachusetts 01867	●	●					●		
Rural Land Foundation of Lincoln Box 87 Lincoln, Mass. 01773	●	●					●		
Salem Land Conservation Trust c/o Bradford C. Northrup 44 Turner Street Salem, Massachusetts 01970	●	●					●		
Salt Pond Areas Bird Sanctuaries, Inc. 881 Palmer Avenue Falmouth, Massachusetts 02540	●	●					●		

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Massachusetts, continued									
Scituate Land Conservation Trust c/o Richard La Fleur 96 Lawson Road Scituate, Mass. 02066	●	●					●		
Seekonk Land Conservation Trust c/o Mary Wilson 130 Jacob Street Seekonk, Massachusetts 02771	●	●					●		
Sheriff's Meadow Foundation West Tisbury Massachusetts 02575	●	●					●		
Sierra Club New England Chapter 3 Joy Street Boston, Massachusetts 02108 617-227-5339		●		●	●				
Sippican Land Trust c/o Richard Harlow Box 244 Marion, Massachusetts 02738	●	●					●		
The Trustees of Reservations 224 Adams Street Milton, Massachusetts 02186	●	●					●		
Trust for Public Land 82 Second Street San Francisco, Calif. 94105	●	●					●		
Sudbury Valley Trustees c/o Allen H. Morgan 114 Cochituate Road Wayland, Massachusetts 01778	●	●					●		
Valley Community Land Trust Route 1, Box 162D Colrain, Massachusetts 01340 attn: Betsy Cornen 413-624-8858	●	●					●		
Vineyard Conservation Society, Inc. West Tisbury Massachusetts 02575	●	●					●		
Vineyard Open Land Foundation State Road West Tisbury, Mass. 02575	●	●					●		
Wellesley Conservation Council, Inc. c/o Arthur H. Birkett, Jr. 16 Wildon Road Wellesley, Mass. 02181	●	●					●		
Weston Forest and Trail Association, Inc. c/o Mrs. G. Robert DeLong 74 Chestnut Street Weston, Massachusetts 02193	●	●					●		

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Massachusetts, continued									
Westport Land Conservation Trust, Inc. Box 262 Westport Point, Mass. 02791	●	●					●		
White Oak Land Conservation Society, Inc. Manning Street Jefferson, Mass. 01522	●	●					●		
Michigan									
Ann Arbor Alternative Holding Company Attn: Reuben Chapman 840 Brookwood Ann Arbor, Michigan 48104 313-761-2274	●						●		
Citizens Council for Land Use 6602 Red Cedar Lane Union Lake, Michigan 48085 313-360-0328		●							
Citizens to Save the Superior Shoreline Attn: Donald Macalady P. O. Box 831 Marquette, Michigan 49855 906-225-0056		●							
Friends of Keweenaw c/o P. O. Box 10144 Lansing, Michigan 48901		●							
Friends of the Pictured Rocks P. O. Box 10144 Lansing, Michigan 48901		●							
Grass River Natural Area, Inc. c/o Ruth Cook Route 1, Box 64 Bellaire, Michigan 49615									
Great Lakes Camp and Trail Association P. O. Box 10144 Lansing, Michigan 48901		●						●	
Independence Land Conservancy Box 282 Clarkston, Michigan 48016									
Kalamazoo Nature Center 7000 North Westnedge Avenue Kalamazoo, Michigan 49601 616-381-1574	●								
Lake Shore Property Owners Association 2826 South Lake Shore Drive St. Joseph, Michigan 49085 616-429-5557		●							
Little Traverse Conservancy c/o Louis Borie 438 East Lake Street Petoskey, Michigan 49770									

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Michigan, continued									
Michigan Audubon Society 7000 North Westnedge Avenue Kalamazoo, Michigan 49007 616-381-1575		●							
Michigan Botanical Club, Inc. 1800 North Dixboro Road Ann Arbor, Michigan 48105 313-764-1168		●	●						●
Michigan Natural Areas Council Attn: Dr. Richard Pippen 1800 Dixboro Road Ann Arbor, Michigan 48109 313-764-1168		●	●		●			●	
Michigan Natural Features Inventory Steven T. Mason Building Michigan Department of Natural Resources Land Resources Programs Division, Box 31028 Lansing, Michigan 48202 517-373-1552				●		●			
Michigan Nature Association 124 Miller Mt. Clemens, Michigan 48043 313-468-1313		●							
Natural Areas Conservancy of West Michigan, Inc. P. O. Box 1415 Grand Rapids, Michigan 49501									
The Nature Conservancy, Michigan Field Office and Chapter Suite F, 531 Clipper Street Lansing, Michigan 48912 517-332-1741		●	●				●	●	●
North Country Trail Association P. O. Box 311 White Cloud, Michigan 49349			●					●	
Pigeon River Country Association Attn: Sam Titus P. O. Box 122 Gaylord, Michigan 49735 517-732-2607			●						
Save Our Shore Lines 2055 Lakeshore Drive Muskegon, Michigan 49441			●						
Sierra Club Mackinac Chapter 590 Hollister Building 106 West Allejan Lansing, Michigan 48933 517-487-8382			●	●	●				

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Michigan, continued									
Trout Unlimited Michigan Council 19401 West McNichols Detroit, Michigan 48219		●	●			●			
Walloon Lake Association, Inc. 438 East Lake Street Petoskey, Michigan 49770			●						
Washtenaw Land Conservancy c/o Bill Martin P. O. Box 744 Ann Arbor, Michigan 48107									
West Michigan Environmental Action Council 1324 Lake Drive, S. E. Grand Rapids, Michigan 49506 616-451-3051						●			
Minnesota									
Coalition of Rural Environmental Groups/Concerned Citizens for the Preservation of the Environment Attn: Paul Ims Echo, Minnesota 507-925-4436			●						
Dassel Area Environmental Association Attn: Steve Dille R. R. 2 Dassel, Minnesota 55325 612-275-2974			●						
Friends of the Boundary Waters Wilderness, Inc. 111 East Franklin Avenue Minneapolis, Minnesota 55404 612-871-7861			●			●			
Izaak Walton League Minnesota Division 106 Times Building 57 South 4th Street Minneapolis, Minnesota 55401 612-338-1418			●			●			
Minnesota Association of Farmers, Land Owners and Sportsmen Attn: Joel Anderson 490 North Snelling at University St. Paul, Minnesota 55104 612-645-9718			●						
Minnesota Natural Heritage Program Department of Natural Resources Box 11, Centennial Office Building St. Paul, Minnesota 55155					●	●			

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Minnesota, continued									
Minnesota Ornithologists Union James Ford Bell Museum of Minnesota Minneapolis, Minnesota 55455 612-373-2423		●	●			●			●
Minnesota Parks Foundation 2200 First National Bank Building St. Paul, Minnesota 55101 612-291-1215	●								
Minnesota Wildlife Heritage Foundation, Inc. 1034 Cleveland Avenue, South St. Paul, Minnesota 55116	●								
The Nature Conservancy Minnesota Field Office and Chapter 328 East Hennepin Minneapolis, Minnesota 55414 612-379-2134	●	●				●	●		●
The Nature Conservancy Great Plains Field Office 328 East Hennepin Avenue Minneapolis, Minnesota 55414 612-379-2134	●	●			●		●		
The Nature Conservancy Midwest Regional Office 328 East Hennepin Avenue Minneapolis, Minnesota 55414 612-379-2134	●	●			●		●		
Project Environment 807 Midland Bank Building Minneapolis, Minnesota 55402					●				
Project Environment Foundation 807 Midland Bank Building Minneapolis, Minnesota 55402									
Quetico Superior Foundation c/o Dorsey, Windhorst, et.al. 2200 First Bank Place, East Minneapolis, Minnesota 55402		●			●				
Save Hiawathaland, Inc. R. R. 1 Millville, Minnesota 55957 507-798-2547		●							
Sierra Club North Star Chapter 200 Ramar Building 111 East Franklin Boulevard Minneapolis, Minnesota 55404		●		●	●				
Voyageurs National Park Association 200 Ramar Building 111 East Franklin Avenue Minneapolis, Minnesota 55404		●			●				

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Mississippi									
Committee for Leaving the Environment of America Natural (CLEAN) P. O. Drawer 103 Starkville, Mississippi 39759		●			●	●			
Friends of Deer Island c/o Dr. Edwin Cake East Coast Research Lab East Beach Ocean Springs, Miss. 39564		●							
Mississippi Conservation Council Attn: Rusty Russell P. O. Box 5115 Jackson, Mississippi 39216									
Mississippi State Heritage Program 111 North Jefferson Street Jackson, Mississippi 39202		●		●		●		●	
Sierra Club Mississippi Chapter 513 North State Street Jackson, Mississippi 39202 601-444-2180		●			●				
Missouri		●	●						
Audubon Society of Missouri 516 Bacon St. Louis, Missouri 63119									
Burroughs Audubon Society 12123 West 69th Street Shawnee Mission, Kansas 66216		●							
Conservation Foundation of Missouri Charitable Trust 312 East Capitol Jefferson City, Mo. 65101									
Friends of the Earth 29 Bearfield Columbia, Missouri 65201 314-449-6470		●		●	●				
L-A-D Foundation 6267 Delmar Street St. Louis, Missouri 63130	●		●						●
Missouri Natural Area Survey 6267 Delmar St. Louis, Missouri 63130		●		●		●		●	
Missouri Natural Heritage Inventory Missouri Department of Natural Resources Box 176, 1915 South Ridge Road Jefferson City, Mo. 65102 314-751-2479						●			
Missouri Prairie Foundation P. O. Box 200 (Jim Lehr) Columbia, Missouri 65201 816-232-4431	●	●							

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Missouri, Continued									
The Nature Conservancy Missouri Chapter 476 North Warson Road St. Louis, Missouri 63124	●	●				●	●		●
Northeast Missouri Natural History Society 4119 Commanche Hannibal, Missouri 63401						●			
Sierra Club Ozark Chapter P. O. Box 12424 Olivette, Missouri 63132		●		●	●				
St. Charles County Conservation Club 1009 Picardy Lane St. Charles, Missouri 63301		●							
United and Individual Community Association Route 1 Eldridge, Missouri		●							
Webster County Wildlife Conservation Club 722 North Pine Marshfield, Missouri 65706		●							
Montana									
Allenspur Committee to Save the Upper Yellowstone Valley P. O. Box 1285 Livingston, Montana 59047 406-222-3454		●			●			●	
Coalition for Canyon Preservation P. O. Box 422 Hungry Horse, Montana 59919 406-387-5872		●							
Environmental Information Center P. O. Box 12 Helena, Montana 59601 406-443-2520		●			●				
Friends of the Earth Box 882 Billings, Montana 59103 406-252-3988		●		●	●				
Montana Environmental Quality Council State Capitol Station Helena, Montana 59620		●		●	●			●	●
Montana Land Reliance Attn: William Dunham P. O. Box 355 Helena, Montana 59601 406-443-7027		●							

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Montana, continued									
Montana Wilderness Association P. O. Box 84 Bozeman, Montana 59715 406-587-0502		●			●			●	
Montana Wilderness Association Box 635 Helena, Montana 406-442-0597		●			●			●	
Northern Rockies Action Group, Inc. 9 Placer Street Helena, Montana 59601 406-442-6615		●			●				
The Nature Conservancy Montana/Wyoming Office P. O. Box 258 104 West Broadway - 2G Helena, Montana 59624 406-443-0303									
Trout Unlimited Montana Council 411 South E Street Livingston, Montana 59047		●			●				
The Wilderness Society Northern Rockies Field Office P. O. Box 1184 Helena, Montana 59601		●	●	●		●		●	
Nebraska									
Center for Rural Affairs P. O. Box 405 Walthill, Nebraska 68067									
Izaak Walton League Nebraska Division 1750 North C Street Fremont, Nebraska 68025		●			●				
Nebraska Ornithologists Union, Inc. University of Nebraska State Museum Lincoln, Nebraska 68508 402-434-6939		●							
Nebraska Sand Hills Resource Council Box 548 Albion, Nebraska 68620									
Nebraska Statewide Arboretum 112 Forestry Science Lab University of Nebraska at Lincoln, East Campus Lincoln, Nebraska		●						●	
Save the Niobrara Association Box 3 Bassett, Nebraska 68714		●							

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Nebraska, continued									
Save the Plattes Committee R. R. 1, Box 58 Malcom, Nebraska 68402		●							
Sierra Club Nebraska Chapter c/o Sitzman 903 Mercer Boulevard Omaha, Nebraska 68131 402-558-0210		●			●	●			
New Hampshire									
Audubon Society of New Hampshire 3 Silk Farm Road P. O. Box 528-B Concord, New Hampshire 03301 603-224-9909	●				●	●	●		
Beaver Brook Association Hollis, New Hampshire 03049 Blackwater River Watershed Association Box 111 Andover, New Hampshire 03216									
Chocorua Lake Conservation Foundation Attn: Alan Smith Chocorua, N. H. 03817									
Contoocook Watershed Association c/o James Simonds Windy Road Peterborough, N. H. 03458									
Environmental Coalition Box 188 Concord, New Hampshire 03301 603-224-7575		●			●				
Lake Kanasatka Watershed Association c/o William Clark Tilton, New Hampshire 03276									
Lakes Region Conservation Trust c/o Robert Hopemell R.F.D. 2 Wolfeboro, N. H. 03894	●						●		
Merrimack County Conservation District Attn: Alan Bartlett 6 Loudon Road, Room 206 Concord, New Hampshire 03301 603-225-6401									
Merrimack River Watershed Association, Inc. c/o Paul Hendrick Route 1 Hudson, New Hampshire 03051									

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
New Hampshire, continued									
Monadnock Community Land Trust Attn: Ward Stoops 150 Murphy Road Peterboro, N. H. 03458 603-924-6090	●						●		
New Hampshire Association of Conservation Commissions 54 Portsmouth Street Concord, New Hampshire 03301 603-224-9946		●							
New Hampshire Natural Resources Council, Inc. 5 South State Street Concord, N. H. 03301 603-224-9945							●		
New Hampshire Rural Land Trust c/o Arthur Harvey Weare, New Hampshire	●						●		
Nissitissit River Land Trust, Inc. c/o Annette Cottrell Box 84 Hollis, New Hampshire 03049	●						●		
Piscataquog Watershed Association c/o Robert Todd New Boston, N. H. 03070									
Rockingham Recreational Roadways Attn: Mary Lou Williams Box 97 Hampsted, N. H. 03841									
Salmon Falls River Watershed Association c/o Bemis and Bemis Somersworth, N. H. 03878									
Society for the Protection of New Hampshire Forests 54 Portsmouth Street Concord, New Hampshire 03301	●	●			●		●		
Souhegan Valley Land Trust c/o William Ferguson, III Middle Street Milford, New Hampshire 03055	●						●		
Squam Lakes Science Center P. O. Box 146 Holderness, N. H. 03245									
Statewide Program of Action to Conserve the Environment Attn: Phillip Heald Box 757 Concord, N. H. 03301 603-679-5304									

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
New Hampshire, continued									
Trout Unlimited New Hampshire Council 485 Greeley Street Manchester, N. H. 03102 603-624-1517		●			●				
Upper Contoocook Watershed Association Attn: F. E. Raymond R.F.D 1, Box 303 Peterborough, N. H. 03458 603-924-6938									
New Jersey									
American Littoral Society Sandy Hook Highlands, New Jersey 07732 201-291-0055		●							
Citizens for Conservation 11 Berta Place Basking Ridge, N. J. 07920									
Closter Nature Center Association Box 222 Closter, New Jersey 07624		●							
Friends of the Earth 64 Mill Street Vincentown, N. J. 08088 609-859-9701		●		●	●				
New Jersey Audubon Society 790 Ewing Avenue Franklin Lakes, N. J. 07417 William G. Baranyay, Junior Executive Director 201-891-1211	●					●			
New Jersey Conservation Foundation Attn: David Moore, Executive Director 300 Mendham Road Morristown, New Jersey 07960 201-539-7540	●	●		●	●	●	●	●	
Ocean County Nature and Conservation Society Maurice Chaillet, President 380 Luane Drive Toms River, New Jersey 08753									
Sierra Club New Jersey Chapter 360 Nassau Street Princeton, New Jersey 08540		●		●	●				
South Branch Watershed Association R. D. 1, Route 31 Lebanon, New Jersey 08833	●				●		●		

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
New Jersey, continued									
Stony Brook Millstone Watershed Association Attn: James Gaffney R. D. 1, Box 263-A Pennington, N. J. 08534	●				●				
Trout Unlimited New Jersey Council 17 Sunset Drive High Bridge, N. J. 08829		●			●				
Upper Raritan Watershed Association Attn: David Peiter Larger Cross Road R. D. 1, Box 30-W Gladstone, New Jersey 07934 201-234-1852	●				●		●		
New Mexico									
Friends of the Earth Route 7, Box 131 Santa Fe New Mexico 87501 505-982-4349		●		●	●				
New Mexico Audubon Council Attn: Bill Eastham 2504 South Baylor Avenue Roswell, New Mexico 88201									
New Mexico Audubon Society c/o G. Louise Stevens 222 East Nizhoni Boulevard No. F-A Gallup, New Mexico 87301									
New Mexico Conservation Coordinating Council P. O. Box 142 Albuquerque, New Mexico 87103		●							
New Mexico Environmental Institute Box 3AF Las Cruces, New Mexico 88003					●		●		
New Mexico State Heritage Program Department of Game and Fish Villagra Building Santa Fe, New Mexico 87503 505-827-5531		●		●	●	●			
New Mexico Wilderness Study Committee 12020 Apache, N. E. Albuquerque, New Mexico 87112		●			●	●			
Native Plant Society Box 1596 Santa Fe, New Mexico 87501 505-983-1113						●			
Sierra Club Rio Grande Chapter 338 East De Vargas Santa Fe, New Mexico 87501		●		●	●				

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
New Mexico, continued									
Native Plant Society Box 1596 Santa Fe, New Mexico 87501 505-983-1113						●			
Sierra Club Rio Grand Chapter 338 East De Vargas Santa Fe, New Mexico 87501		●		●	●				
Sierra Club, Santa Fe Group 338 Devargas Santa Fe, New Mexico 87501 505-983-5701						●			
The Nature Conservancy New Mexico Field Office and Chapter 610 Gold Avenue, S. W. P. O. Box 1846 Albuquerque, N. M. 87103		●							
Trout Unlimited New Mexico Council 12325 Princess Jeanne, North Albuquerque, N. M. 87112		●			●				
New York									
Adirondack Council P. O. Box D-2 Elizabethtown, New York 12932 518-873-2240					●				
Adirondack Mountain Club, Inc. 172 Fidge Street Glen Falls, New York 12801 518-793-7737	●	●							
Association for the Protection of the Adirondacks P. O. Box 951 Schenectady, New York 12301 518-346-2176		●							
Bergen Byron Swamp Preservation Society, Inc. P. O. Box 18043 Twelve Corners Branch Office Rochester, New York 14618 518-346-2176	●				●				
Bronx Frontier Development Attn: Irma Fleck 1080 Legget Avenue New York, New York 10474									
Buffalo Audubon Society Attn: David Freeland Buffalo Museum of Science Buffalo, New York 14211									
The Catskill Center for Conservation and Development Arkville, New York 914-586-2611									

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
New York, continued									
Centers for Nature Education, Inc. (formerly Onandaga Nature Centers, Inc.) Box 133 Marcellus, New York 13108 315-635-9005		●							●
Clem and Hethro Memorial Fund 89-25 Rutledge Avenue Glendale, New York 11227 212-459-4421									●
Caumsett Citizens Committee R.F.D. 3, Lloyd Lane Huntington, New York 11743							●		
Environmental Defense Fund 444 Park Avenue, South Ninth Floor New York, New York 10016 212-636-4191		●			●				
Friends of the Earth 72 Jane Street New York, New York 10014 212-675-5911		●		●	●				
Fire Island Wilderness Committee 293 Henry Street Bellport, New York 11713		●	●		●				
Garden Club of America 598 Madison Avenue New York, New York 10022 212-753-8287		●							●
Group for America's South Fork Attn: Nancy K. Goell Box 569 Bridgehampton, New York 516-537-1400	●	●			●	●	●		
Huyck Preserve Grevatt House Rensselaerville, N. Y. 12147	●								
Hudson River Heritage, Inc. Box 22 Barrytown, New York 12507		●					●		
Hudson River Sloop Clearwater, Inc. 112 Market Street Poughkeepsie, N. Y. 12601 914-454-7673					●				
Izaak Walton League New York Division 715 East Bluff Drive Pennham, New York 14527		●			●				
Land Stewardship League Attn: Marcia Hopple 196 Norton Avenue Albany, New York 12202 518-782-6283									

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
New York, continued									
Long Island Environmental Council 95 Middle Neck Road Port Washington, N. Y. 11050 516-883-4725		●			●				
Long Island Greenbelt Trail Conference, Inc. 23 Deer Path Road Central Islip, New York 11722 Nancy Manfredonia Executive Director									
Long Island Pine Barrens Society John Cryan (Founder) P. O. Box 157 19 Tomkins Court Commack, New York 11725									
Marine Environmental Council of Long Island, Inc. (Friends of Long Island) P. O. Box 55 Seaford, New York 11783		●			●				
Miner Institute Chazy, New York 12921 518-846-7121		●			●				
The Mohonk Trust Mohonk Lake New Paltz, New York 12651 914-255-0919									
National Audubon Society 950 Third Avenue New York, New York 06069 203-364-0048	●	●		●	●		●		
Natural Resources Defense Council, Inc. 122 East 42nd Street New York, New York 10017 212-949-0049		●		●	●				
The Nature Conservancy Adirondack Conservancy Committee P. O. Box 188 Elizabethtown, New York 12932 518-873-2610	●	●					●		●
The Nature Conservancy Catskill Center for Conservation and Development, Inc. Hobart, New York 13788 607-538-3581	●	●			●				
The Nature Conservancy Central New York Chapter Friendsville Stage Binghamton, New York 13903	●	●				●	●		●
New York, continued									
The Nature Conservancy Eastern New York Chapter 196 Westen Avenue Albany, New York 12202 518-465-7768	●	●				●	●		●
The Nature Conservancy Long Island Chapter P. O. Box 72 Cold Spring Harbor, New York 11724 516-367-3225	●	●			●	●	●		
The Nature Conservancy Lower Hudson Chapter R.F.D. 2, Chestnut Ridge Road Mt. Kisco, New York 10549 914-666-5365	●	●							●
The Nature Conservancy New York Field Office 36 West 44th Street New York, New York 10036 212-809-9532	●	●			●	●	●		
The Nature Conservancy South Fork-Shelter Island Chapter, L. I. P. O. Box JJJJ East Hampton, New York 11937 516-267-3748	●	●				●	●		●
The Nature Conservancy Western New York Chapter P. O. Box 5 Attica, New York 14011 716-839-0186	●	●				●	●		●
New York State Nature and Historical Preserve Trust Attn: John W. Aldrich 50 Wolf Road Albany, New York 12201									
Onondaga Audubon Society c/o Greg Smith 1353 Vann Road Baldwinsville, New York 13027									
Orange County Citizens Foundation, Inc. 1 South Church Street Goshen, New York 10924 914-294-8226	●							●	
People's Development Corp. Attn: Ramon Rueda 500 East 167th Street New York, New York 10474									
Pound Ridge Land Conservancy Attn: Edward D. Russell R.F.D. 1, Box 368 Pound Ridge, New York 10576	●	●					●		

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
New York, continued									
Quaker Hill Civic Association Attn: Douglas Williamson R. R. 1, Box 143 Pawling, New York 12564									
Save the County Box 202, University Station 211 North Tolbert Drive Syracuse, New York 13212 518-458-6644									
Save the County 60 Oswego Street Baldwinsville, New York 13027 315-635-5153									
Save Open Spaces, Inc. Attn: Robert L. Smith P. O. Box 280 Carmel, New York 10512									
Save Open Spaces, Inc. attn: Claire Cox R. D. 6 Brewster, New York 10509									
Saw Mill River Audubon Society Attn: Kaye Anderson 2660 Quaker Church Road Yorktown, New York 10598									
Shawangunk Conservancy Attn: Peter Bienstock Box 274, R. D. 1 Wallkill, New York 12589	●	●							
Sierra Club Atlantic Chapter 800 Second Avenue New York, New York 10017 212-687-7666		●		●	●				
Scenic Hudson, Inc. 475 Park Avenue, South New York, New York 10016 212-532-4450					●				
Trout Unlimited New York Council 12 Salem Circle Victor, New York 14564 716-924-3379		●			●				
Wildlife Preserves, Inc. Attn: Brad Purcell R. D. 2 Mt. Kisco, New York 10549 914-241-3363									
Nevada									
Desert Bighorn Council c/o U. S. Fish and Wildlife Service 1500 North Decatur Boulevard Las Vegas, Nevada 89108 505-646-3401		●				●			

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Nevada, continued									
Sierra Club Toiyabe Chapter P. O. Box 8096 University Station Reno, Nevada 89507		●			●	●			
North Carolina									
The Botanical Garden Foundation c/o Leila Webster Totten Center, Box 457-A Chapel Hill, N. C. 27514 919-967-2246									
Carolina Bird Club, Inc. c/o North Carolina Museum of Natural History P. O. Box 27647 Raleign, N. C. 27611		●				●			
Conservation Council of North Carolina Attn: David Martin 307 Granville Road Chapel Hill, N. C. 27514 919-942-7935		●				●			
Conservation Council of North Carolina Attn: Jane Sharp 922 Wimbleton Road Raleigh, North Carolina 27609 919-942-1080			●			●			
Conservation Foundation of North Carolina Attn: Joe Hackney c/o Epting, Hackney and Long Rosemary Street Chapel Hill, N. C. 27514									
Dunes of Dare Garden Club 97 Dogwood Trail Kitty Hawk, N. C. 919-834-0686		●	●						
Land Stewardship Council Attn: James R. Hinkley 50/0 Six Forks Road Raleigh, North Carolina 27609 919-781-5197									
Association for the Preservation of Eno River Valley 4015 Cole Mill Road Durham, North Carolina 27712 919-383-2722		●				●			
The Nature Conservancy North Carolina Field Office and Chapter P. O. Box 805 Chapel Hill, N. C. 27514 919-967-1406		●	●				●		●

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
North Carolina, continued									
North Carolina Natural Heritage Program Division of State Parks Department of Natural and Economic Resources Box 27687 Raleigh, North Carolina 27611 919-733-7795		●		●	●	●		●	
New Hope Audubon Society P. O. Box 2693 Chapel Hill, N. C. 27514	●	●					●		
North Carolina Land Trustees of America, Inc. Attn: Wallace Kaufman Route 1, Box 54B Pittsboro, N. C. 27312 919-929-5658									
Northwest Environmental Preservation Committee Attn: Joe C. Matthews P. O. Box 575 Winston Salem, N. C. 27102 919-722-9346									
Northwest North Carolina Historical Association, Inc. Attn: Joe C. Matthews P. O. Box 575 Winston Salem, N. C. 27101 919-722-7346									
People to Preserve Jockey's Ridge, Inc. 515 East Rosemary Street Chapel Hill, N. C. 27514	●	●							
Sierra Club Joseph LeConte Chapter 5 Herrick Place Durham, North Carolina 27707 919-489-1902		●			●				
Trout Unlimited North Carolina Council Box 867 Conover, North Carolina 28613 704-433-1310		●			●				
North Dakota									
North Dakota Natural Heritage Program North Dakota Parks and Recreation Department P. O. Box 700 Bismarck, North Dakota 58502		●		●		●			
North Dakota Natural Science Society P. O. Box 1672 Jamestown, North Dakota 58401 -252-5363		●			●				

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Ohio									
The American Malacological Union 1813 North High Street Columbus, Ohio 43210 614-422-8560		●		●	●	●			
Buckeye Trail Association, Inc. Attn: Robert R. Paton P. O. Box 254 Worthington, Ohio 43085 614-885-7542		●							
The Carey Creek Association 127 North Main Street London, Ohio 43140 614-852-9168		●			●				
Cleveland Museum of Natural History c/o Wade Oval University Circle Cleveland, Ohio 43212				●					
Committee for a Country Common c/o Ralph Ramey Glen Helen Association, Inc. Antioch University Yellow Springs, Ohio 45387							●		
Cincinnati Museum of Natural History 1720 Gilbert Avenue Cincinnati, Ohio 45202 513-621-3889		●							
Cuyahoga Valley Association Attn: Susan Klein P. O. Box 222 Peninsula, Ohio 44264 216-659-9541									
Darby Creek Association Attn: Mrs. L. D. Boggs 2199 Amity Road Hilliard, Ohio 43026 614-878-3786									
Friends of Poland Forest Attn: J. M. McIntosh 210 Nesbitt Street Youngstown, Ohio 44514 216-757-2754									
The Hillside Trust c/o Jean Veaupre Little Miami, Inc. French Park Estate 3012 Section Road Cincinnati, Ohio 45237									
Jackson County Environmental Committee Attn: Agnex I. Martin P. O. Box 926 Jackson, Ohio 45640									

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Ohio, continued									
Little Miami, Inc. French Park Estate 3012 Section Road Cincinnati, Ohio 45237 513-351-6400	●	●			●				
The Nature Conservancy Field Office and Chapter 1504 West First Avenue Columbus, Ohio 43212 614-486-4194	●	●			●	●	●		
Ohio Natural Heritage Program Ohio Department of Natural Resources, Division of Natural Areas and Preserves Fountain Square, Building F Columbus, Ohio 43224 614-466-8970		●		●	●	●			
Ohio Audubon Council, Inc. 4036 Cypress Road, N. E. Canton, Ohio 44705 614-332-4989		●							
The Ohio Biological Survey 484 West 12th Avenue Columbus, Ohio 43210 614-466-5963		●		●		●			
Ohio Conservation Foundation Attn: Bob Currie 307 The Arcade Cleveland, Ohio 44114 216-771-4100									
Ohio Environmental Council 850 Michigan Avenue Columbus, Ohio 43215 614-221-0898		●			●				
The Ohio Historical Society Natural History Department 1982 Velma Avenue Columbus, Ohio 43211 614-466-1500	●								
Rivers Unlimited 3012 Section Road Cincinnati, Ohio 45237		●							
Save our Rural Environment Attn: John Brennan P. O. Box 775 Athens, Ohio 45701 614-662-3453									
Sierra Club Ohio Chapter 65 South 4th Street Columbus, Ohio 43215		●		●	●				
South Central Ohio Preservation Society, Inc. 178 Church Street Chillicothe, Ohio 45601 614-774-3510									

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Ohio, continued									
Sugar Creek Protection Society Attn: Justine Magzig P. O. Box 151 Elmore, Ohio 43416 419-862-i386									
Upper Cuyahoga Association Attn: Chuck Tummonds P. O. Box T Mantua, Ohio 44255 216-274-2283									
The Wilderness Center, Inc. Box 202 Wilmot, Ohio 44689 -454-3011									
Oklahoma									
Audubon Society Tulsa Chapter 5285 South 83rd E. Avenue Tulsa, Oklahoma 74112	●								
Oklahoma Academy of Science Endangered Species Committee Biology Department Southeastern Street University Durant, Oklahoma 405-924-0121		●		●					
Oklahoma Ornithological Society Division of Natural Sciences Tahlequah, Oklahoma 74464		●							
Sierra Club Oklahoma Chapter c/o Zoellick P. O. Box 2088 Ada, Oklahoma 74820 405-332-0106	●			●	●				
Oklahoma Natural Heritage Program Botany and Microbiology Department Greenhouse University of Oklahoma Norman, Oklahoma 73019 405-325-2791		●		●	●	●			
Oregon									
Central Cascades Conservation Council P. O. Box 731 Salem, Oregon 97308									
Columbia Gorge Environmental Center Attn: Judith C. Bauman 116 Third Street Hood River, Oregon 97031 503-775-2305									

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Oregon, continued									
Corvallis Community Improvement, Inc. Attn: Rene D. Moye Park and Land Trust Division 501 S. W. Madison Corvallis, Oregon 97330 503-757-6418									
40 Mile Loop Land Trust c/o Steve O'Brien Jackson Tower, Suite 1200 806 S. W. Broadway Portland, Oregon 97205									
Izaak Walton League Oregon Division 1505 Cornell Avenue Gladstone, Oregon 97027 503-656-7361		●			●				
The Nature Conservancy Oregon Field Office and Chapter 1234 N. W. 25th Street Portland, Oregon 97210 503-228-9561 503-222-1963	●	●			●	●	●		
The Nature Conservancy Oregon Natural Heritage Program 1234 N. W. 25th Avenue Portland, Oregon 97210 503-228-9550		●		●	●	●			
New Society Garden Community Land Trust Mahonia Land Trust Community 20495 South Geiger Road Oregon City, Oregon 97405									
New Society Garden, Inc. Attn: Doug Longhurst or Kate Van Gelder 4134 S. E. Salmon Street Portland, Oregon 97215 503-235-4038									
Oregon Community Land Trust c/o Eugene Scott 1025 Fairview Springfield, Oregon 97477									
Oregon High Desert Study Group P. O. Box 25 St. Paul, Oregon 97137 503-633-2171					●		●		●
Oregon Rare and Endangered Plant Species Task Force 535 Atwater Road Lake Oswego, Oregon 97034 503-636-4633						●			

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Oregon, continued									
Oregon Shores Conservation Coalition Attn: Mrs. Marguerite Watkins 270 Johnson Coos Bay, Oregon 97420 503-267-4615		●			●				
People to Preserve Agricultural Land Box 1815 Eugene, Oregon 97440									
Sierra Club Oregon Chapter 2637 2637 Southwest Water Street Portland, Oregon 97201									
Southern Oregon Land Conservancy Attn: Michael Jewett 246 Catalina, #3 Ashland, Oregon 97520 503-482-4753									
1000 Friends of Oregon 519 Southwest 3rd Avenue 400 Debum Building Portland, Oregon 97204 503-223-4396									
The Town Forum, Inc. Cerro Gordo Ranch P. O. Box 569 Cottage Grove, Oregon 97424 503-942-7720									
Western Forestry and Conservation Association Attn: Steele Barnett 1326 American Bank Building Portland Oregon 97205 503-226-4562									
Wetlands Conservancy Attn: John W. Broome P. O. Box 236 Tualitin, Oregon 97062									
The Wilderness Society Northwest Field Office 2637 S. W. Water Avenue Portland, Oregon 97201 503-223-1067		●	●	●		●		●	
Pennsylvania									
Berks County Conservancy Attn: Edward C. Edgar 960 Old Mill Road Wyomissing, Penn. 19610 215-372-4992									
Big Scrubgrass Creek Watershed Committee Box 106 Clintonville, Penn. 16372 814-385-6222									

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Pennsylvania, continued									
Brandywine Conservancy Attn: James Duff or Bill Sellers P. O. Box 141 Chadds, Ford, Penn. 19317 215-459-1900 215-388-7601		●						●	
Brandywine Valley Association Attn: Robert Struble, Jr. 409 F&M Building West Chester, Penn. 19380 215-696-0475									
Bryn Gweled Homesteads Attn: E. R. Potts 835 Woods Road Southhampton, Penn. 18966 215-357-2181									
Bucks County Conservancy Attn: Robert B. Pierson 33 West Court Street Doylestown, Penn. 18901 215-345-7020		●				●	●		
Bucktail Watershed Association Attn: Gerald F. Lacy 140 Seventh Street Renovo, Pennsylvania 17764									
Bushkill Watershed Association Attn: G. Earl Peace 502 Acorn Drive Easton, Pennsylvania 18042									
Chester County Open Land Conservancy Attn: Mrs. Mitsie Toland P. O. Box 1031 Paoli, Pennsylvania 19301 215-647-5380									
Chester-Ridley-Crum Watershed Association Attn: Aaron Komisar 20 Paxon Hollow Road Media, Pennsylvania 19063									
Chickies Creek Watershed Association Attn: Harry A. Berkey R. D. 4 Manheim, Pennsylvania 17545									
Chillisquaque Creek Watershed Association Attn: Walter B. Loncosky Route 3, Box 302 Danville, Pennsylvania 17821 717-437-2368									

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Pennsylvania, continued									
Cocalico Watershed Association Attn: David P. Cunningham R. D. 3 Denver, Pennsylvania 17517									
Codorus Creek Watershed Association Attn: Dr. Kenneth Shultz 1146 East Poplar Street York, Pennsylvania 17403									
Conestoga Valley Watershed Association Attn: James Humpheville 211 South President Avenue P. O. Box 24 Lancaster, Penn. 17604		●							
Conservation Society of York County Attn: Jay W. Peters 236 West Chestnut Street Dallastown, Penn. 17313									
Cooks Creek Watershed Association Attn: Mrs. G. Mark Ellis Box 45 Springtown, Penn. 18081									
Cooks Creek Watershed Association Attn: Mrs. Theodora Moyer Box 349, R. D. 1 Hellertown, Penn. 18055 215-346-7942									
Corey Creek Watershed Association Attn: Lee Wilson R. D. 2 Mansfield, Penn. 16933									
Cumberland Conservancy P. O. Box 421 Carlisle, Penn. 17013									
Darby Creek Watershed Association Attn: William Middleton Cunan Building Media, Pennsylvania 19063									
Delaware Valley Community Land Trust 980 Carver Street Philadelphia, Penn. 19124									
Elk Watershed Association Attn: Ford McBerty R. D. 3, Box 163 Oxford, Pennsylvania 19363									
Ferncliff Wildflower and Wildlife Preserve 1514 Newton Road Lancaster, Penn. 17604		●							

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Pennsylvania, continued									
Fox Chapel Land Conservation Trust P. O. Box 11286 Pittsburgh, Penn. 15238									
Watson C. Marshall, Secretary/Counsel French and Pickering Creeks Conservation Trust, Inc. Attn: Mrs. Samuel W. Morris Box 360, R. D. 2 Pottstown, Penn. 19464 215-469-6287							●		
Green Valleys Association Attn: Sherman Perkins The Meeting House Birchunville, Penn. 19421 215-827-7800									
Hawk Mountain Sanctuary Association R. D. 2 Kempton, Pennsylvania 19521 215-756-6961	●								
Honey Hollow Watershed Association Attn: Malcolm P. Crooks R. D. 1, Box 198 New Hope, Pennsylvania 18938 215-862-5282									
Honey Hollow Watershed Association Attn: P. Alston Waring Rural Delivery New Hope, Pennsylvania 18938 215-862-2827									
Izaak Walton League Pennsylvania Division 712 Morgantown Road Uniontown, Penn. 15401		●			●				
Kishacoquillas Watershed Association Attn: Joseph H. Martin 18 Juniata Street Lewistown, Pennsylvania 17044									
The Lacawac Sanctuary Attn: Robert Kobler R. D. 1 Lake Ariel, Penn. 18436 717-689-9494									
Lake Wallenpaupack Watershed Association, Inc. Attn: A. G. Petrasek R. D. 1, Box 352 Lake Ariel, Penn. 18436									

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Pennsylvania, continued									
Lancaster County Conservancy Attn: Robert K. Mowrer 501 West Main Street Ephrata, Pennsylvania 17522 717-733-6535	●								
Lehigh Valley Conservancy Attn: Kenneth A. Friedman 1024 West Broad Street Bethlehem, Pennsylvania 215-866-3118									
Lenape Land Association 212 Commonwealth Drive Newtown, Pennsylvania 18940 215-968-4553									
Little Lehigh Valley Watershed Association Attn: Mrs. Floyd Keim 11 West Pine Street Emmaus, Pennsylvania 18049									
Little Lehigh Watershed Association Attn: Charles H. Nehf 31 South Penn Street Allentown, Pennsylvania 18101									
Little Schuylkill River Watershed Association Attn: Jacob W. Rimbach 253 Rowe Street Tamaqua, Pennsylvania 18252 717-668-0525									
Little Schuylkill Watershed Association Attn: Ted Applegate Boro Hall Tamaqua, Pennsylvania 18252									
Lower Merion-Narberth Watershed Association Attn: Arthur S. Wolfe 301 Montgomery Avenue Ardmore, Pennsylvania 19003									
Loyalhanna Watershed Association, Inc. P. O. Box 561 Legonier, Pennsylvania 15658 412-238-7560									
Loyalsock Watershed Association Attn: Wesley Thomas Sullivan County Rural Electric Forksville, Penn. 18616									
Mahantange Watershed Association Attn: Raymond D. Shaffer R. D. 1 Dalmatia, Pennsylvania 17017									

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Pennsylvania, continued									
Mahantange Watershed Association Attn: James Shadle R. D. 2 Hegins, Pennsylvania 17938									
Monocacy Creek Watershed Association Attn: Leonard Repush R. D. 1 Hellertown, Penn. 18055									
Monocacy Creek Watershed Association Attn: Mrs. Gertrude Fox 2607 Winston Road Bethlehem, Pennsylvania 18017									
Monocacy Creek Watershed Association Attn: Dr. Robert R. Windolph P. O. Box 1041 Bethlehem, Pennsylvania 18018 215-865-0741/439-7853									
Muckinpates Watershed Association Attn: Ms. Jean Diehl 2126 Valley View Drive Folcroft, Pennsylvania 19032									
Muncy Creek Watershed Association Attn: Ralph W. Price Box 85, R. D. 1 Hughesville, Penn. 17737									
Natural Lands Trust c/o Philadelphia Conservationists 1339 Chestnut Street 1710 Widener Building Philadelphia, Penn. 19103	●						●		
The Nature Conservancy Pennsylvania/New Jersey Chapter and Office 1218 Chestnut Street, Suite 801 Philadelphia, Penn. 19107 215-925-1065	●	●				●	●		●
Northern Allegheny Conservation Association 701 Pennsylvania Bank and Trust Company Building Warren, Pennsylvania 16365	●	●							
Octoraro Watershed Association Attn: H. W. Hertzler R. D. 1, Box 104 Nottingham, Penn. 19362									

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Pennsylvania, continued									
Paunacussing Watershed Assoc. Attn: Edwin Harrington Box 81 Carversville, Penn. 18913									
Pennypack Watershed Association Attn: David B. Witwer 2955 Edge Hill Road Huntingdon Valley, Pennsylvania 19006 215-657-0830									
Perkiomen Valley Watershed Association Attn: Mrs. Barbara Paul R. C. 2, Box 246A, Cedar Lane Collegeville, Penn. 19426 215-489-1155									
Philadelphia Conservationists, Inc. Attn: Andrew Johnson 1339 Chestnut Street Philadelphia, Penn. 19107	●						●		
Pine Creek Watershed Association Attn: Phillip Thomas 514 Rural Avenue Williamsport, Penn. 17701									
Pine Creek Watershed Association Attn: Kermit Moore 118 Main Street Wellsboro, Penn. 16901									
Pohopoco Creek Watershed Association Attn: Eugene Biladeau Effort, Pennsylvania 18330									
Priority Club Department of Biology Roddy Science Center Millersville State College Millersville, Penn. 17551									
Red Clay Valley Association, Inc. Attn: Robert G. Struble, Jr. 401 Farmers and Mechanics Building West Chester, Penn. 19380									
Red Land Clean Water Association Attn: William Spahr Box 1008, R. D. 1 Etters, Pennsylvania 17318									

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Pennsylvania, continued									
Rocky Run Area Watershed Association Attn: Allan Davis, Jr. Box 215 Lima, Pennsylvania 19060									
Saucon Creek Watershed Association Attn: Kathleen D. Stuart 501 Durham Street Hellertown, Penn. 18055									
The School of Living Attn: John Bowers P. O. Box 3233 York, Pennsylvania 17402 717-755-6323									
Schuylkill River Greenway Association Attn: Henry Reichner, Jr. 960 Old Mill Road Wyomissing, Penn. 19610 215-372-3916									
Shamokin Creek Watershed Association Attn: Richard Morgan 121 East Chruch Street Shamokin, Pennsylvania 17872									
Sierra Club Pennsylvania Chapter P. O. Box 135 Cogan Station, Penn. 17728		●		●	●				
Southern Clinton County Watershed Association Attn: John Kruk 854 Sturdevant Street Flemington, Penn. 17745									
South Mountain Preservation Association 39 South 13th Street Allentown, Pennsylvania 18102									
Squaw Run Area Watershed Association P. O. Box 7817 Pittsburgh, Penn. 15215									
Stony Creek Valley Coalition Box 587 Harrisburg, Penn. 17108									
Susquehanna River Basin Association Attn: Edward S. Popky 297 Academy Street Wilkes-Barre, Penn. 18702									
Swatara Creek Watershed Association Attn: Thomas Embich P. O. Box 118 Lebanon, Pennsylvania 17042									

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Pennsylvania, continued									
Swatara Creek Watershed Association 49 North Granada Avenue Hershey, Pennsylvania 17033									
Tacony-Frankford Watershed Association Attn: Lee Aronson Montgomery Avenue and High School Road Elkins Park, Penn. 19117									
Tri-Hampton Mill Creek Watershed Association Attn: William P. Orrick, Jr. Twinning Ford Road Richboro, Pennsylvania 18954									
Trout Unlimited Pennsylvania Council 1424 Frick Building Pittsburgh, Penn. 15219 412-281-5700		●			●				
Turtle Creek Watershed Association, Inc. 700 Braddock Avenue East Pittsburgh, Penn. 15112 412-256-2433									
Tyler Arboretum 515 Painter Road P. O. Box 216 Lima, Pennsylvania 19037 215-556-5431		●				●			
Upper Tioga Watershed Association Attn: Chester P. Bailey P. O. Box 186 Mansfield, Pennsylvania 16933									
Water Resources Association of the Delaware River Basin Attn: Paul M. Felton Box 867 Valley Forge, Penn. 19481 215-783-0634									
Western Clinton County Watershed Association Attn: Gerald F. Lacy Shintown, Pennsylvania 17764									
Western Pennsylvania Conservancy 316 Fourth Avenue Pittsburgh, Penn. 15222 412-288-2777		●				●	●		
Whiskey Run Rebellion Attn: David Linton 71 Sproul Road Springfield, Penn. 19064									

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Pennsylvania, continued									
White Clay Watershed Association Attn: Ms. Laura M. Bramble Lincoln, University Lincoln, Pennsylvania 19352									
White Clay Watershed Association Attn: Mrs. Gwendolyn Gramer Landenburg, Penn. 19350									
Wissahickon Valley Watershed Association Attn: David Froehlich 12 Morris Road Ambler, Pennsylvania 19002 215-646-8866									
Rhode Island									
Audubon Society of Rhode Island Attn: Alfred L. Hawkes 40 Bowen Street Providence, R. I. 02903 401-521-1670	●				●	●	●		
Barrington Land Conservation Trust, Inc. Attn: Bob Kilmarx P. O. Box 324 Barrington, R. I. 02806	●						●		
Block Island-Town of Newshoram Block Island Conservancy Attn: Rob Lewis Block Island, R. I. 02807 401-466-2428	●	●					●		
East Providence Land Conservation Trust Attn: M. Hazel Johnston P. O. Box 4919 East Providence, R. I. 02916 401-434-7318	●						●		
Narrow River Preservation Association Attn: W. E. R. LaFarge P. O. Box 8 Saunderstown, R. I. 02874 401-294-2516	●	●							
Rhode Island Heritage Program Department of Environmental Management Division of Planning and Development 83 Park Street Providence, R. I. 02903 401-277-2776				●		●			

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Rhode Island, continued									
Rhode Island Historical Preservation Commission Attn: Eric Hertfelder 150 Benefit Street Providence, R. I. 02403 401-277-2678									
Rhode Island Land Trust c/o Dan Szumilo Weldin 115 Kingston, R. I. 02581	●						●		
Sakonnet Preservation Association Attn: Philip B Simonds P. O. Box 945 Little Compton, R. I. 02837			●						
Save the Bay Attn: Trudy Coxe 154 Francis Street Providence, R. I. 02903 401-272-3540			●						
South Carolina									
Black Creek Protection Association Attn: Ben Williamson Route 3 Darlington, S. C. 29532			●						
Environmental Coalition of South Carolina 2204 Devine Street Columbia, S. C. 29205 803-798-0321					●				
National Wild Turkey Federation P. O. Box 467 Edgefield, S. C. 29824	●	●							
The Nature Conservancy South Carolina Field Office P. O. Box 5475 Columbia, S. C. 29250 803-254-9049	●	●	●				●		●
Natureland Trust Attn: Thomas Wiche Wiche, Burgess, Freeman, and Parham 44 East Kemperdown Way Greenville, S. C. 29603									
Sierra Club South Carolina Chapter P. O. Box 12112 Columbia, S. C. 29211			●		●	●			
South Carolina Heritage Trust South Carolina Wildlife and Marine Resources Department P. O. Box 167 Columbia, S. C. 29202 803-758-0014			●	●	●	●			

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
South Carolina, continued									
Upper Savannah River Defense Attn: Guy Jones P. O. Box 5761 Columbia, S. C. 29250 803-799-0321					●				
South Dakota									
Dakota Environmental Council P. O. Box 1 Vermillion, S. D. 57069 605-624-2619		●			●				
Sierra Club Dacotah Chapter P. O. Box 1624 Rapid City, S. D. 57701		●			●	●			
South Dakota Environmental Council P. O. Box 358 Brookings, S. D. 57686		●			●				
South Dakota Natural Heritage Program Department of Wildlife, Parks, and Forestry Anderson Building Pierre, South Dakota 57501				●		●			
South Dakota Ornithologists Union c/o Buckman Dakota State College Madison, South Dakota 57042		●							
The Nature Conservancy South Dakota Chapter 633 South Berry Pines Road Rapid City, S. D. 57701 605-336-0770		●	●			●	●		●
Tennessee									
Association of Southeastern Biologists 408 Tenth Street University of Tennessee Knoxville, Tennessee 37916 615-974-3065		●		●					
Citizens to Preserve Overton Park, Inc. 192 Williford Street Memphis, Tennessee 38112 901-327-0735		●							
Citizens for Wildlife Preservation Attn: R. Bruce Wilbey P. O. Box 227 Signal Mountain, Tenn. 37377 615-741-3852		●							
Community Land Association Attn: Dorothy Metzler Route 1 Duff, Tennessee									

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Tennessee, continued									
Duck River Preservation Association Attn: Mrs. Mark Collier Route 2, Box 292 Tallahoma, Tennessee 31388		●							
Middle Tennessee Land Trust Association P. O. Box 40242 Nashville, Tennessee 37204	●						●		
Model Valley Land Trust Attn: Marie Cirillo Clairfield, Tennessee 37215	●						●		
and c/o Rural American Woman 1522 K Street, N. W. Washington, D. C. 20005	●						●		
The Nature Conservancy Tennessee Field Office and Chapter Capital Hill Building Suite 114, 301 7th Avenue, N. Nashville, Tennessee 37219 615-242-1787	●	●				●			●
Oak Ridge Conservation Club, Inc. Box 192 Oak Ridge, Tennessee 37830 615-483-5555									
Regional Land Trust for Appalachian Communities Attn: Marie Cirillo Clairfield, Tennessee 37215 615-424-6832	●						●		
Savage Gulf Preservation League Attn: Wallace B. Bigbee, MD 102 Ridgecrest Drive Nashville, Tennessee 37110 615-473-4796		●							
Save Our Cumberland Mountains Atten: Maureen O'Connell P. O. Box 457 Jacksonboro, Tennessee 37757 615-562-6247		●							
Sierra Club Tennessee Chapter P. O. Box 2721 Nashville, Tennessee 37219		●		●	●				
Tennessee Citizens for Wilderness Planning Dr. Liane Russell 130 Tabor Road Oak Ridge, Tennessee 37830 615-482-2153		●			●				
Tennessee Conservation League Attn: Anthony Campbell 1720 West End, No. 600 Nashville, Tennessee 37203 615-329-4230		●							

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Tennessee									
Tennessee Environmental Council P. O. Box 1422 Nashville, Tennessee 37202 615-251-0110		●				●			
Tennessee Heritage Program 2611 West End Avenue Nashville, Tennessee 37203 615-741-3852		●		●	●	●			
Tennessee Trails Association 306 Frances Street Goodlettsville, Tenn. 37072		●						●	
Trout Unlimited Tennessee Council 7201 Tyner Road Chattanooga, Tennessee 37421		●			●				
TVA Regional Heritage Program Office of Natural Resources Norris, Tennessee 37828 615-494-9800		●		●	●	●			
Texas									
The American Malacological Union, Inc. 3706 Rice Boulevard Houston, Texas 77005		●				●			
Bayou Preservation Association, Inc. Attn: Frank C. Smith 3330 Bering Houston, Texas 77057		●							
Big Thicket Association Attn: Gene Feigelson Box 198 Saratoga, Texas 77585 713-274-2971		●							
Chihuahan Desert Research Institute P. O. Box 1334 Alpine, Texas 79830 915-837-2475		●				●			
Coastal Bend Conservation Association Attn: Steve Frishman P. O. Box 1116 Port Arkansas, Texas 78373		●							
Galveston Bay Conservation and Preservation Association P. O. Box 323 Seabrook, Texas 77586		●							
Houston Sportsmen's Club 730 East Friar Tuck Lane Houston, Texas 77024		●			●				
The Nature Conservancy Texas Chapter 503 B, East 6th Street Austin, Texas 78701		●					●		
Texas, continued									
The Nature Conservancy Texas Field Office 201 North St. Mary's Suite 618 San Antonio, Texas 78205 512-222-9665		●	●			●	●		●
Rockport Conservation Association Attn: M. W. Cochran P. O. Box 1205 Rockport, Texas 78382		●							
Save Open Space Attn: Michael J. Holdaway 7042 Winchester Dallas, Texas 75231		●							
Sierra Club Lone Star Chapter P. O. Box 1931 Austin, Texas 78767 512-478-1264		●		●	●				
Texas Coastal and Marine Council P. O. Box 13407 Austin, Texas 78711		●							
Texas Conservation Council, Inc. 730 East Friar Tuck Lane Houston, Texas 77024 713-686-4165						●			
Texas Committee on Natural Resources 4719 West Lovers Lane Dallas, Texas 75209 214-368-5976		●			●				
Texas Environmental Council 730 East Friar Tuck Lane Houston, Texas 77024		●			●				
Texas Natural Area Survey 4144 Cochran Chapel Road Dallas, Texas 75209 214-352-8370						●			
Texas Organization for Endangered Species P. O. Box 12773 Austin, Texas 78711						●			
Wildlands Preservation Society 1200 Barton Hills Drive, #244 Austin, Texas 78704		●							
Utah									
Brigham Young University Herbarium Provo, Utah 84602 801-378-2289						●			

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Utah, continued									
Citizens Committee to Save Our Canyons c/o Alexis Kelner 1201 1st Avenue Salt Lake City, Utah 84103 801-359-5387									
Defenders of Outdoor Heritage c/o Kerry Borem P. O. Box 15135 Salt Lake City, Utah 84115 801-467-1763		●			●				
MX Coordination Center 448 East 400 South Salt Lake City, Utah 84111 801-364-9647									
Save Our Public Land P. O. Box 1231 Salt Lake City, Utah 84110 801-582-7944									
Sierra Club Utah Chapter P. O. Box 8393 Salt Lake City, Utah 84108		●		●	●				
Trout Unlimited Utah Council 1381 Yale Avenue Salt Lake City, Utah 84105 801-581-9613		●			●				
Utah Audubon Society P. O. Box 9419 Salt Lake City, Utah 84109 801-278-5215									
Utah Environment Center P. O. Box 8357 Salt Lake City, Utah 84108 801-272-7996									
Utah Heritage Foundation c/o Stephanie D. Churchill 355 Quince Street Salt Lake City, Utah 84103 801-533-0858									
Utah Nature Study Society c/o Marie Dickeson, President 323 South 2nd West Tooelle, Utah 84074									
Utah Wilderness Association c/o Dick Carter 722 Judge Building Salt Lake City, Utah 84111 801-359-1337									
Wasatch Mountain Club 3155 Highland Drive Salt Lake City, Utah 84106 801-363-7150									
Vermont									
Conservation Society of Southern Vermont attn: Peter C. Strong Stratton or Newfane, Vermont		●							

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Vermont, continued									
Earth Bridge Community Land Trust attn: Christel Holzer R. D. 1, Box 203A Putney, Vermont 05346 802-387-5732		●					●		
Earth Bridge Community Land Trust Attn: David McCauley R. D. 1, P. O. Box 203A Putney, Vermont 05346		●					●		
For Land's Sake Attn: Charles Hallett R.F.D. 1 East Thetford, Vermont 05043 802-649-1136									
Gopher Broke Land Trust Wolcott, Vermont		●					●		
The Green Mountain Club, Inc. P. O. Box 889 Montpelier, Vermont 05602 802-223-3463									
Kdakinnapodatamwogan Medicine Society Swanton, Vermont Kent Ouimette, Board of Directors									
Lake Champlain Islands Trust Darby Bradley, Treasurer and Legal Counsel c/o Vermont Natural Resources Council 7 Main Street Montpelier, Vermont 05602 802-223-2328		●					●		
Merck Forest Foundation, Inc. c/o Duncan Campbell Rupert, Vermont		●							
The Nature Conservancy Field Office and Chapter 7 Main Street Montpelier, Vermont 05602 802-229-4425		●	●			●	●		●
Ottaqueechee Regional Land Trust Attn: Rick Carbin 39 Central Street Woodstock, Vermont 05091 802-457-3188		●					●		
Vermont Natural Resources Council 7 Main Street Montpelier, Vermont 05602 802-223-2328		●	●			●	●		●

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Vermont, continued									
Vermont Wildlife/Wildlands Foundation Attn: Andrew Livak, Board of Directors Brandon, Vermont									
Windham Foundation Grafton, Vermont									
Virginia									
American Institute of Biological Sciences 1401 Wilson Boulevard Arlington, Virginia 22209 703-527-6776						●			
American Resources Group Keith Arqur, Director 374 Maple Avenue, East Suite 210 Vienna, Virginia 22180									
Boone and Crockett Club 205 South Patrick Street Alexandria, Virginia 22314 703-548-7727		●							
Conservation Council of Virginia Foundation 4549 Arrowhead Road Richmond, Virginia 23235 Attn: Mrs. Louise Burke 804-272-6393									
Conservation Council of Virginia Foundation Rick Mattox, Executive Director Shockhoe Center 11 South 12th Street Richmond, Virginia 23214 804-780-1387									
Environmental Defense Fund P. O. Box 870 Richmond, Virginia 23207 804-780-1297		●			●				
Izaak Walton League of America, Inc. 1800 North Kent Street Arlington, Virginia 22209 703-528-1818		●			●				
Izaak Walton League Virginia Division Route 5, Box 209 Staunton, Virginia 24401 703-886-5136		●			●				
National Recreation and Park Association 1601 North Kent Street Arlington, Virginia 22209 703-525-0606		●			●				
The Nature Conservancy International Office									

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Virginia, continued									
The Nature Conservancy International Office 4 East Loudoun Street Leesburg, Virginia 22075 703-777-2680	●	●					●		
The Nature Conservancy National Headquarters 1800 North Kent Street Arlington, Virginia 22209 703-841-5300	●	●	●	●		●	●	●	●
The Nature Conservancy Southeast Regional Office 35 South King Street Leesburg, Virginia 22075 703-777-7760	●	●			●	●	●		
The Nature Conservancy Virginia Field Office 415 Park Street Charlottesville, Va. 22901 804-295-6106	●	●				●	●		●
The Oceanic Society 6453 Gildas Street Alexandria, Virginia 22310 703-971-3645		●							
Piedmont Environmental Council Attn: Robert T. Dennis, Executive Director 28-C Main Street Warrenton, Virginia 22186 703-347-2334		●							
Prince William League for the Preservation of Natural Resources Attn: Anne D. Snyder 6312 Pageland Lane Gainesville, Virginia 22065									
Rappahannock League of Environmental Protection Flint Hill, Virginia 22627									
Shannon Farm, Inc. Attn. Corinne LeBovitt Route 2, Box 343 Afton, Virginia 22930 804-361-9112									
Sierra Club Old Dominion Chapter P. O. Box 201 Blacksburg, Virginia 24060		●				●			
Trout Unlimited Virginia Council 5200 Claridge Drive Chesterfield, Virginia 23832 804-276-8631		●				●			

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Virginia, continued									
Twin Oaks Community, Inc. Attn: Bruce Dale Route 4, Box 169 Louisa, Virginia 23093 703-894-5126									
Virginia Forestry Association 1 North Fifth Street Richmond, Virginia 23219 804-644-8462									
Virginia Natural Diversity Program Virginia Polytechnic Institute and State University Biology Department Herbarium Blacksburg, Virginia 24061 703-961-5746						●			
Virginia Outdoors Foundation Attn: Tyson B. VanAuken Gen. Harry Distor 221 Governor Street Richmond, Virginia 23219 804-786-5539									
Washington									
Admiral Area Association Attn: Jean Manwaring 1733 Victoria Avenue, S. W. Seattle, Washington 98126									
Ebey's Landing Open Space Attn: Ken Pickard P. O. Box 207 Coupeville, Washington 98239 206-678-5666									
Evergreen Land Trust Attn: Eleanor Hoague 747 16th Avenue, East Seattle, Washington 98112 206-329-0922	●						●		
Friends of the Earth 4512 University Way, N. E. Seattle, Washington 98105 206-633-1661		●		●	●				
Friends of Discovery Park Attn: Mike Ruby P. O. Box 99204 Seattle, Washington 98199 206-633-4456									
Indianola Land Trust Attn: John Hansen P. O. Box 68 Indianola, Washington 98342	●						●		
Kah-Tai Lagood Foundation 611 Scott Port Townsend, Wash. 98368 206-385-2994									

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Washington, continued									
The Mountaineers 719 Pike Street Seattle, Washington 98101 206-623-2314		●			●			●	
The Nature Conservancy Washington Field Office and Chapter 618 Smith Tower Seattle, Washington 98104 206-624-9623	●	●				●	●		●
North Cascades Conservation Council P. O. Box 5156, University Station Seattle, Washington 98105 206-523-2029		●			●			●	
Olympic Parks Associates 13245 40th Avenue, N. E. Seattle Washington 98125 206-364-3933		●			●				
San Juan Preservation Trust c/o Wendy Mickle Route 1, Box 1410 Lopez Island, Wash. 98261 206-468-2925		●					●		
Save Whidbey Island for Tomorrow P. O. Box 421 Coupeville, Washington 98239 206-678-5172									
Sierra Club Northern Rockies Chapter c/o Bond P. O. Box 424 Spokane, Washington 99210		●			●	●			
Sierra Club Cascade Chapter 17 Oak Park Drive, S. W. Tacoma, Washington 98499 206-582-8186		●			●	●			
Washington Environmental Council 107 South Main Street Seattle, Washington 98104 206-623-1483		●				●			
Washington Natural Heritage Program 311 Seminar Building, SE 3109 The Evergreen State College Olympia, Washington 98505 206-753-2449							●		

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Washington, continued									
Washington Open Space Foundation c/o Dr. Art Kruckeberge, President Department of Botany University of Washington Seattle, Washington 206-546-1281									●
Washington Parks Foundation 1500 Westlake, North, #7 Seattle, Washington 98109 206-282-6265		●							●
Washington State Park Foundation c/o Byron Haley P. O. Box 512 2412 South Columbia Olympia, Washington 98507 206-786-1212									●
Yakima River Regional Greenway Foundation Attn: Douglas D. Peters c/o Peters, Schmak, Leadon and Fowler P. O. Box 156 Selah, Washington 98942 509-697-7201									●
Young Lawyers Section of the Seattle-King County Bar Association 540 Central Building Seattle, Washington 98104					●				
West Virginia									
Appalachian Research and Defense Fund West Virginia Environment Clear 1116 B Kanawha Boulevard, E. Charleston, W. Va. 25301		●			●				
Appalachian Trail Conference P. O. Box 236 Harpers Ferry, W. Va. 25425 304-535-6331	●	●				●	●		
Brooks Bird Club Attn: Charles L. Conrad 707 Warwood Avenue Wheeling, W. Va. 26003 304-547-1053	●					●		●	
Canaan Valley Alliance 724 Snider Street Morgantown, W. Va. 26505									
Farm Land Trust c/o Vim Van Eck Agricultural Sciences Bldg. West Virginia University Morgantown, W. Va. 26506		●					●		

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
West Virginia, continued									
Kanawha Trail Club c/o Charles Carlson Box 131 Charleston, W. Va. 25231 304-925-7264									
National Speleological Society, Greenbriar Grotto c/o Jerry Kyle Route 1, Box 231 Alderson, W. Va. 304-445-7897						●			
The Nature Conservancy West Virginia Field Office 100 Quorum Street, Room 215 Charleston, W. Va. 25301 304-345-4350	●	●				●	●		●
The Regional Land Trust of West Virginia Attn: Wendy Tuck 406 Parksburg Road Spencer, W. Va. 25276	●						●		
George M. Sutton Audubon Society c/o George H. Warrick 1709 South Davis Avenue Elkins, W. Va 26241 304-636-5896	●	●							
West Virginia Citizens Action Group 1324 Virginia Street, East Charleston, W. Va. 25301		●				●			
West Virginia Heritage Trust Program 1800 Washington, Street, East Charleston, W. Va. 25305 304-348-2707		●		●	●	●			
West Virginia Highlands Conservancy P. O. Box 506 Fairmont W. Va. 26554						●			
West Virginia Scenic Trails Association c/o George Rosier P. O. Box 2126 Morgantown, W. Va. 26505 304-296-8334									
Wisconsin									
Citizens Natural Resources Association of Wisconsin, Inc. 1520 Bowen Street Oshkosh, Wisconsin 54901 414-233-3527					●				

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Wisconsin, continued									
Citizens to Protect the West Twin River 1304 Woodland Drive Two Rivers, Wisconsin 54241 414-722-0223		●							
Citizens United to Presrve the Eau Claire Dells Area Attn: Susan H. Beach R. R. 1 Aniiva, Wisconsin 54408 715-449-2000		●							
Citizens to Save the Neenah Wetlands c/o David Peck 1036 South Park Avenue Neenah, Wisconsin 54956 414-722-0223		●							
Dane County Conservation League Attn: Oliver Kessenich 113 West Holum Street DeForest, Wisconsin 53532 608-846-5622									
Door County Natural Beauty Council 2389 South Lake Michigan Dr. Sturgeon Bay, Wisconsin 54235 414-743-3773									
Friends of Havenwoods, Inc. Attn: Carri Backes P. O. Box 09384 Milwaukee, Wisconsin 53209 414-466-3385		●							
Friends of Sauk County Attn: Laurence Phelps R. R. 1, Box 64 Rock Springs, Wisconsin 53961 608-522-4228		●							
The Head Foundation Attn: Reed Coleman JoAnne Bush, Director 201 Waubesa Street Madison, Wisconsin 53704	●	●							●
Land Educational Associates Foundation, Inc. 3368 Oak Avenue Stevens Point, Wisc. 54481 715-344-6158									
Madison Audubon Society c/o Carol Luetkens 2 South Fairchild Madison, Wisconsin 53703 608-256-0565	●								

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Wisconsin, continued									
Milwaukee County Conservation Alliance Attn: Jerry Laudon 606 Columbia Avenue South Milwaukee, Wisc. 53172 414-762-1082									
Natural Areas Preservation, Inc. Attn: Gordon A. Bubolz 2401 South Memorial Drive Appleton, Wisconsin 54911 414-739-3161	●	●							
The Nature Conservancy Wisconsin Field Office and Chapter 526 West Wilson Street Madison, Wisconsin 53703 608-251-8140	●	●				●	●		●
North Country Community Land Trust Attn: Maxim and Nancy Rice R. R. 2, Box 161 Turtle Lake, Wisconsin 54481 715-344-6505	●						●		
Prairie Chicken Foundation Attn: Paul J. Olson 4122 Mineral Point Road Madison, Wisconsin 53705 608-233-5474									
The Ridges Sanctuary, Inc. Door County Sturgeon Bay, Wisconsin	●								
The Ridges Sanctuary, Inc. c/o Roy Lukes Box 152 Bailey's Harbor, Wisc. 54202 414-839-2045	●								
River Country Voices Attn: Gus Kenndt 142 West Gorham Madison, Wisconsin 53703 608-258-8670									
Round River Alliance S. S. 1916 University of Wisconsin Green Bay, Wisconsin 54302 414-465-2519									
Rusk County Citizens Action Group R. R. 3, Box 89 Ladysmith, Wisconsin 54848 715-532-3868									
Save Winnebago, Inc. Attn: Ed J. Casper R. R. 2, Box 162B New Holstein, Wisconsin 414-849-9042									

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Wisconsin, continued									
Society of Tympanuchus Cupido Pinnatus Attn: Robert T. Foote 433 East Michigan Street Milwaukee, Wisconsin 53202 414-271-6755		●							
Watertown Conservation Club, Inc. Tranquill Acres Reesville, Wisconsin 53579 414-261-8925									
Wetlands for Wildlife c/o Clai F. Spaulding John W. Rader 39710 Mary Lane Oconomowoc, Wisconsin 53066 608-271-4402	●								
Wisconsin Society for Ornithology, Inc. c/o Alex Kailing W330 N8275 West Shore Drive Hartland, Wisconsin 53029									
Wisconsin Wetlands Association 2 South Fairchild Street Environmental Center Madison, Wisconsin 53703 608-256-0565		●							
Woodland Dunes, Inc. County Trunk D Two Rivers, Wisconsin 54241	●								
Woodland Dunes Nature Center c/o Bernard Brouchoud P. O. Box 763 Manitowoc, Wisconsin 54220 414-684-6082	●								

ORGANIZATION	CODES 1	2	3	4	5	6	7	8	9
Wyoming									
Jackson Hole Land Trust and Izaak Walton League Attn: Jean Hocker P. O. Box 2443 or 2897 Jackson, Wyoming 83001 307-733-4707	●						●		
Powder River Basin Resource Council 48 North Main Sheridan, Wyoming 82801 307-672-5809		●							
Sierra Club Wyoming Chapter c/o Gordon Box 376 Kaycee, Wyoming 82639 307-738-2345		●		●	●				
Wyoming Environmental Institute P. O. Box 2497 Jackson, Wyoming 83001 307-733-6930		●		●	●			●	
Wyoming Heritage Foundation 1001 14th Street P. O. Box 2065 Cody, Wyoming 82414									
Wyoming Outdoor Council P. O. Box 1184 Cheyenne, Wyoming 82001 307-635-3416									
Wyoming Natural Heritage Program 1603 Capital Avenue, Room 325 Cheyenne, Wyoming 82001 307-634-9629						●			

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