

**NATURAL RESOURCES
MANAGEMENT PLAN**
and environmental assessment

WHISKEYTOWN

NATIONAL RECREATION AREA

CALIFORNIA

NATURAL RESOURCES MANAGEMENT PLAN
and Environmental Assessment

WHISKEYTOWN NATIONAL RECREATION AREA
California

Prepared by
Whiskeytown National Recreation Area
National Park Service
Department of the Interior

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ABSTRACT

The Natural Resources Management Plan for Whiskeytown National Recreation Area proposes research and management actions the National Park Service will take to manage the resources. Soil stabilization by mechanical methods and tree planting, control of certain plants for the benefit of recreation and historical integrity, study of the improvement of wildlife habitat by fire and mechanical methods, development of water resources to benefit wildlife and backcountry visitors, the improvement of backcountry garbage collection procedures to prevent associated bear problems, determination of a backcountry carrying capacity, and the control of yellowjacket hornets are proposed.

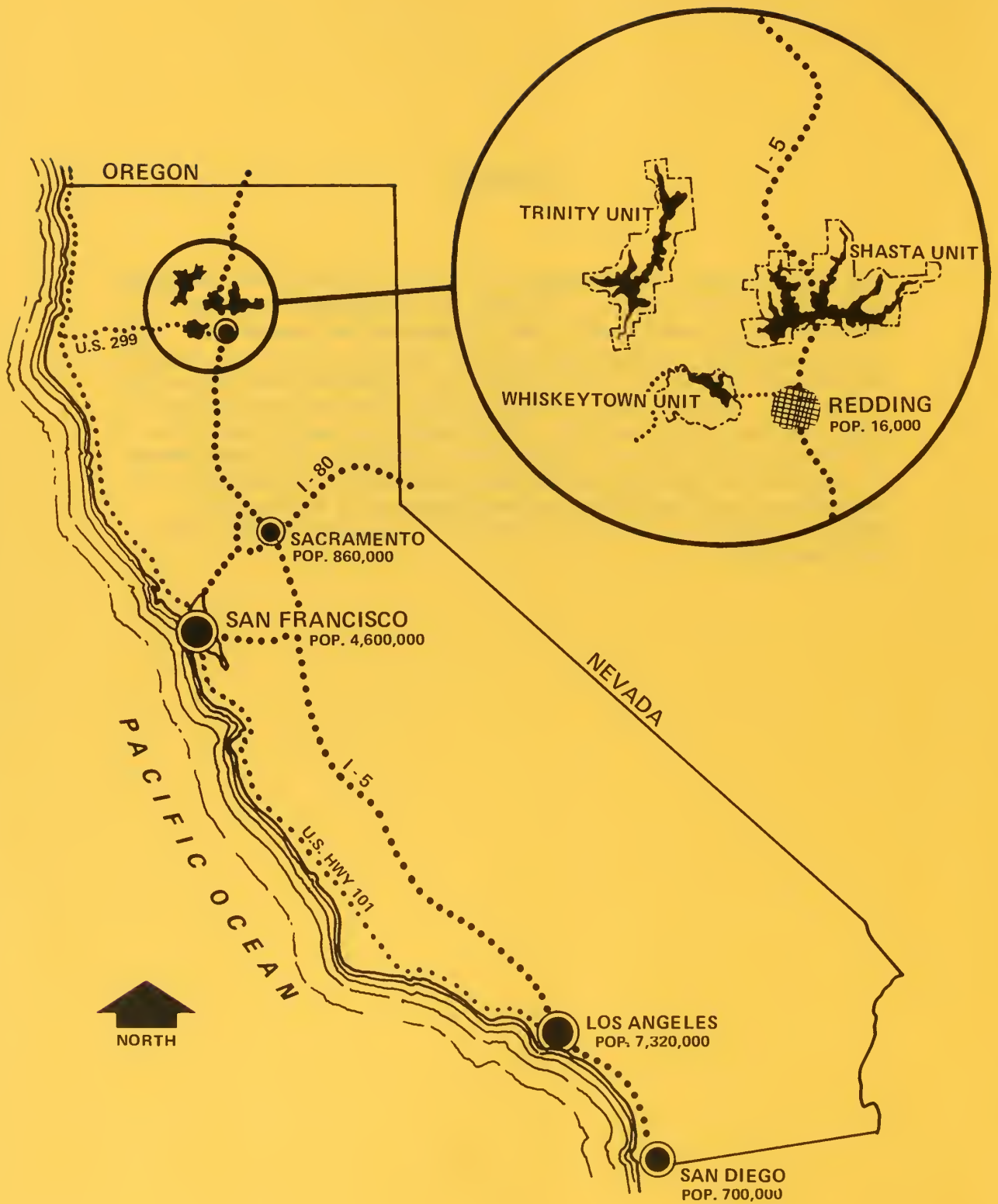


Fig 1. The Region

RESOURCES MANAGEMENT PLAN

Introduction

This natural resources management plan (NRMP) describes the proposed actions that the National Park Service will take to manage the resources within Whiskeytown National Recreation Area.

Whiskeytown (administered by the National Park Service) was established by Congress on November 8, 1965 under Public Law 89-336 to "provide ... for the public outdoor use and enjoyment" of the specified reservoirs and surrounding lands "by present and future generations and the conservation of scenic, scientific, historic and other values contributing to public enjoyment of such lands and water." It was established as one of a three-unit national recreational area along with Shasta and Trinity Units (administered by the Forest Service). The legislation requires that the administration of all three units be coordinated with the other purposes of the Central Valley Project of which the three units are a part and also that the administration of the units include "such management, utilization, and disposal of renewable natural resources as, in the judgment of the respective Secretary will promote or is compatible with, and does not significantly impair," the primary purposes.

Whiskeytown is located at the upper end of the Sacramento Valley in Northern California (figure 1). Its almost 70 square miles of forest and brushland surround the five-square-mile Whiskeytown Lake. Whiskeytown Lake is a manmade impoundment of water created by Whiskeytown Dam, built by the Bureau of Reclamation. Conifers predominate, especially digger pine, ponderosa, and Douglas-fir. Undergrowth consists of low-lying shrubs, mostly manzanita with its deep-red bark. Much of the area has been recently logged.

Visitor use includes water sports, fishing, camping and picnicking, backcountry driving, and hunting. The area is managed

with recreational pursuits recognized as the dominant or primary resource objective with these pursuits regulated to ensure their availability for future enjoyment.

MANAGEMENT OBJECTIVES

Resources management objectives developed for the recreation area, and to be achieved by this plan, are:

Rehabilitate the area's vegetation to return it to a more nearly natural state to benefit wildlife and the visitor experience.

Improve stream quality and watershed appearance by controlling soil erosion through stabilization.

Restore a natural bear population by removing artificial food sources.

Maintain the backcountry biological communities by determining and enforcing visitor carrying capacities.

Restore the vegetation in the Tower House Historic District to its historical composition.

Develop backcountry water sources for visitor and wildlife use.

Improve the visitor experience by controlling nuisance species such as poison oak and yellowjacket hornets.

Research and Resources Management Actions

The following actions are proposed to carry out the above objectives.

VEGETATION MANAGEMENT

Modification and controls are intended for certain plants to restore and maintain historic plant composition, to provide a reasonable amount of safety to the recreating public, to improve wildlife habitat and watershed quality, and to restore the plants to a more natural state.

Poison oak control. Poison-oak is a problem in heavily used areas due to its ability to cause severe dermatitis to visitors and employees. An active eradication program has been conducted in dense public use areas for several years, using an approved herbicide (Silvex). The program limits control to specific areas and is closely monitored.

Exotic plant control. The Himalayan blackberry (Rubus procerus) and tree-of-heaven (Ailanthus altissima) have invaded former pasture and garden areas in the Tower House Historic District, intruding on the scene, covering and concealing the garden layout, picket fences, irrigation trenches, and traces of the old road. It is also believed that these plants cover foundations or other evidence of long-since expired buildings. In order to restore and maintain the historic scene in this area, it is necessary to modify or eradicate large patches of these exotic plants. This will be accomplished mechanically by cutting and pulling the plants.

Vegetation rehabilitation and prescribed burning. Native plants are altered from their natural composition. This is the result of logging and mining operations. Natural reproduction is slow, and allows various adverse effects. The park will establish test plots and collect and evaluate data to determine reasonable methods for returning the plant life to a more natural state.

A part of this plan is a study of the plant ecology, which will complement other projects. It may also suggest areas for further study or management.

At present, immediate suppression of all fires is a recognized part of management. With proper research and correct prescriptions, it may be possible to use controlled burning as an

effective tool in fuel management and vegetative manipulation in the dense brush areas of the park to improve wildlife habitat and prepare sites for replanting to a former coniferous forest type. A research program is proposed to study the area's fire history and ecology. Recommended fire management actions will be in agreement with administrative policy and the integrated fire management plan for the Western Region, National Park Service.

Planting in denuded areas. Planting and seeding of areas principally denuded by logging has begun, and an active program was put into operation in 1973. Techniques and methods being used follow recommendations made in the Soil Management Guide for Whiskeytown Recreation Area. This publication was prepared under contract by the U.S. Soil Conservation Service to aid in the area's soil management problems (figure 2).

According to Public Law 89-336 of November 8, 1965, logging is permitted so long as it is compatible with and does not impair public recreation or other values contributing to public enjoyment. Unstable soils of granitic origin cover about two-fifths of the total watershed. Logging was extensive in this region. The result has been massive erosion and related problems. Commercial harvest of timber will not be considered until practical and economical logging methods are developed for use in these soil types without devastating other resources and values.

WILDLIFE MANAGEMENT

Hunting. The establishment act, cited above, directs that hunting shall be allowed in compliance with Federal and State regulations, except in specific areas where such activity is not compatible with public use and enjoyment, administration, or public safety. Approximately 1,000 acres, or less than 2.5 percent of the area, are closed to hunting for visitor safety (figure 3). Areas where hunting is prohibited are shown on maps available at all public contact points and are conspicuously posted.

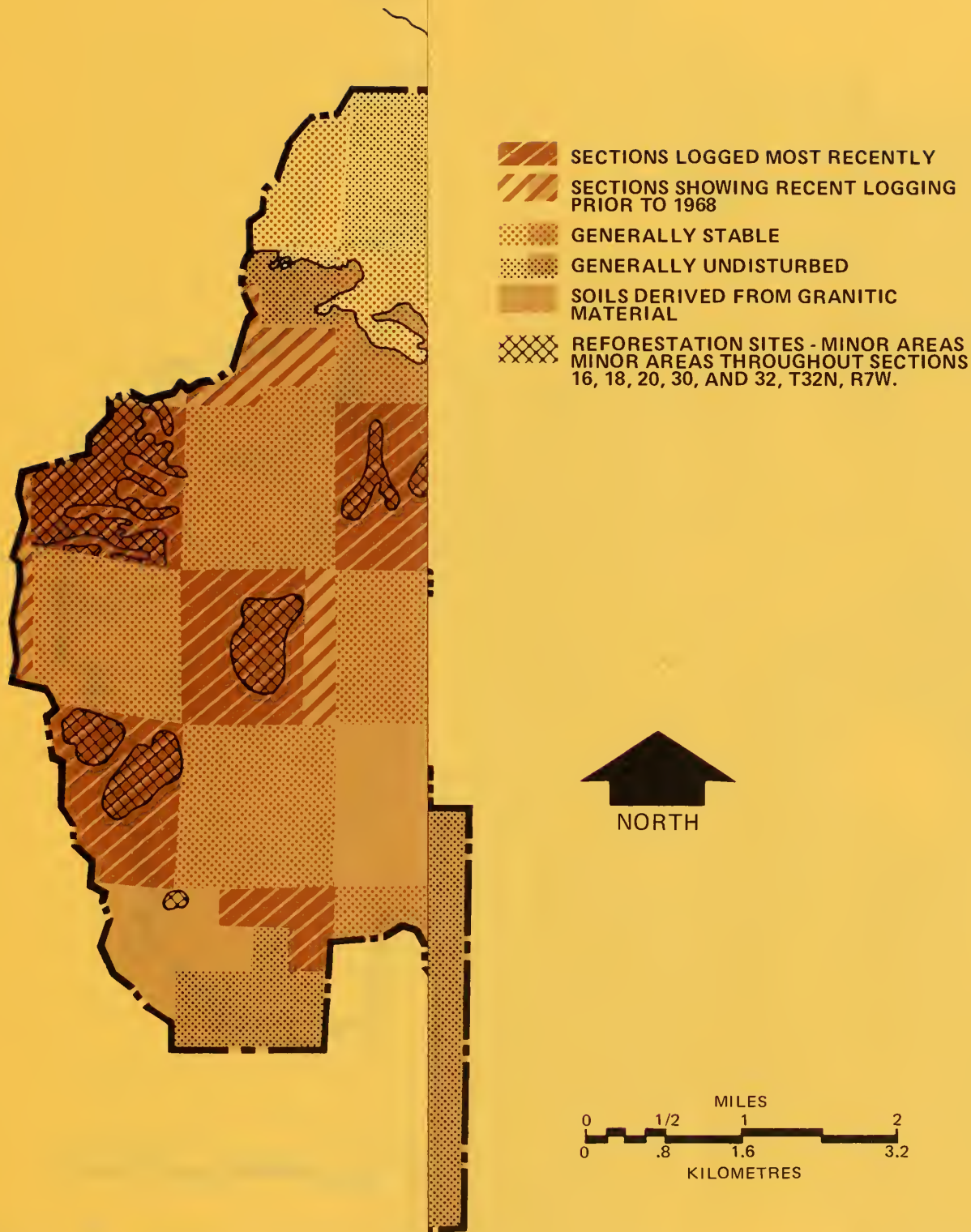


Fig 2. Planting & Character Summ

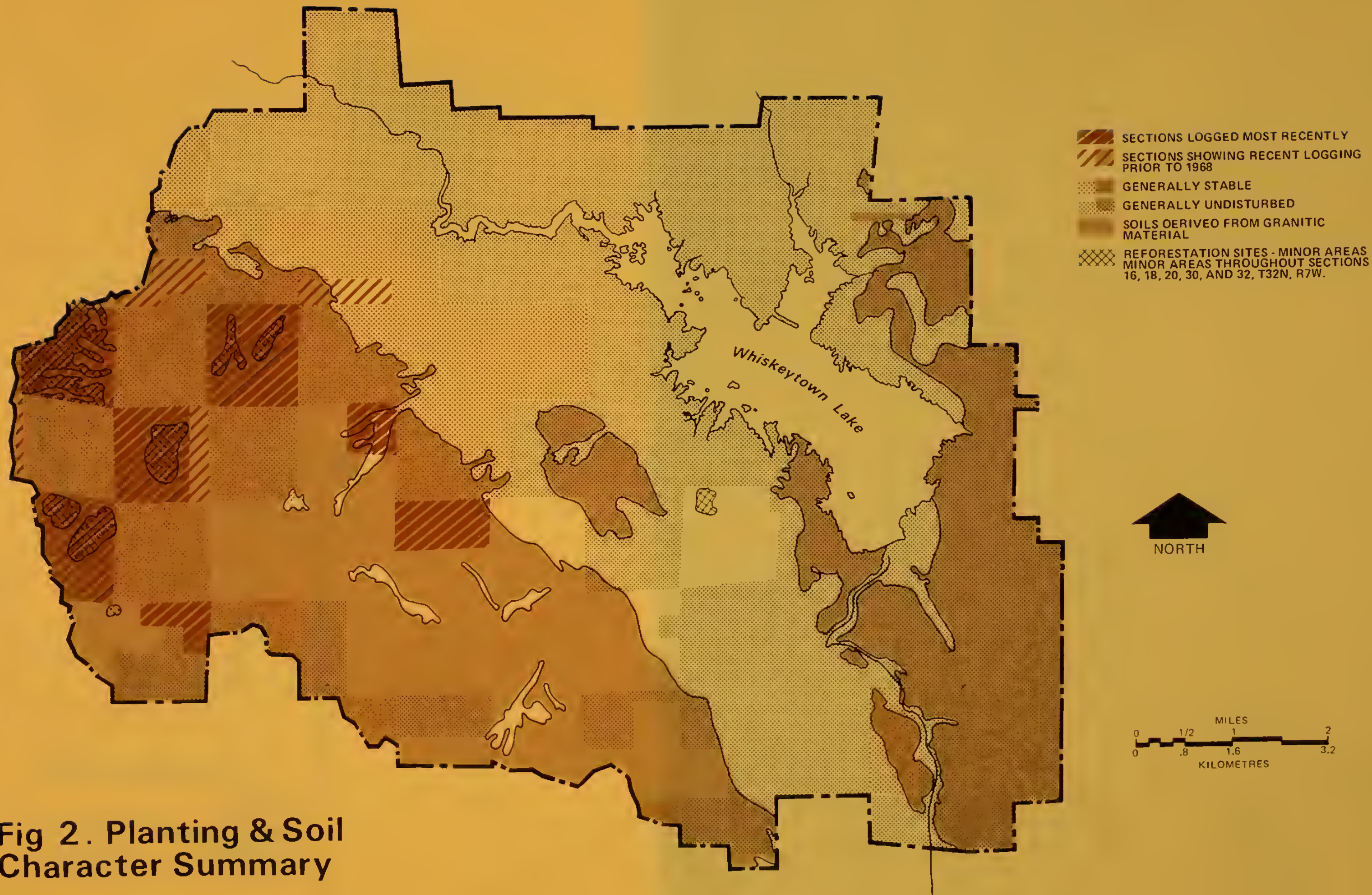


Fig 2. Planting & Soil
Character Summary

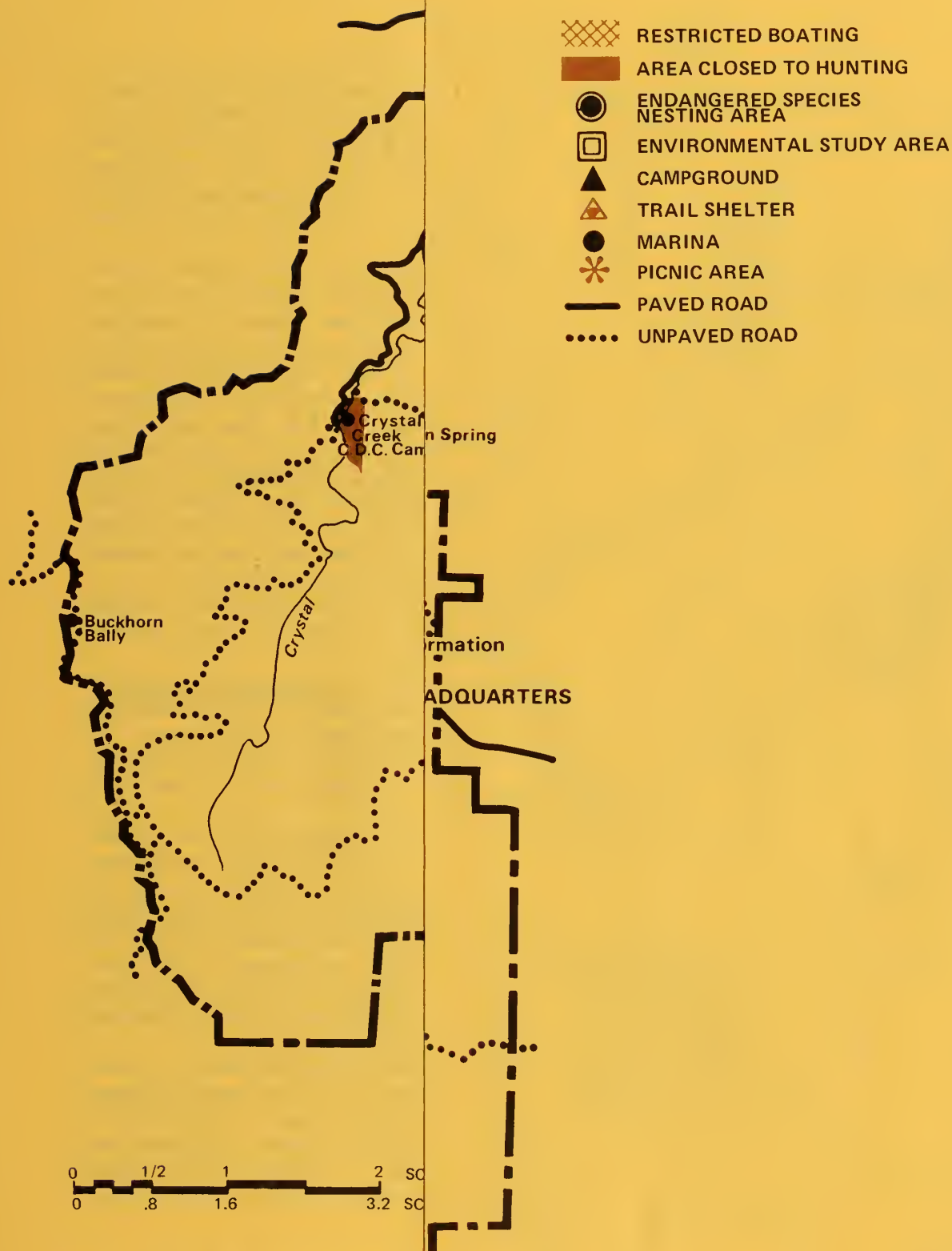


Fig 3. Whiskey

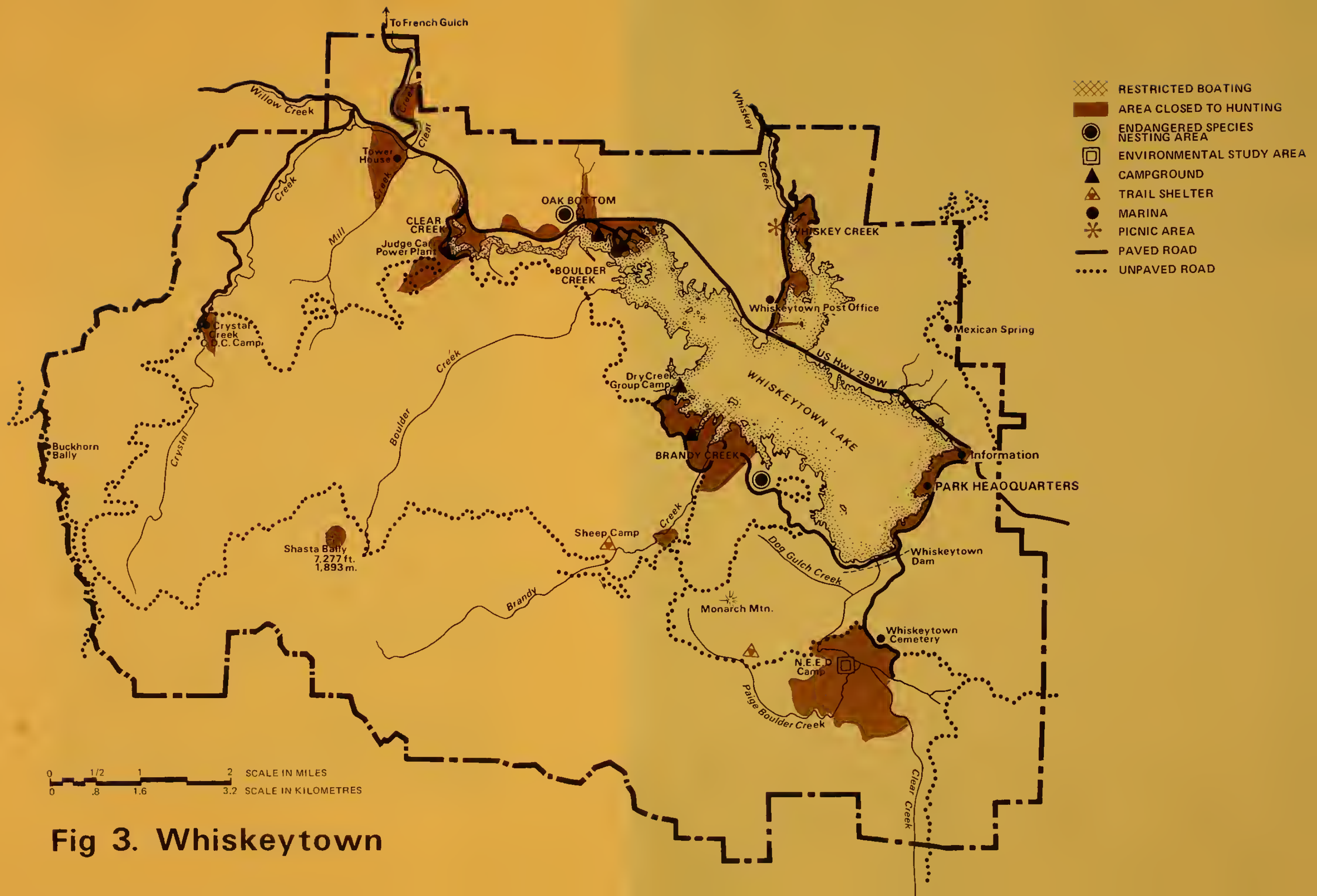


Fig 3. Whiskeytown

A cooperative agreement with the California Department of Fish and Game has become part of the fish and wildlife management. Meetings are held annually and mutual problems are discussed. Park Service personnel work with State wardens, wildlife managers and fisheries biologists, both in planning and in field studies.

Large animals hunted include Columbian blacktail deer, black bear, and crossed wild/domestic pig. Small animals most frequently hunted are rabbit, squirrel, bobcat and raccoon. Wildfowl include mountain and valley quail, mourning dove, band-tailed pigeon, and a small number of wild turkeys. Canvasback, mallard, and pintail ducks, as well as geese and coots are seen and add appreciably to the visual enjoyment of the visitor but are too small in number to attract many hunters. Migratory waterfowl are present in limited numbers only. Water level fluctuations in the lake during the cooler months expose the shallows near its edge, thus inhibiting the growth of shallow water plants upon which many of the birds feed. Hunting seasons on most game animals occur when water-oriented visitor use is at its lowest point, resulting in little conflict between user groups.

Black bear management. When bears live close to people, the potential for problems exists. Management decisions relative to these native animals will be oriented to eliminate the enticements that draw bears into a position where they become problems or cause provocation.

Aside from recreation, public hunting may also be used as a management tool to control bear population density and bear/human incidents (largely brought about by human activities). Public hunting used as a management tool is not generally available to national parks and monuments. Other measures, such as the control of population density, dispersion patterns, food sources and supply within the species' environment, become predominant factors in bear management.

Hunting pressure alone cannot eliminate all incidents. For example, some conflict exists between bear and apiary use in pre-selected sites. The apiary operations are under special use permits. Occasionally a bear will damage some hives in their effort to get to the honey. Special conditions have been written into the permits which state that if there is

a conflict, the affected site must be fenced to prevent intrusion, or moved to a new location. At no time will the bear be destroyed to prevent this conflict. If fencing and moving beehives does not resolve the conflict, the permit will be cancelled. This is one example of a potential problem caused by human activity.

The following criteria will be applied to all management actions taken to minimize bear/human incidents:

To determine if bear should be allowed in public or special-use site, consider:

- 1) Area objectives;
- 2) Frequency of incidents;
- 3) Degree of human use (high or low density, intermittent or continuous);
- 4) Cause of problem.

Whenever possible, preventive measures will be taken, such as removing artificial food sources, rather than taking direct action on the bear.

To determine if bear will be relocated, consider:

- 1) Area objectives;
- 2) Frequency of incidents;
- 3) Density of bears and people;
- 4) Special uses (compatibility with area objectives);
- 5) Cause of problem.

Every other management action will be taken in preference to relocating the bear.

To determine if bear will be destroyed, consider:

- 1) Whether or not the cause has been totally eliminated (access to garbage, apiary, or any other evidence of human activity);
- 2) Personal injury or recurring property damage;
- 3) Reappearance after relocation to other areas without recurring injury or damage;
- 4) Cause of incidents (provoked or unprovoked).

If destroyed, the bear carcass will be allowed to return to the ecosystem, or if circumstances warrant, it will be retained by the Park Service or Department of Fish and Game for study purposes.

To determine if hunting pressures should be increased, consider:

- 1) Increase in population density;
- 2) Decrease in natural food supply--causing an abnormal concentration in public use sites, brought about by such environmental conditions as prolonged, adverse weather.

The present bear/human incident rate is near zero. However, a change in public use patterns toward increased backcountry use and availability of artificial food sources could lead to an increase in incidents. When proposed backcountry camping facilities are constructed, use will probably increase proportionately, and this may lead to greater impacts on bear habitat.

It is therefore proposed to include bear-proof facilities, such as food storage and waste disposal, in backcountry development plans. In remote sites along the trail system where refuse containers are absent, campers will be required to pack out all trash and to dispose of it in a conveniently located bear-proof facility. Park staff will pick up the garbage from the backcountry containers on a timely schedule and place it in a bear-proof garbage dump box. Under the present disposal system, this dump box is picked up by a contractor and the contents are placed in a land fill outside the recreation area.

Fisheries management. Immediately prior to the most recent inholding acquisitions of land in 1972, intense lumbering activity on steep mountain slopes caused heavy siltation in the streams flowing into the lake. Regrowth of earlier cut areas in the Brandy Creek drainage has slowed erosion and some streams are beginning to run clear in the rainy season, permitting a limited amount of natural spawning by trout and kokanee salmon. In cooperation with California Department of Fish and Game, we are trying to establish a population of kokanee salmon that would be self-sustaining without additional stocking.

The lake provides habitat for fish ranging from catfish, sunfish, and bass in warmer waters to German brown, rainbow trout, and kokanee salmon in cooler waters. Most of these species have been introduced; both State and Federal hatcheries stock trout in selected areas.

A great deal of study by the California Department of Fish and Game (CDFG) has been directed toward stocking methods, periods of stocking, size and numbers of fish per plant, locations of plants, the interactions between cold-water and warm-water species, the natural spawning of both kokanee salmon and trout, and forage foods. Upon our request to increase the quality of the bass fishery, the CDFG planted thread-fin shad in warm-water coves during the Spring of 1974. Continued study and coordination with CDFG will provide for a maximum degree of angler success.

Protection of threatened and endangered species. Threatened and endangered wildlife present within the boundaries are thought to be limited to two species: southern bald eagle and osprey. Sightings of eagles and ospreys have increased in past years. An occupied nest of each species has been observed since 1973 (figure 3). When threatened and endangered species are observed, their locations will be marked and the site protected through restrictions on public use, if necessary, with overall management consistent with provisions of the Endangered Species Act of 1973.

Control of yellowjacket hornets. Yellowjacket hornets caused a great deal of concern several years ago. Since they feed on meat, the refuse left by picnickers and campers provided a bountiful supply of food. Consequently, hornet populations multiplied to levels dangerous to visitors. As soon as campers and picnickers brought out food for their meals they were besieged by the hornets, driving the people away.

Hornets are now controlled in the developed public use areas when unusual population buildups occur. A species-specific pesticide (Mirex) is used in a commercially prepared bait apparatus. This method has been approved by the Federal Working Group on Pesticide Management for use at Whiskeytown. The picnic and camping areas are periodically observed for any unusual buildup in hornet numbers. When this occurs, the bait is placed in a convenient, inconspicuous location

about 6 to 10 feet high. Bait was not needed in the 1974 season. Although hornets were present, they did not multiply to the point of conflict with the visitors.

SOIL STABILIZATION

The unstable soil situation, primarily associated with the Shasta Bally batholith, has been identified as a major resource management problem in the area. In 1973, a soil management guide for the area was prepared by the U.S. Soil Conservation Service under contract to the National Park Service. This document is the basic guideline for rehabilitation of those areas which were heavily logged just prior to NPS acquisition. An active soil management program as described in this guide to counter the results of logging was begun in 1973, and is continuing. This includes planting of tree seedlings, cultivation of grasses, diverting water from eroded courses by contour ditches to more evenly spread the water and lessen erosion, and healing ditches through construction of dams, rip-rapping and other mechanical methods. All backcountry roads not used as a part of the road or trail network will be water-barred to reduce erosion which will allow herbaceous ground cover to become permanently established, stabilizing the remnant scars of earlier logging. The road entrances will be barricaded, signed, and screen-planted. This program will continue for several years to come.

WATER QUALITY

Monitoring. The lake is fed by six major streams: Clear, Crystal, Mill, Boulder, Brandy, and Whiskey Creeks. However, the major input to the lake is an eleven-mile long, 26-foot diameter tunnel which brings water from Lewiston Lake on the Trinity River under the Trinity Divide into Whiskeytown Lake. No matter where the flow originates, either from streams or from the Trinity-Whiskeytown tunnel, water quality is of the highest concern in management of this resource. The input to the lake from the tunnel is a source over which the Park Service has little control. However, of the six major creeks

feeding the lake, the National Park Service controls the complete drainage of four: Crystal, Boulder, Mill, and Brandy Creeks. Any harmful effect caused by actions in these drainages is within the control of the Park Service.

A monitoring system has been established on these watersheds and on several other creeks within the area boundaries. These include Clear, Willow, and Paige-Boulder Creeks (below Whiskeytown Dam). Measurements include flow, dissolved oxygen, specific conductivity, turbidity, total hardness, total nitrates, and total phosphates. The monitoring program began in March of 1973. Experience led to a revision of this schedule and since March 1974, measurements are taken monthly. The monitoring program provides water quality and baseline data. It will allow the Service to judge the success or failure of any programs (reforestation, soil movement control, road building) initiated in the drainage which affect water quality or quantity. The Division of Water Resources, Western Region, National Park Service, will review this monitoring program for adequacy, refinements, and data relevancy.

Development of springs. As visitor pressures in the back-country increase, it will become necessary to develop water sources in the more remote areas of the park where free-flowing creeks or streams are unavailable. In these areas, springs or seeps are common.

Development of these sources would require the installation of piping, storage tanks, and flow lines. It might also entail the removal of phreatophytic vegetation and the fencing of source areas. All work will be accomplished with minimum disturbance to existing natural conditions. Upon completion of installations, water at these sites would be more readily available for visitors, wildlife, or fire control purposes.

CARRYING CAPACITY AND VISITOR USE

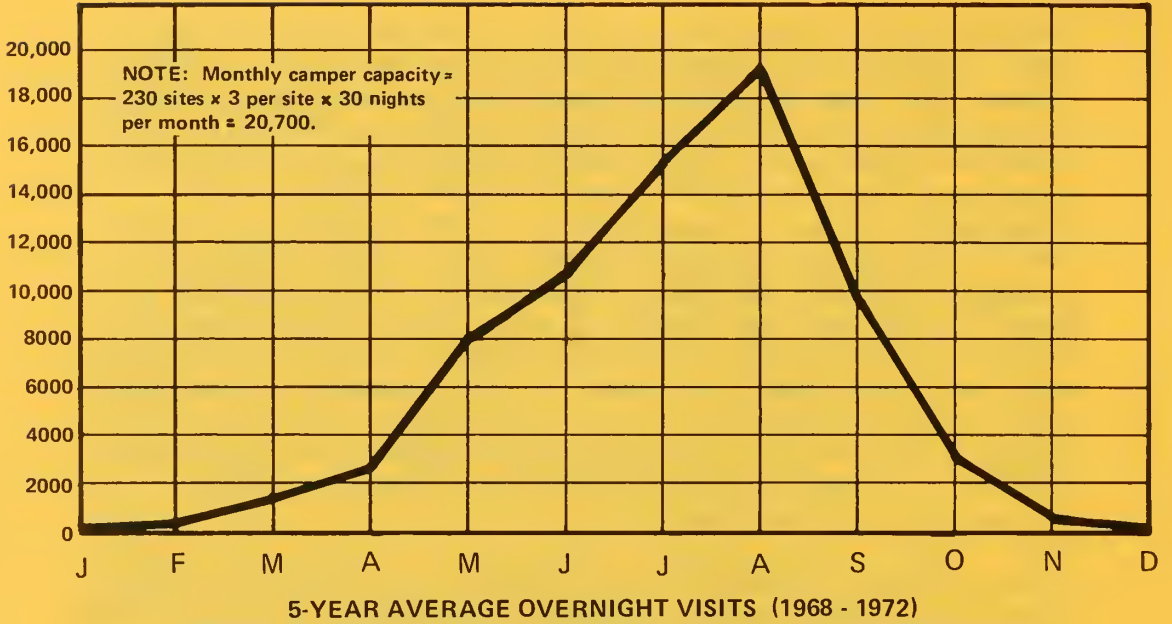
Visitor impact upon the natural resources of Whiskeytown varies with the location and type of use. In the vicinity of the lake, impact is high and consists mainly of water-oriented recreation. As distance from the lake increases, visitor use decreases except in certain designated areas.

Interim carrying capacities, based on current use, for the lake, shoreline, and developed public use areas are in effect (figure 4). However, the determination of carrying capacity on the areas away from the lake will take more study. Presently backcountry use is being monitored. Overnight use is allowed with a campfire permit outside of designated campgrounds beyond a one-mile limit of the lakeshore. Statistics are being accumulated through these permits which are issued to visitors remaining overnight in the backcountry. These include date and length of stay, number of persons in the group and location of overnight stay. Through a constant check of these areas, the amount of use compared to the site's ability to stand such use may be evaluated. This system also allows a control on the camping limits imposed at Whiskeytown (14 days from Memorial Day through Labor Day, and 30 days the remainder of the year).

Use of certain resources by the visitor is allowed as a contribution to their total recreation experience. This includes both renewable and nonrenewable resources. Removal of renewable natural resources includes the cutting of Christmas trees and the cutting of sprigs of the local Christmas berry or toyon. The cutting of Christmas trees was found to be unacceptable because people destroyed large, tall trees merely for the top 6 to 10 feet. Toyon sprigs are allowed to be cut under a permit system. The permit requires that sprigs be pruned in a manner allowing continued growth.

Gold panning. The Whiskeytown National Recreation Area lies in the heart of old goldmining country. Most of the creeks in the area have been commercially mined in the past. Placer gold still can be recovered in the creeks. The question has arisen as to exactly which methods of gold extraction are recreational in nature and which are commercial or semi-commercial. After much discussion and study, it is felt that the only recreational type of extraction that will be allowed is the panning method. The use of any type of sluice box, rocker box, or power-driven equipment will be considered a commercial operation and will be handled under the mineral leasing laws as directed in Public Law 89-336.

MONTHLY CAMPER CAPACITY (20,700)



MONTHLY VISITOR CAPACITY (270,000)

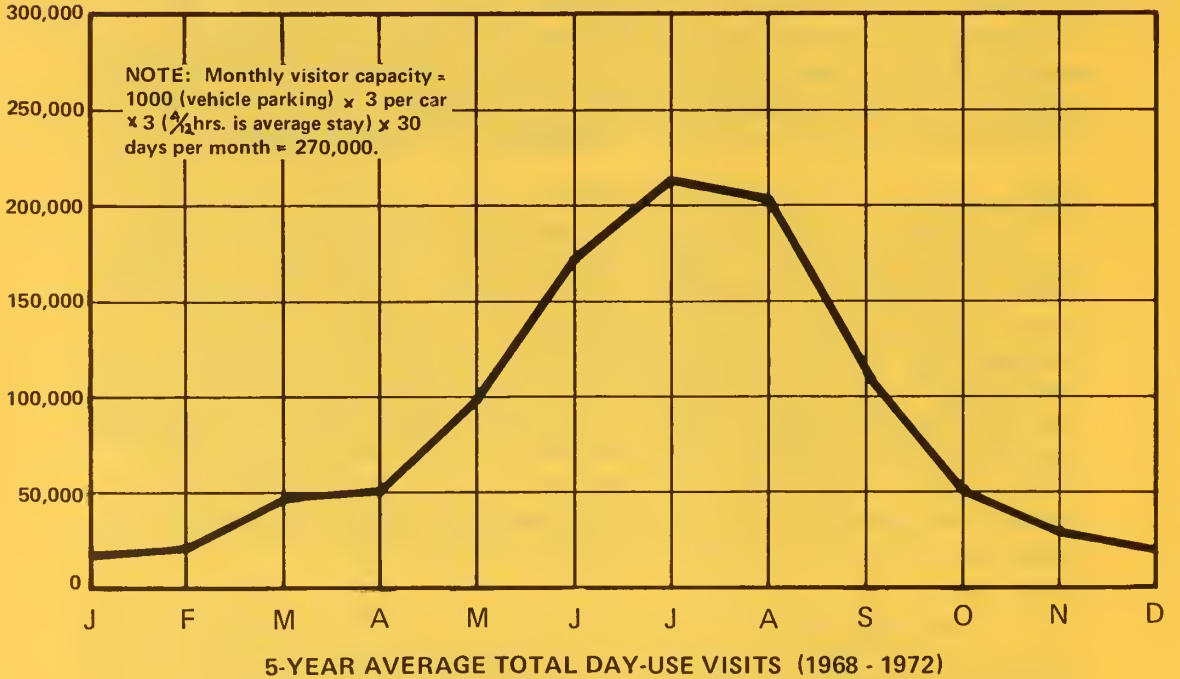


Fig 4. Capacity of Developed Areas

Backcountry road use. All logging roadbeds and skid trails not identified for use on the road classification map will be closed to motor vehicle traffic. These scars will be encouraged to return to a natural vegetative cover. Where major intrusions and scars exist, vegetation will be planted to accelerate the healing process. These roads and trails will be barricaded and signed. The draft master plan states that trail bikes and buggies will be allowed on all existing four-wheel-drive roads. Since off-road vehicle trails have not been designated at this time for specialized vehicles, their use will be allowed on any roads which are open for general motor vehicle travel as shown on the road classification map (figure 5).

Relationship of the Proposal to Other Projects and Plans

Fire Management in the Western Region is a plan for integrated fire management in park areas of the Western Region, National Park Service. Park areas in the Region will use a combination of fire suppression in certain zones, prescribed fire in certain zones at certain times, and natural fires in certain zones under certain conditions. In this plan, fire management actions for Whiskeytown National Recreation Area include 1) existing use of fire suppression and 2) existing or potential use of prescribed fire.

Master Plan. A preliminary draft master plan and environmental assessment has been completed and was distributed for public review in Spring 1975. The plan is largely a development proposal to accommodate recreational uses. Developments, improvements and expansion are proposed for Boulder Creek, Brandy Creek, Dry Creek, Oak Bottom, Whiskey Creek East, and the headquarters complex. Improvements on California 299 are also proposed. Backcountry proposals include: a system of roads and picnic sites for passenger cars, four-wheel-drive, and off-road vehicles, a trail system and campsites, and an environmental study zone. Restoration and utility development are proposed for the Tower House Historic District; restoration and interpretation are proposed for the historic toll road and the El Dorado mine and stamp mill.

Soil Conservation Service. The Soil Conservation Service, under contract to the National Park Service, prepared a soil management guide (April 1973) to aid in the area's soil management problems due to past logging activities.

Bureau of Reclamation administers the Central Valley Project, a network of dams, reservoirs, tunnels canals, and powerplants, which diverts water into the Central Valley. BR inspects and maintains high-voltage transmission lines which run parallel to the southern side of the lake. Emplacements in the area include penstocks, transmission towers, and stations. BR also proposes a 400-foot-high dam just below the historic district and a 150-foot-high dam five miles downstream from Whiskeytown Dam.

California State Division of Highways proposes long-range plans to develop California 299 into a freeway from Redding, which may include overpass or underpass structures to gain access to the park.

1. TRINITY HIGHWAY, U.S. 299 W
2. KENNEDY MEMORIAL DRIVE
3. SOUTH SHORE DRIVE
4. WHISKEY CREEK ROAD
5. FRENCH GULCH ROAD
6. CRYSTAL CREEK ROAD
7. MULETOWN ROAD
8. SOUTH FORK LOOKOUT ROAD
9. GRIZZLY GULCH ROAD
10. MERRY MOUNTAIN ROAD
11. ACCESS ROAD TO TOWER HOUSE
HOUSING AREA
12. ACCESS ROAD TO WHISKEY CREEK
BOAT RAMP
13. PIONEER ROAD
14. BOURBON ROAD
15. SCOTCH ROAD
16. RYE ROAD
17. ACCESS ROAD TO MEXICAN
SPRING
18. OVERLOOK ACCESS ROAD
19. HEADQUARTERS ACCESS ROAD
20. PATROL ROAD NO. 1
21. PAIGE BAR ROAD
22. MONARCH MOUNTAIN ROAD
23. SHASTA BALLY ROAD
24. SHASTA MINE ROAD
25. BUCK HOLLOW ROAD
26. PAIGE BOULDER CREEK ROAD
27. PAIGE BOULDER CREEK SPUR
ROAD
28. SOUTH FORK MOUNTAIN ROAD
29. PATROL ROAD NO. 2
30. PATROL ROAD SPUR
31. BRAND CREEK ROAD
32. SALT GULCH ROAD
33. BRANDY CREEK SEWAGE LAGOON
ROAD
34. BRANDY CREEK BEACH ROAD
35. BRANDY CREEK MARINA ROAD
36. CAMPGROUND SPUR ROAD
37. DRY CREEK ROAD
38. LOWE ACCESS ROAD
39. OAK BOTTOM ACCESS ROAD
40. CAMPGROUND LOOP
41. OAK BOTTOM MARINA ROAD
42. OAK BOTTOM BEACH ROAD
43. BOULDER CREEK ROAD
44. MILL CREEK ROAD
45. BOULDER CREEK SPUR ROAD
46. POWERHOUSE RESIDENCE ROAD
47. NEAL RESIDENCE SPUR ROAD
48. SURGE CHAMBER ROAD
49. TRANSFORMER ROAD
50. STATE RESIDENCE ROAD
51. SPRAY FIELD ROAD
52. BICKFORD MINE ROAD
53. CRYSTAL CREEK FALL ROAD
54. CRYSTAL CREEK CAMP
ACCESS ROAD
55. BUCKHORN SUMMIT ROAD
56. PATROL ROAD NO. 3
57. PATROL ROAD NO. 4
58. COGGINS PARK ROAD



1. TRINITY HIGHWAY, U.S. 299 W
2. KENNEDY MEMORIAL DRIVE
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57. PATROL ROAD NO. 4
58. COGGINS PARK ROAD

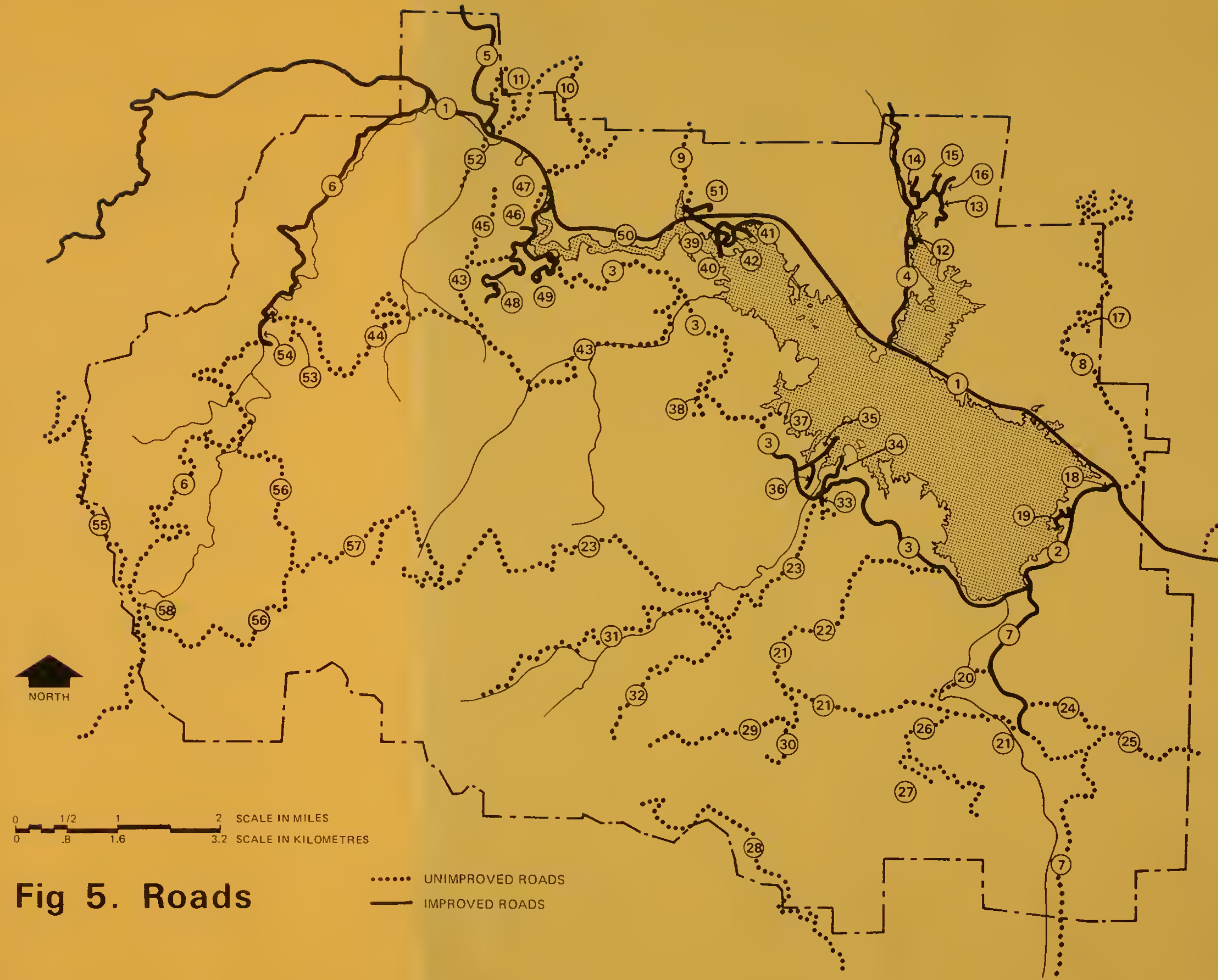


Fig 5. Roads

..... UNIMPROVED ROADS
 ——— IMPROVED ROADS

ENVIRONMENTAL REVIEW

The natural resources management plan for Whiskeytown National Recreation Area presents a long-term action program for managing the area's resources. Its accompanying environmental assessment analyzes and documents the environmental impacts of the proposed actions.

The proposed actions will accelerate the natural restoration of disturbed areas; reduce exotic plants, poison oak and hornets in areas heavily used by visitors; increase the availability of water for backcountry visitors; improve wildlife and stream habitat in the area; reduce the potential for bear problems; and increase the available information on vegetative manipulation and backcountry visitor use in the area. Adverse effects include smoke from prescribed fires conducted as part of the fire management research, provision of unnatural water sources for wildlife, and the removal of some native poison oak and hornets.

The actions were chosen from various alternatives. The alternative of no action was considered for each proposal. Area closure and visitor use relocation were considered in poison oak and hornet areas. Different levels of action were rejected for exotic plant control, soil stabilization, and water source development.

Because none of the proposed actions entail significant environmental impacts, a negative declaration is assigned to this plan. Unless significant controversy develops during public review, a full environmental statement will not be prepared.

The resources management planning effort at Whiskeytown will be translated into an action program when the thirty-day public review period expires.

ENVIRONMENTAL ASSESSMENT

The environmental assessment for the Whiskeytown natural resources management plan consists of the preceeding proposed plan, and the following sections.

Description of the Environment

Early development at Whiskeytown was concentrated within the original take-line, a narrow strip of land around the perimeter of the lake acquired by the Bureau of Reclamation and subsequently turned over to the National Park Service for administration and management. Meanwhile, land acquisition from private owners proceeded to fulfill Congressional mandates for the area. Negotiations and certain litigation necessary to acquire the last major holdings have been completed.

Visitor use has increased from less than 400,000 visits in 1964 to more than one million in 1971. Because facilities and land ownership have centered around the lake, almost all of the visitor activity has been concentrated there. The lake (reservoir) retains its full elevation (1,209 feet) throughout the heavier visitor use period. There is a maximum flood control drawdown of 15 feet in the winter months.

THE LAKE

With over five square miles of water surface ranging to a depth of 200 feet and having summer temperatures from 75° on its surface to 45° in its depths, the lake provides a variety of fish, ranging from catfish and perch to large and small-mouth bass in the warm waters, and from German brown and rainbow trout to kokanee salmon in the cooler waters. Most of the species have been introduced and the number of trout

is augmented each year by fish plants from both State and Federal hatcheries. Immediately prior to the most recent land acquisitions, intense lumbering activity in the granitic soils on the southern mountain slopes caused heavy siltation in the streams flowing into the lake, which severely reduced spawning up the streams. In cooperation with California Department of Fish and Game and Bureau of Reclamation, the level of the lake is lowered by approximately six feet early in September to assist natural spawning of trout and kokanee salmon.

THE LAND

From the information center on Highway 299, almost the entire recreation area can be seen except for the Crystal Creek drainage system. The 3,250-acre lake extends to the northwest and the highway moves parallel with the northeast shore of the lake with its largely brushy, treeless, steep slopes. On the southwest, the wooded shores rise to high forested ridges dominated by the 6,209-foot peak of Shasta Bally. It is a ruggedly beautiful scene across the lake with the surrounding steep, tree-covered hills mirrored on its surface. The north side of the lake has been sharply cut by the construction of Highway 299. Because of their southwest exposure, the steep hills above the highway receive intense and prolonged sunlight, which influences the vegetative type. This is presently a brushland of manzanita, chamise, yerba santa, toyon, and poison-oak, with sparse growths of oaks and pines standing above the brush. In the summer, this shadeless place is uncomfortable and in harsh contrast to the lake's cool waters and the forested south shore.

Swift flowing streams cascade down the steep valleys. Above them, the slopes rise to higher ridges which are dominated by the highest point in the unit, Shasta Bally. In the winter, its 6,209-foot top is snow-covered, but by June it is dry and the four-wheel-drive road to the top is passable. The road, which begins at the lake near the Brandy Creek developed area, climbs upward through changing views of valleys, streams, and forests with increasingly dramatic views of the lake, and

views south to the Central Valley and east to the snowcapped Sierra Range. At the summit, the temperature is at a breezy and cool level as contrasted with the temperatures at the lake. The view from the top is a sweeping 360 degrees and includes the Trinity Alps to the north and northwest. The television relay and transmission station located on the summit, is an unsightly intrusion into an otherwise remote and exciting termination to a mountain drive or hike.

Below the dam, along Clear Creek, the land flattens until it reaches the southern boundary of the unit. The elevation is about 800 feet above sea level. The stream continues in a steep-walled canyon where easement rights have been added to the park for a distance of about one mile below the established boundary.

Brush is the most common cover in the lower elevations of the park, near the lake, and at Clear Creek below the dam. This is especially true on slopes with southern and western exposures.

Above the lake, especially on its south and west sides, coniferous forests of ponderosa and sugar pines with Douglas-fir and incense-cedar dominate. They form the bulk of the green backdrop for the lake. All but about seven square miles have been logged in the past quarter century. These second growth forests are cool, green havens. On some of the higher ridges along the southern and western boundaries in the decomposed granite soils are forests of mostly scattered white fir interspersed with brush, including ceanothus, bearberry and chinquapin. Exposed soil is also common in this area.

LAND CLASSIFICATION

The draft master plan classifies all land within the boundaries of Whiskeytown National Recreation Area in specific management categories (figure 6). The criteria for this land classification system are detailed in the National Park Service publication on Administrative Policies for Recreation Areas of the National Park System. Under this system, lands are

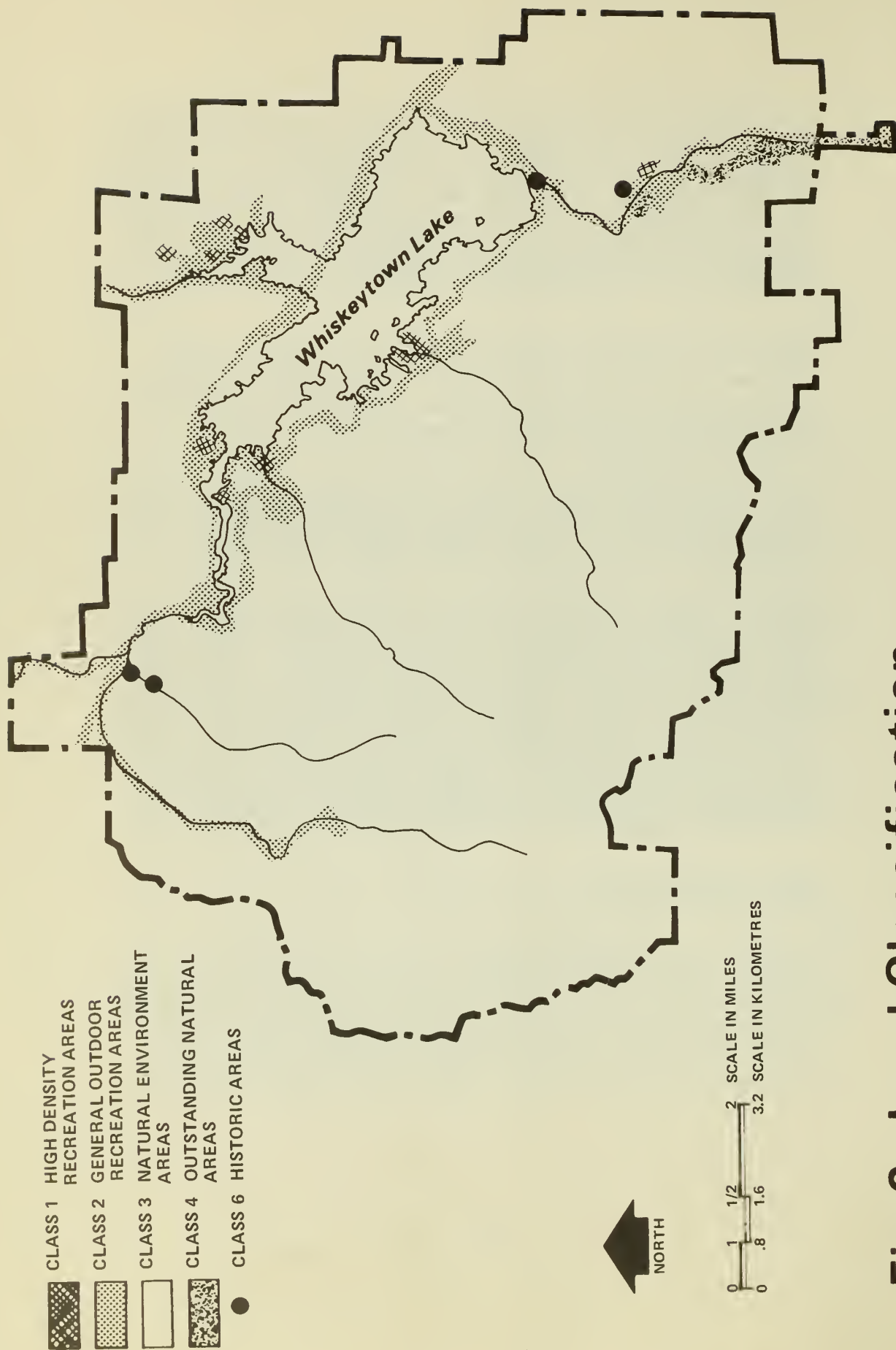


Fig 6. Land Classification

managed according to six categories: Class I, high density recreation areas; Class II, general outdoor recreation areas; Class III, natural environment areas; Class IV, outstanding natural areas; Class V, primitive areas, including but not limited to those recommended for designation under the Wilderness Act; and Class VI, historic and cultural areas. Lands within Whiskeytown National Recreation Area represent classes I, II, III, IV and VI.

Class I. The area's major parking lots and the camper-trailer campground are classified as high-density recreation areas.

Class II. Lands for development of administrative and interpretive facilities, other campgrounds, picnic grounds, roads, and other visitor services are classed as general outdoor recreation areas.

Class III. The forests and the brushland that form the bulk of the unit are classed as natural environment areas.

Class IV. The two large waterfalls found on the mountain slopes south of the reservoir and Clear Creek Canyon are the outstanding natural areas of the park.

Class V. Primitive classification has not been considered since no area retains its essential primeval character within the park. All sections of the park have been markedly affected by man's numerous activities including logging, mining, smelting, grading, and flooding.

Class VI. The historic areas of the park designated for preservation are the Tower House District and the Whiskeytown Cemetery. The Tower House District is on the National Register of Historic Places (entered July 1973) and the irrigation system is in nomination status. An historic resource study may identify other potential Class VI lands.

VEGETATION

A number of biotic associations are found primarily because of varying elevations and exposures (figure 7).

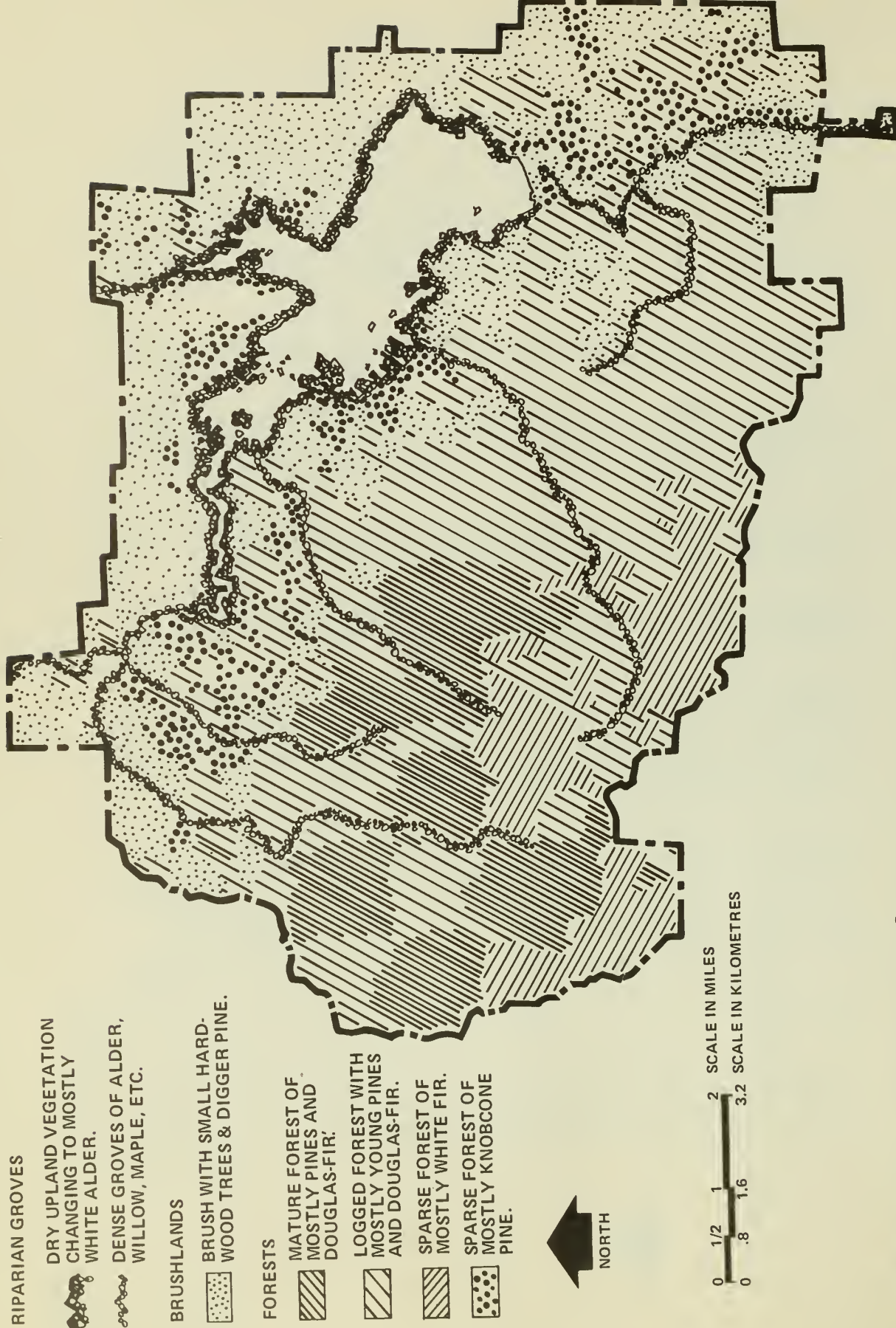


Fig 7. Vegetation

Brushland. Lower elevations, especially on the south-and west-facing slopes, are characterized by dense stands of brush; typically manzanita, chamise, yerba santa, toyon, and poison-oak with scattered groves of several species of oak, knobcone, and digger pine.

The MacNab cypress (Cupressus macnabiana), once thought to be a rare species, is one of the more common California cypresses. However, California cypresses in themselves are not abundant. The only natural grove at Whiskeytown was removed and the site inundated by the reservoir. Some feel this was the discovery site of MacNab cypress in 1854. A few trees were salvaged by local residents and planted at various locations within the area as ornamentals.

Mixed-conifer forest. The 2,000-to 5,000-foot level hosts forests of ponderosa and sugar pine, Douglas-fir and incense cedar. Dogwood, madrone, choke-cherry, buckthorn, and bitter brush are common smaller plants. All but seven square miles of the park's forests have been logged, most of this occurring in the last 25 years. The logged areas are rejuvenating and will be major forests again in about 50 years.

Mixed-conifer brushland. Predominant species at the 5,000-to 6,000-foot levels are chinquapin, white and Douglas-fir, and an upright form of Ceanothus prostratus which is rare outside the park. These highest areas are brushlands with some groves of trees and much exposed soil.

Riparian. A riparian strip along the shore of the reservoir is developing as willows and alders slowly replace the brush, scrub oaks, and pines that thrived on the dry hillsides before the reservoir was filled. This change promises to provide much needed shade along the shoreline. Along the banks of the major creeks, Crystal, Mill, Boulder, Brandy, Paige-Boulder, and Clear Creeks, such trees as white alders, big leaf maple, cottonwoods, and willows flourish. These groves provide lush sylvan settings for visitors.

FAUNA

The mammals that migrate between the different altitudinal zones in the park include grey and ground squirrel, rabbit,

skunk, ringtail cat, raccoon, coyote, fox, black bear, blacktail deer, wild boar, and bobcat. The mountain lion or cougar has been sighted in the backcountry.

Fish are not plentiful in the water bodies. The cold water of the Clear Creek arm and the deeper parts of the rest of the reservoir provide habitat for kokanee and rainbow trout, while bass, catfish, sunfish, and carp are found in shallower waters. The reservoir is trophically simple. The California Department of Fish and Game is experimentally introducing crustaceans (Gammarus sp. and Hyaella sp.) to improve the food supply for predaceous fishes. Bullfrogs occur along the edge of the lake.

Some kokanee salmon and rainbow trout spawn in the major creeks although a lack of gravel beds on most of the streams limits the spawning potential. There are some rainbow trout in all of the major creeks within the recreation area.

Besides a wide variety of songbirds, valley and mountain quail, dove and band-tailed pigeon are common birds in the park. At the present time, there is one officially recognized endangered species, the southern bald eagle, and one threatened species, the osprey, nesting in the recreation area. Migratory waterfowl do not stop at Whiskeytown Lake in large numbers. Growth of shallow-water plants around the edges of the lake, upon which waterfowl feed and in which they find cover, is inhibited due to water drawdown from September through April. However, some geese, coots and canvasback, mallard and pintail ducks occasionally come to the lake.

GEOLOGY AND SOILS

The geology and soils are typical of the southern Klamath Mountains of which the recreation area is a part. The paleozoic rocks range in age from Middle Devonian to Mississippian. The oldest of these rock formations, the igneous Copley greenstone, is exposed in deeply eroded gorges, and it has formed the narrow deep Clear Creek Canyon. It is overlain by the Balaklava rhyolite which in turn is overlain by sedimentary layers, either the Kennett or Bragdon formations. These are partially intruded by the Shasta Bally batholith of late Jurassic or early Cretaceous age. The

batholith is composed of biotite-quartz diorite, a granitic rock, and forms the principal land feature in the area--the mountains of the southern and western part of the park. The batholith's northeastern edge is approximately two miles from the lake's southern shoreline. Soils of the batholith area are derived from the underlying granite and are very prone to erosion. These are the only widespread, highly unstable soils in the park.

The rocks underlying the entire area are extensively tilted, folded, and fractured. The metamorphosed sections of these rocks are generally ore bearing, and have produced copper, zinc sulfides, pyrite, gold and silver. Although Public Law 89-336 withdrew all lands within the recreation area from location, entry, and patent under U.S. mining laws, a number of existing mining claims are still valid.

The Whiskeytown National Recreation Area lies in the heart of old goldmining country. Most of the creeks in the area have been commercially mined in the past.

CLIMATE

The climate varies greatly in the park. Nearly 100 inches of precipitation a year are recorded in the mountains to the south and west of the lake.

At the higher elevations, this takes the form of wet snow during the winter months. The snow fields are only adequate for limited snow play. Summer daily highs on the peaks are in the 70's to low 80's. Around the lake and on the hills to the north and east, summer high temperatures are frequently in the 90's or low 100's. This is only slightly cooler than the adjacent Sacramento Valley. However, at night the temperatures drop to the more comfortable range of the 60's or low 70's. In the winter, daily high temperatures are about 60° and lows are close to 40°. Few nights are freezing. Precipitation recorded at headquarters, located on the east end of the lake, is some 40 to 60 inches annually. Most of the precipitation within the park (95%) occurs during the six coolest months of the year (November-April). This pattern holds at the higher elevations as well. Summers are very dry.

ECOLOGICAL CONSIDERATIONS

Topography. The steep and rugged topography that characterizes most of the area limits arteries of visitor access and congestion in the backcountry. Even low-grade, narrow roads and trails cause unsightly cuts and fills. Many of the old logging and haul roads which have not been retained for public use are slowly reseeding.

Soil Stability. Unstable soils of the Shasta Bally batholith area comprise most of the forested lands. These soils are highly erodible and cannot sustain the timber cutting as practiced in the past. Serious adverse consequences to the total watershed, due to past practices, include aesthetic value, erosion, road and trail washouts, reduced water-holding capacity, siltation of the reservoir and streams, and lowering total water quality.

Brushlands. The brushlands, mainly to the north of the reservoir, have a southwesterly exposure and are hot and dry. The dense stands of brush are almost impenetrable to the visitor; however, the ground cover maintains a stable soil and provides a visual background from the lake and areas beyond.

Soil and Moisture. Lack of available water year round, except in the major streams, affects the distribution of visitor use and wildlife. Recent logging has reduced the water-holding capacity of the soil to the point of massive erosion, reduced minor stream and spring flows during the dry season, and caused excessive runoff during periods of high precipitation.

ARCHEOLOGY

Human occupation in the Whiskeytown area dates from approximately A.D. 900. In historic times, the region was inhabited by the Wintu Indians. The Wintu lived in permanent villages of four or five to several dozen houses located along stream banks, dispersing to temporary camps in the hills during the food-gathering season. The same pattern probably also applies to their pre-historic predecessors.

In 1958, Adan E. Treganza and Martin H. Heicksen surveyed the area that was to be flooded by the Whiskeytown Reservoir, the land adjacent to the reservoir, and the main tributaries. They investigated 35 sites, of which 24 have since been covered with water. Several of these have been destroyed by road building and construction. More sites would probably have been located if the survey had extended up Clear Creek toward French Gulch. Sites were generally located at points where sizeable tributaries entered Clear Creek.

In 1969, Keith L. Johnson and a field crew of four surveyed the area along Clear Creek between Whiskeytown Dam and the Saeltzer Dam to the south. The surveyors recorded seven prehistoric and five historic sites along the creek. As little is known of the aboriginal occupation of the Clear Creek drainage, they proposed a multi-faceted research design for the area and recommended that two of the historical sites be recorded in greater detail and four of the prehistoric sites be excavated. This has not been accomplished to date.

Treganza and Heicksen believed that a number of favorable environmental factors operated in the area of Whiskeytown, accounting for the high frequency of sites in the area. Clear Creek may have been a major salmon spawning area and the many Indian trails through the region suggest either good hunting or trade routes. The area escapes extreme temperatures in both winter and summer, and plant foods such as manzanita berries are available seasonally.

On the basis of these surveys it is known that there are six sites remaining intact or partly preserved in the Tower House District and three in the area downstream on Clear Creek. The small sample of known sites yet remaining is a small but important remnant of data by which a number of research topics can be pursued.

There is no basis for identifying archeological resources in the higher elevations of the park since there have been no studies of seasonal or transient uses of the mountains. Surveys will be necessary to determine if there is evidence of such use.

HISTORY

The earliest Europeans known to reach the vicinity were Jedediah Smith and his party in 1828. Other "mountain men" followed Smith and opened new trails which in a short span of twenty years would be choked with hopefully enthusiastic thousands seeking their quick

fortunes in the gold fields. The "rush" in the Whiskeytown area began in 1848 at Reading's Bar, about 20 miles away, where Major Pierson B. Reading discovered the first gold to be taken from Shasta County.

Whiskeytown was settled in 1849, and unlike most of the bustling towns established during the same period which disappeared with the exhaustion of the gold mines, it persisted as a tiny hamlet until inundated by the reservoir after completion of the dam in 1963. All that remains of the town proper is the Whiskeytown Store which was moved to high ground on the Whiskey Creek Road and still operates as store, gas station, and post office. The cemetery was moved to a location south of the dam.

The quest for gold in Shasta County saw some discovery sites become mining camps and some camps become towns supporting and housing the commercial activity so necessary to any concentration of people in a new community. The routes of commerce, supply, and the movement of people between the sources of gold and their outlets to the nation and world required waystations, supply points, lodgings, and the people to operate them on a continuing basis. To meet this need, Levi H. Tower built the Tower House to accommodate travelers along a wagon and stage route. This route was a toll road built by Tower and his brother-in-law, Charles Camden, which included a covered bridge across Mill Creek. The bridge abutments still stand. A fine residence was also built on the Tower property by Charles Camden to accommodate his new bride, Levi Tower's sister. This roadside haven in a protected valley where three streams converged was a pleasant and timely stopping point on the way to the diggings and Weaverville, and later to Oregon on the new road through French Gulch, only two miles to the north. Tower also installed the irrigation system for his orchards and gardens which won fame as far south as Sacramento. They were an important attraction for visitors to the Tower House. Camden used the water systems for his own garden, but also devised an irrigation ditch along Clear Creek for goldmining, which brought many people to the Tower House district--a voting district by the late 1850s, early 1860s. One of the most ambitious irrigation ditches for goldmining in the county was built on Clear Creek from the Tower House to Middletown--a distance of 41 miles-- in the first half of the 1850s. A Shasta newspaper in 1855 noted, "The whole undertaking, when complete, will rank among the most costly and durable of the kind in our entire state." The lake covers much of the Clear Creek bed within the park boundaries except toward the Tower House end, and some evidence of ditches remains.

The Tower House burned to the ground in 1919. The Camden House still stands, although in a dilapidated state. Studies are underway to restore the scene of this historic district, which was entered in the National Register of Historic Places on July 3, 1973. The irrigation system has been separately nominated to the register.

Whiskeytown, also called Whiskey Creek, stood at the convergence of Clear Creek, Whiskey Creek, and Brandy Creek. All were mined and Whiskey Creek provided one of the richest sources of gold for miles throughout the county.

SOCIOLOGICAL CONSIDERATIONS

In 1964, the first full year of Park Service operation, the park had almost 400,000 visits. This load increased to over one million visits from 1969 through 1971. Since then, the number of visits annually has slightly declined, but has remained close to one million. While the regional population has continued to grow, exact causes for locally stagnated visitation are unknown. The present energy crisis, certainly, may be the predominant factor. It is also possible that some former visitors may prefer to use facilities at the Shasta or Trinity Units which afford larger areas for boating opportunities with less competition for space. Expansion of facilities, especially swimming beaches and campgrounds, may result in greater public use.

Statistics show that over 80 percent of the adult visitors are married; the average family size is 3.3; and middle income families (earning over \$10,000 a year) constitute over 60 percent of the visitor population. Since Whiskeytown is primarily a park for family recreation, park services and facilities have been oriented to provide ample opportunities to enjoy such activities as picnicking, camping, and swimming.

Although we do not know how many of Whiskeytown's visitors are on repeat visits, we do know that 85 percent of the visitors have been to at least one other national park facility, and that 30 percent have visited seven or more parks within the past year.

Today, approximately one-half of the visitors are from the metropolitan areas of San Francisco, Sacramento, and Southern California. Almost one-fifth of the visitors are from Oregon

and Washington. Because Whiskeytown is too far from these places for a single day visit, most of these people must stay overnight in the region.

Presently, about seven percent of the visitors stay in the park's limited camping spaces which builds up to full capacity during the month of August. There are presently no formally designed facilities for the pickup and trailer-type campers at Whiskeytown. Additional camping sites are among the most needed developments at Whiskeytown. The facilities for group camping are also quite inadequate for current demands. During the warmer half of the year, the existing group camp is reserved and used almost every day. And only a small portion of the requests for reservations are satisfied.

Over one-third of the visitors from outside the region stay in the surrounding communities. While the majority of the visitors are from distant places, about 30 percent are people from the local area. These are people who use the park mainly for day-use activities such as swimming, picnicking, and boating. Of the day-use facilities, the swimming beaches are the most inadequate. Their parking lots are filled by 10:30 a.m. on every summer weekend. Visitors have been going to the undeveloped beaches in increasing numbers to avoid the crowds. This is resulting in severe human waste problems since, at present, none of these undeveloped beaches have facilities for human waste collection or treatment.

At the present time, the picnic grounds, interpretive facilities, boat-launching ramps, and marinas can accommodate all the visitors wanting to use them, except on weekends with such special attractions as the annual sailing regatta.

Since outdoor recreation development was concentrated within the original "take-line" of the Bureau of Reclamation, the highest visitor use has been recorded in this narrow corridor around the lake. Nearly all the land beyond the "take-line" is now in Federal ownership. The draft master plan provides for hiking and horseback riding trails, trailhead camping, trail shelters, and group camps. The resource management plan will complement that plan in locating and providing suitable water

sources, checking erosion and revegetation for long-range visitor-use planning and enhancement of the environment for public enjoyment.

REGIONAL SOCIOECONOMIC ENVIRONMENT

Population density is still low in the surrounding area. For Shasta County, where Whiskeytown National Recreation Area is located, there are 20 people per square mile. In Trinity County, which is contiguous to the recreation area's western boundary, there are only two people per square mile. By contrast, the density for the San Francisco Bay Area is over 1,100 people per square mile.

The combined population of Shasta and Trinity Counties increased 17 percent between 1960 and 1970 to about 82,000 people. All of this growth occurred in Shasta County; Trinity County's population actually declined slightly. Trinity County, which is much less dependent upon the facility because it has the centrally located Trinity National Recreation Area, has a population of about 7,000. The region's average age of residents is 29. There are 30,000 youths under 20 years of age living in the two counties.

The San Francisco Bay Area has grown by 22 percent between 1960 and 1970. Today, about 4½ million people live there. The other major metropolitan area, Sacramento County, has had a similar growth rate, bringing its population to over 630,000. If the considerably greater growth that has been occurring in the metropolitan areas continues, a greater percentage of the park's visitors will probably come from these areas.

The major sources of income in Shasta and Trinity Counties are forest products, tourism, and agriculture, in that order of importance. About 90 percent of the manufacturing jobs are in processing forest products. The development of many more overnight facilities to accommodate tourists from the metropolitan areas should benefit the local economy by stimulating sales of such goods as gas, food, and recreation gear. However, the region will continue to be mostly dependent upon forest products for its well-being.

The Sacramento Valley ends at the Redding area, where an urban center of 40,000 has developed. In the valley to the east and south of Redding, much agriculture is developed and here the bulk of the remaining local population lives in rural settings. Beyond the valley to the east, north and west are thinly populated hills and mountains which are primarily used for timber production and recreation. Whiskeytown National Recreation Area is in the hills about eight miles west of Redding. The current commercial value, delivered to the mills, of all the timber in the park is about \$3,400,000, or less than one-fourth of one percent of the two counties' total timber resource. Therefore, any management policy of the park's forests would not significantly influence the local forest products industries. There has been no commercial mining in the recreation area for over 50 years.

The privately-owned lands that surround the park are zoned for mostly unclassified use by Shasta and Trinity Counties. This zone allows a wide range of industrial, commercial, and residential uses, if required use permits are issued. However, because most of the boundary is on rugged ridgetop land far removed from utilities, almost no development has occurred.

Environmental Impact of the Proposed Action

VEGETATIVE CONTROLS

These controls are designed to provide for: (1) environmental compatibility with visitor uses; (2) interpretation and rehabilitation of the historic scene; (3) acceleration of the natural healing process of the adverse effects caused by man's earlier short-term exploitation of the natural resources; and (4) improvement of habitat causing better fishing and hunting success.

Developed Areas. Removing all poison-oak plants from the places where planned visitor activity is concentrated, such as picnic areas and campgrounds, will afford the visitors reasonable safety from contact with this plant in these areas that are offered for use.

Historic Areas. The restoration and maintenance of the historic scene in the Tower House Historic District will require removal and control of some plants. Stumps may be left on the larger trees which will result in temporary bare spots until grasses and shrubs reappear. This action may uncover more evidence of an historic nature to assist in restoring the area "layout" and can expedite grounds restoration and maintenance for visitor interpretation.

Other Areas. Prescribed burning in two vegetative associations may be desirable (figure 7). However, any sizeable burn would produce short-term, unfavorable effects; that is, the areas would be temporarily unsightly, temporarily unusable as wildlife forage, and there would be temporary smoke impacts.

In the brushlands, the following results are possible:

- 1) The plant sprouting and rapid growth for 10 to 20 years after the fire will provide additional forage for deer.
- 2) Knobcone pine might become more widespread and decadent stands will be regenerated.
- 3) Fuel-breaks would be provided which would decrease the hazard of fires burning over large areas.
- 4) Maintenance of subclimax forest by setting back succession.
- 5) Release of nutrients for use by remaining plants.
- 6) Creation of "edge effect" which will significantly enhance increased wildlife population densities and diversities, particularly with respect to upland game birds and mammals.

The mixed conifer forests might also benefit through burning of only forest duff and low plants. By reducing ground fuel, uncontrolled fires would burn cooler and would be less likely to "crown out" into the forest canopy. A more complete discussion of the environmental impact of fire management is found in Fire Management in the Western Region.

PLANTING AND SOIL STABILIZATION

Planting and stabilizing soils in those areas denuded by heavy logging will accelerate the healing process of those soils susceptible to serious erosion. In addition, the vegetative cover will favorably influence the water-holding capacity of the watershed with the resultant effect of reduced runoff and lengthened time of flow of intermittent streams and springs for visitor and wildlife use. The secondary beneficial effects are visitor oriented through cleaner water for swimming, boating, fishing, and general aesthetics.

FISH AND WILDLIFE

Fish benefit by cleaner streams which are not clogged with silt, thus allowing for better spawning conditions. Wildlife generally benefit through the availability of forage plants that can be made available by planting of preferred browse that will also stabilize the soil. Since more wildlife is available for hunting and viewing, the visitor again benefits.

The elimination of the destructive side effects of logging until ecologically sound, economically feasible techniques can be used to extract forest products will result in minimal environmental impact.

Aside from the effects to the fish and wildlife already mentioned, we should further state that:

- 1) Conflicts are minimized in the plan to provide the greatest use by the public without jeopardizing the natural biota.
- 2) Under private ownership much of the land was closed to hunting. Now, under Federal ownership, less than 2.5 percent or about 1,000 of the approximately 44,000-acre recreation area is closed (figure 3). The effect of this action is to provide maximum management of all wildlife populations, and maximum hunter recreation without sacrificing public and property safety.

The actions discussed in the plan relative to bear management should sustain a desirable population for the enhancement of the area's overall outdoor recreation values. The provisions of bear-proof food and refuse containers and timely garbage collection in the backcountry would control a source of an unnatural food supply, caused by increased backcountry use.

Use of a yellowjacket insecticide will kill these insects and perhaps others that are attracted to the bait.

WATER QUALITY AND QUANTITY

The quality and quantity of water is interrelated with other actions of the plan, such as planting and stabilizing of soils. Development of water sources in the backcountry would alter wildlife concentrations by increasing the "edge" effect, to provide more dispersed populations of wildlife. This then should provide more wildlife sightings for the visitor and increase hunter success. The draft master plan provides extensive trails along which water sites will be developed. This will provide the hiker with drinking water in those areas lacking it.

VISITOR EXPERIENCE

The action taken concerning the extraction of resources by the visitor shall insure a continuing supply of the vegetation and recreational activity of gold panning. Although the gold is a nonrenewable resource, small amounts are continually deposited from the mountain slopes above. Thus, the material for recreation is renewable in the streams.

The impact of barricading and planting undesignated roads and trails shall restrict the visitor to those roads and trails which have planned maintenance and protection. It will reduce the number of scars caused by cuts and fills and the road itself. It will also reduce runoff and aid in the actions taken to prevent and reduce soil movement.

The cooperative program with the California Department of Fish and Game offers fishing and hunting experiences on a renewable basis.

Mitigating Measures Included in the Proposed Action

Measures which will be taken to lessen the adverse impacts of the proposed actions follow:

VEGETATIVE CONTROLS

Approved herbicide will be sprayed on leaves of individual poison-oak plants by trained employees. Where plants are too large, they will be cut out, stumps treated, and if necessary, reproduction shoots will be sprayed. Those plants in less dense areas shall not be disturbed.

Cleanup and control of blackberry bushes and tree-of-heaven plants will be done to maintain the grounds of the Tower House Historic District. Total elimination of these plants will not be done unless or until an impact analysis has been made by a National Park Service Historic Preservation Team and recommended in site development plans for this area's restoration.

The study to set up guidelines and parameters for prescribed burns shall include close coordination with the local Air Quality Control Board, California Division of Forestry, and California Department of Fish and Game. Other methods of accomplishing the desired effect, such as mechanical means, shall be explored to lessen the impact. This action would only take place after meeting all Federal, State, and local standards.

SOIL AND WATER CONTROLS

Streams are monitored in the watersheds to determine the degree of success of planting and soil stabilization projects. The recorded data of these tests will also indicate effects on water quality as visitor use increases on the watershed.

WILDLIFE AND VISITOR CONFLICTS

Measures taken to mitigate action for control of yellowjackets are:

- 1) Species-specific pesticides will be used in compliance with Executive Order 11643.
- 2) Use of inconspicuous sites will lessen visual impact.
- 3) Control is not used unless or until there is actual conflict based on visual inspections.

Natural screening, landscaping, and design techniques will be applied in backcountry development plans to lessen the visual impact of bear-proof food and garbage containers.

In cooperation with California Department of Fish and Game, hunting closures are in effect to minimize hazards to residences, administrative and concentrated public use or developed areas (figure 3).

ARCHEOLOGY

All areas subject to ground disturbance or controlled burning that have not been examined by an archeologist will be examined prior to the ground disturbance. If any potential archeological or historical sites are uncovered in the process of implementing, or as a result of, any resources management action, a National Park Service archeologist will be summoned to investigate the site prior to further action. If significant archeological resources are identified they will be evaluated for their national register potential.

HYDROLOGY

The possibility of placing pipes and storage tanks in the backcountry for water has the potential to create severe visual impacts. Pipes will be placed either underground or in a visually unobtrusive location, and storage tanks will be screened by native vegetation as much as possible from trails.

Adverse Effects Which Cannot Be Avoided Should the Proposal Be Implemented

Implementing the prescribed burn project would disperse chemicals and fine particles into the atmosphere (air pollution). The degree and duration of the impact is relative, depending on the climatic conditions existing at the time of burning. Also, the burned area would be unsightly.

Development of water tanks, pipes, and bear-proof food storage and refuse containers in a Class III natural environment area is an unavoidable adverse, visual impact.

Seasonal hunting can temporarily conflict with other outdoor recreation uses such as horseback riding, hiking, and back-country camping.

The Relationship Between Short-Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity

Historically, the area has been used for short-term productivity. Uses included logging and mining. Both activities have left numerous road scars with long-lasting impacts on the environment.

The establishment act for Whiskeytown (Public Law 89-336) places restrictions on such short-term uses: (1) In Section 4(a), the Secretary is to provide for "such management, utilization and disposal of renewable natural resources as... will promote or is compatible with, and does not significantly impair, public recreation and conservation of scenic, scientific, historic, or other values contributing to public enjoyment." (2) The Secretary may permit the removal of minerals if the action does not have significant adverse effects on the Central Valley Water Project or the administration of the recreation area (Section 6).

The resources management actions are proposed to correct the environmental quality and reverse the action caused by short-term consumptive use. By restoring the resources in the watershed for quality recreation now and for future generations, we are providing the long-term productivity mandated by the establishing act.

Irreversible and Irretrievable Commitments of Resources Which Would be Involved in the Proposed Action

The implementation of the actions proposed in this plan will not result in irreversible or irretrievable commitments of the area's resources. The resource actions contemplated shall not interfere with any known archeological sites. The action proposed for the historic area is designed to complement the restoration of the vegetative historic scene.

Alternatives to the Proposed Action

In developing the proposed actions for the resources management plan, the following alternatives were considered for the major categories:

VEGETATIVE CONTROLS

Poison-Oak. Grubbing the plants by hand alone is not acceptable. Without the judicious use of herbicides, employee exposure would be increased and plant shoots would appear annually until all the stored energy in the root system was exhausted.

If nothing at all is done, high visitor contact or exposure to plants in public use areas would detract from the visitor experience.

Closing infested areas, relocating and developing concentrated use areas in locations naturally free from poison-oak plants is not possible. Poison-oak is associated commonly in all vegetative communities below 4,000-foot elevations.

Blackberry and Tree-of-Heaven. Complete removal of either or both plants is not economical or practical, nor is it entirely desirable. The blackberry provides a desirable experience of picking and eating natural fruit as it ripens. The tree-of-heaven, a prolific invader from the Orient, adds variety to the plant community. It was probably introduced by the Chinese during the mining era of the 1850s.

If nothing is done, the historic scene in the Tower House area cannot be restored and historical and archeological evidence would be difficult to locate. Thus a segment of the regional history could be lost. Lack of control, especially of the tree-of-heaven, in other locations would allow its encroachment at the expense of species in the native plant community.

HABITAT ALTERATION

No action would result in the following: wildlife populations would remain static, that is, low productivity and low hunter success; prolonged time period for natural reproduction to attain desired plant succession; and the area would sustain its present high fire danger conditions.

PLANTING AND SOIL STABILIZING

If no action is taken in these categories, erosion will continue, more topsoil will be lost, and gullies will increase in size. This will adversely affect the watershed quality and the wildlife and fisheries resources, followed by an adverse effect on the recreational values. It is recognized that given enough time, possibly several generations, the areas would heal naturally. However, irretrievable resources would be lost through siltation, such as the holding capacity of the reservoir.

A greater or lesser degree of the proposed action will accomplish the desired results over a shorter or longer period of time. It is felt the results should be accomplished as soon as possible to lessen adverse influences of present conditions.

WILDLIFE/HUMAN CONFLICTS

Past experience has shown what happens without control of yellow jackets: unpleasant recreation experiences, followed by reduced recreation activity during periods of yellow jacket activity.

Collectively, the proposed bear management activities would preclude conflicts and maintain an acceptable level of interaction between bear and recreation interests.

Controlling the bear population through public hunting alone is not feasible because the animal would have to be reduced to such a low level. Far fewer bear sightings and signs would adversely affect the quality of the outdoor experience.

Consultation and Coordination with Others

Individuals from the following offices have been consulted on various aspects of the proposed plan:

California Department of Fish and Game

California Division of Forestry

U.S. Forest Service, Shasta-Trinity National Forest

U.S. Bureau of Land Management

U.S. Soil Conservation Service

Air Pollution Control Board, Shasta County

The following letter of comment was received from the State Historic Preservation Officer.

DEPARTMENT OF PARKS AND RECREATION

P.O. BOX 2390
SACRAMENTO 95811



December 24, 1974

Mr. Lyle H. McDowell
Acting Regional Director
Western Region
Department of the Interior
450 Golden Gate Avenue
P. O. Box 36 and 063
San Francisco, California 94102

Attention Ms. Sandra Park

Dear Mr. McDowell:

We have received your letter of December 6, 1974 transmitting a Draft Environmental Statement on the Natural Resources Management Plan for the Whiskeytown National Recreation Area in Shasta County.

The final Environmental Impact Statement for the Whiskeytown National Recreation Area should identify the Tower House District as a site on the National Register of Historic Places. The Irrigation System, a site associated with the Tower House District, has been nominated for inclusion on the National Register. The historical integrity of these sites should be preserved.

Proposals to introduce exotic plant control programs appear beneficial. However, such management programs should be assessed for possible adverse impact upon cultural resources. Section 800.8 of the Procedures for the Protection of Historic and Cultural Properties specifies that "federally assisted undertakings shall be considered to have an effect on a National Register Property or properties eligible for inclusion in the National Register when any condition of the undertaking causes or may cause any change, beneficial or adverse, in the quality of the historical architectural, archeological, or cultural character that qualifies the property under the National Register Criteria".

Consideration should also be given to safeguarding additional historic and pre-historic resources identified in the vicinity of Tower House and Clear Creek. Although no other sites are presently recorded on the California Historical Landmarks or California Points of Historical Interest, we concur with your determination that "current and future historical, archeological, and historic architectural studies may result in the identification of potentially significant historic resources". Copies of the existing and future historical and archeological surveys of the Whiskeytown National Recreation Area should be forwarded to this office for review and evaluation.

Should you require additional assistance regarding this matter, please do not hesitate to contact this office.

Sincerely,

Russell W. Porter

Russell W. Porter, Chief
Grants and Statewide Studies Division

C-1a/i4

cc: Mr. Louis S. Wall
Advisory Council on Historic Preservation
P. O. Box 25085
Denver, Colorado 80225

Mr. Donald Miller
Regional Archeologist
National Forest Service
630 Sansome Street
San Francisco, California 94111

REFERENCES

Administrative Policies for Recreation Areas of the National Park Service, U.S. Department of the Interior, U.S. Government Printing Office, 1968.

Distribution of Forest Trees in California, Forest Service, PSW-82, 1972.

Economic Geology of the French Gulch Quadrangle, Shasta and Trinity Counties, California, California Division of Mines and Geology, Special Report 89, 1965.

Geology and Base-Metal Deposits of Western Shasta Copper-Zinc District, Shasta County, California, Geological Survey Professional Paper 285, USGPO, 1956.

Master Coordination Plan, Whiskeytown-Shasta-Trinity National Recreation Area, Forest Service and National Park Service, 1971.

Proposed Well Sites at Whiskeytown Reservoir, Shasta County, California, Geological Survey, 1963.

Soil Management Guide, Whiskeytown National Recreation Area, Soil Conservation Service, 1973.

Treganza, Adan E., Archeological Survey of the Whiskeytown Reservoir Area, San Francisco State College, 1958.

Water Resources Reconnaissance of Whiskeytown National Recreation Area, California, Geological Survey, 1969.

Negative Declaration

Department of the Interior

National Park Service

WHISKEYTOWN NATIONAL RECREATION AREA, CALIFORNIA

Western Region

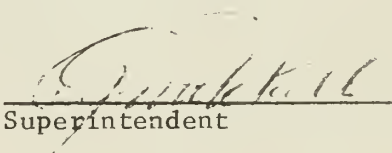
In compliance with the National Environmental Policy Act of 1969, the National Park Service has prepared an environmental assessment on the following proposed project:

Natural Resources Management Plan
Whiskeytown National Recreation Area

The assessment process did not indicate a significant environmental impact from the proposed action. Consequently, an environmental statement will not be prepared.

JUN 20 1975

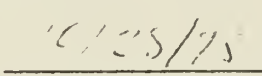
Date



Superintendent



Date



Regional Director, Western Region

MANAGEMENT PROGRAM

The management program appended to the plan is the action document designed to implement the plan. The management program consists of:

A List of Natural Resources Projects on which currently active and proposed resource activities are summarized.

Natural Resources Project Statements that serve as "blueprints" for proposed actions.

Natural Resources Project Programming Sheets on which each project is listed and shown in relation to park priority and funding, and a time sequence for the five-year period.

While the resources management plan is concerned with a proposed long-term action program, the management program deals with the next five years only. The program presented here begins with Fiscal Year 1976. Each subsequent year, the management program will be revised and updated for a new five-year period as work is completed and new projects are proposed.

LIST OF NATURAL RESOURCE PROJECTS

<u>Reference Number</u>	<u>Project Title</u>	<u>Status of Project</u>
RM-1	Poison Oak Control	Continuing
RM-2	Exotic Plant Control	1 year to completion
RM-3	Soil Stabilization	10 years to completion
RM-4	Yellowjacket Hornet Control	Continuing
RM-5	Include Bear Proof Containers in Backcountry Site Development and Expand Garbage Collection	5 years to completion, then continuing
W-1	Spring Development	6 months to completion
N-1	Determine Methods to Alter Vegetative Cover	4 years to completion
N-2	Determine Human Carrying Capacity in Backcountry Environments	2 years to completion

NATURAL RESOURCE PROJECT STATEMENT

1. PARK AND REGION: Whiskeytown National Recreation Area, WRO.
2. PROJECT NAME AND NUMBER: Poison-Oak Control, WHIS-RM-1.
3. STATEMENT OF PROBLEM: Poison-oak is extremely common at the lower elevations. This plant inhibits a safe recreation experience in those areas designed for a high concentration of public use such as picnic and camping areas.
4. WHAT HAS BEEN DONE: Individual plants in concentrated use areas have been sprayed with an approved herbicide (Silvex) each spring.
5. DESCRIPTION OF WORK TO BE UNDERTAKEN: Program will continue as indicated. Unusually large plants will be cut, stumps treated, and if necessary, reproduction shoots will be sprayed to minimize the application of the herbicide.
6. LENGTH OF TIME NEEDED: Annual program.
7. WHAT WILL HAPPEN IF NOT UNDERTAKEN: If nothing is done, high visitor exposure will take place, reducing the visitor's enjoyment and reducing the site's use capacity.
8. WHAT ARE THE ALTERNATIVES:
 - a. Do nothing.
 - b. Removal of plants by hand alonge.
 - c. Closing public use areas and relocating.
9. PERSONNEL: One park technician, GS-026-5, and material.
10. ADMINISTRATION AND LOGISTICS: Project will be directly supervised by supervisory park ranger in the Branch of Resources Management and Land Use. Two applications will be made after leaves develop early in spring.

	Year in Program Sequence				
	1st	2nd	3rd	4th	5th
FUNDING					
Personal Services	800	800	800	800	800
Equipment, Depreciation and Supplies	200	200	200	200	1,800
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
GRAND TOTAL	1,000	1,000	1,000	1,000	2,600

	Year in Program Sequence				
	1st	2nd	3rd	4th	5th
FUNDING (cont.)					
Funds Available in Park Base	00	00	00	00	00
Funds Requested from Regional Office	<u>1,000</u>	<u>1,000</u>	<u>1,000</u>	<u>1,000</u>	<u>2,600</u>

On Form

10-237

10-238

10-250

Date Submitted

11. REFERENCES AND CONTACTS:

- a. Shasta County Agricultural Department
- b. California Department of Agriculture

12. DATE OF SUBMISSION: November 14, 1974

NATURAL RESOURCE PROJECT STATEMENT

1. PARK AND REGION: Whiskeytown National Recreation Area, WRO.
2. PROJECT NAME AND NUMBER: Exotic Plant Control, WHIS-RM-2.
3. STATEMENT OF PROBLEM: Tree-of-heaven (Ailanthus altissima) and Himalayan blackberry (Rubus procerus) have encroached heavily on the Tower House Historic District pasture, gardens, and physical features.
4. WHAT HAS BEEN DONE: A start was made on this project in the spring of 1974. This consisted of removing some trees by cutting and removing the thorny blackberry with a specially designed bucket on the front-end loader, which extracts the bush without exposure of thorns to employees. This work was accomplished mostly along fence lines and in one portion of the "north" pasture.
5. DESCRIPTION OF WORK TO BE UNDERTAKEN: The plants shall be removed from all invaded sites in the restoration area. The plants shall be allowed to reproduce where restoration is not affected, and where they will not significantly compete with or exclude other desired vegetation.
6. LENGTH OF TIME NEEDED: This work can be accomplished in one year. Annual maintenance of the vegetative scene would be needed to avoid re-invasion of the restored sites.
7. WHAT WILL HAPPEN IF NOT UNDERTAKEN: If nothing is done: (a) the historic scene in the Tower House area cannot be restored; (b) historical and archeological evidence would be difficult to locate; and (c) recreational and interpretive values would be reduced here and in other areas.
8. WHAT ARE THE ALTERNATIVES:
 - a. Do nothing.
 - b. Complete removal of the exotic plants.
9. PERSONNEL:
 - 1 Equipment Operator
 - 1 Foreman
 - 5 Laborers

10. ADMINISTRATION AND LOGISTICS: Project will be directly supervised by supervisory park ranger in the Branch of Resources Management and Land Use.

	Year in Program Sequence				
	1st	2nd	3rd	4th	5th
FUNDING					
Personal Services	2,000	200	200	200	200
Equipment	<u>500</u>	<u>00</u>	<u>00</u>	<u>00</u>	<u>00</u>
GRAND TOTAL	2,500	200	200	200	200
Funds Available in Park Base	00	200	200	200	200
Funds Requested from Regional Office	<u>2,500</u>	<u>00</u>	<u>00</u>	<u>00</u>	<u>00</u>
<u>On Form</u>	<u>Date Submitted</u>				
10-237					
10-238 X	Pkg 123 (1/72)				
10-250					

11. REFERENCES AND CONTACTS:

- Public Law 89-336.
- Administrative Policies for Recreation & Historic Areas of the National Park Service
- Historic Preservation Team, WRO

12. DATE OF SUBMISSION: November 14, 1974.

NATURAL RESOURCE PROJECT STATEMENT

1. PARK AND REGION: Whiskeytown National Recreation Area, WRO.
2. PROJECT NAME AND NUMBER: Soil Stabilization, WHIS-RM-3.
3. STATEMENT OF PROBLEM: Soil erosion over the majority of the area's watershed during the rainy season is a major concern because of the deleterious influence on many of the park resources. Erosion is impairing public access to the back-country; increasing costs of road maintenance; unloading sediments in the confluence of streams and the lake which reduces fish spawning areas; and suspended particles of soil also reduce the aesthetic value and fishing success in these areas. The sediment originates mostly from easily erodible soils, disturbed primarily by logging access roads, skid trails, and surface erosion from denuded areas. This condition exists because logging, with no sensitivity to the detrimental impacts, was accelerated on private lands prior to their acquisition by the National Park Service.
4. WHAT HAS BEEN DONE: Summary of planting history:

<u>Year</u>	<u>Trees & Seedlings Planted (in thousands)</u>	<u>Location</u>
1971	20 Ponderosa & Jeffery Pine	Kennedy Shores & areas near lake
1972	5 Knobcone-Monterey Pine (Hybrid)	Areas near lake
1974	30 Ponderosa Pine	Section 18, T32N R7W, MDM
	20 Knobcone-Monterey Pine (Hybrid)	Areas of lower elevations

In order to obtain an overall assessment of the problem and also to obtain recommendations for control of the problem, an agreement was reached with the U.S. Soil Conservation Service in 1972 to complete a soil management guide for Whiskeytown National Recreation Area. The project involved a transfer of funds from NPS to Soil Conservation Service in the amount of \$5,000. The guide was completed and delivered in 1973.

In March of 1973, a resource management crew was employed to begin work on the soil stabilization program. Following interim guidelines of the Soil Conservation Service, work was begun on one of the most devastated areas (Section 18, T32N, R7W, MDM). Work during the winter months consisted of mechanical efforts (check dams, brush rip-rap, diversion ditches) to check erosion. In the Fall of 1973, the mechanically treated areas were planted with annual rye-grass.

The National Park Service, in cooperation with the Soil Conservation Service, established five test plots in the above-mentioned section to test various mixtures of grass seed, and three test plots for shrubs were established. One plot was within the section mentioned and the remaining two plots were within the same drainage.

5. DESCRIPTION OF WORK TO BE UNDERTAKEN: In order to reduce the amount of erosion taking place, the program already begun will be continued and expanded. Areas already recognized (Soil Management Guide, SCS) as being of high value will receive priority treatment with others receiving treatment as time and funds allow. Preliminary work will include mechanical devices to slow down soil movement or hold soil in place. Efforts will be made to divert water onto vegetated areas. Planting of rapid growth annuals will be used to provide a soil cover at the earliest possible date. Brush or tree seedlings will then be planted to provide a more permanent and more effective ground cover. Test plots already established will be monitored and species showing the best adaptability to the sites will be used for seeding and/or planting. Contacts will be maintained with the Soil Conservation Service, Bureau of Land Management, and U.S. Forest Service. Mutually agreeable test procedures will be utilized to study access or failure of methods.
6. LENGTH OF TIME NEEDED: The project is underway. It will take five years to complete the first stage, or high priority areas. The second stage will continue the project onto areas of lower priority--another five years.

7. WHAT WILL HAPPEN IF THE PROJECT IS NOT UNDERTAKEN: Forest soils will continue to erode. Gullies and ditches will continue to deepen and widen on the logging access roads and skid trails. The problem as stated in No. 3 above, will continue to be with us for generations.
8. WHAT ARE THE ALTERNATIVES:
 - a. No action.
 - b. A lesser degree of proposed action.
9. WHO WILL ACCOMPLISH THE PROJECT: National Park Service resource management crews, and contract work with California Division of Forestry for correction camp crews.
10. ADMINISTRATION AND LOGISTICS: The project will be directly supervised by supervisory park ranger in the Branch of Resources Management and Land Use. Helicopter service will be needed for aerial seeding of grass and fertilizer. Cat or loader is needed to fill deep gorges.

FUNDING	Year in Program Sequence				
	1st	2nd	3rd	4th	5th
Personal Services	41,000	41,000	41,000	41,000	41,000
Equipment Rental	1,000	1,000	1,000	1,000	1,000
Supplies & Material	<u>700</u>	<u>1,400</u>	<u>1,400</u>	<u>1,400</u>	<u>1,400</u>
GRAND TOTAL	42,700	43,400	43,400	43,400	43,400
Funds Available in Park Base	<u>24,000</u>	<u>24,000</u>	<u>24,000</u>	<u>24,000</u>	<u>24,000</u>
Funds Requested from Regional Office	18,700	19,400	19,400	19,400	19,400
<u>On Form</u>	<u>Date Submitted</u>				
10-237 X	11/74				
10-238					
10-250					

11. REFERENCES AND CONTACTS:
 - a. Soil Management Guide for Whiskeytown National Recreation Area, California (Soil Conservation Service).
 - b. U.S. Forest Service, Robert Powers
 - c. Bureau of Land Management, Marvin Hoffer
12. DATE OF SUBMISSION: November 14, 1974.

NATURAL RESOURCE PROJECT STATEMENT

1. PARK AND REGION: Whiskeytown National Recreation Area, WRO.
2. PROJECT NAME AND NUMBER: Yellowjacket Hornet Control, WHIS-RM-4.
3. STATEMENT OF PROBLEM: As stated in the plan, these hornets have the potential to produce many generations during a single season. Natural environmental factors normally maintain a stable population; however, camping and picnicking activities have greatly altered one of these factors--the availability of food. With an inexhaustible supply of meat scraps, populations of this insect have multiplied to a point where extreme competition existed even for meat on the barbeque grill.
4. WHAT HAS BEEN DONE:

1968: Eruption of serious conflict between visitor and hornets. Response was received from Entomology Department, University of California at Los Angeles concerning their research on this type of problem. An experimental compound (Mirex) was used under close observation of their Vector Control Specialist, Mr. Charles R. Smith, Control was achieved in only two weeks.

1969: Buildup in August; numerous visitor complaints; control within three weeks.

1970: Buildup in early July; frequent visitor complaints; control within 16 days.

1971: A commercial product, "Yellow Jacket Stopper," Code 9477, USDA Registration No. 218-638 was put on the market by Allied Chemical's Agricultural Division of 40 Rector Street, New York, New York 10006. Each bait unit is about the size of a quart jar and contains a synthetic attractant and a protein base bait with 0.5% active insecticide, Mirex: Dodecachlorooctahydro-1, 34-Methano-2H-Cyclobuta (cd) pentaene. The bait is carried to the larval young where the active ingredient is most successful. Control was maintained with the Yellow Jacket Stopper at specific bait stations (2) in 1972 and 1973. Although control measures were not used in 1974, populations were again building up to near intolerable proportions.

5. DESCRIPTION OF WORK TO BE UNDERTAKEN: The program will continue annually. Control will be requested in our annual pest control project proposals in accordance with existing requirements.

Inspections in spring and summer will continue to be made to observe insect buildup, and when this occurs, bait units will be deployed at bait stations at the rate of one station per active area. This could consist of six stations, one for each of two campgrounds and four picnic areas. A unit, generally, is suspended from a tree branch within 6 to 10 feet above the ground surface.

6. LENGTH OF TIME NEEDED: This is an annual project. Control is commonly achieved within a two week period.
7. WHAT WILL HAPPEN IF NOT UNDERTAKEN: The hornet population will explode to proportions which will all but eliminate picnicking activities.
8. WHAT ARE THE ALTERNATIVES: No action.
9. PERSONNEL: One park technician, GS-026-5.
10. ADMINISTRATION AND LOGISTICS: Project will be supervised by supervisory park ranger in the Branch of Resources Management and Land Use. It will be coordinated with the park's pesticide control committee.

	Year in Program Sequence				
	1st	2nd	3rd	4th	5th
FUNDING					
Personal Services	75	75	75	75	75
Other Than Personal Services	<u>25</u>	<u>25</u>	<u>25</u>	<u>25</u>	<u>25</u>
GRAND TOTAL	100	100	100	100	100
Funds Available in Park Base	100	100	100	100	100
Funds Requested from Regional Office	—	—	—	—	—
	00	00	00	00	00
<u>On Form</u>	<u>Date Submitted</u>				
None needed	N/A				

11. REFERENCES AND CONTACTS:
 - a. Entomology Department, University of California,
Los Angeles
 - b. Shasta County Health Department
12. DATE OF SUBMISSION: November 14, 1974.

NATURAL RESOURCE PROJECT STATEMENT

1. PARK AND REGION: Whiskeytown National Recreation Area, WRO.
2. PROJECT NAME AND NUMBER: Include Bear Proof Refuse and Food Storage Containers in Backcountry Site Development Package and Expand Garbage Collection System, WHIS-RM-5.
3. STATEMENT OF PROBLEM: Public use in the backcountry will increase with the development of facilities such as: hiking-horseback riding trails, trail campsites, road and trail picnic sites, group campsites, and accessible water. Increased public use will generate a significant amount of refuse. If not disposed of properly and timely, this could add to the food supply of bears and in time adversely affect their overall behavioral patterns. That is, the bear could become dependent on garbage left by the visiting public thereby causing incidents of man/bear conflicts.
4. WHAT HAS BEEN DONE: Nothing has been done because the factors which could cause the most interaction between public recreation and bear activities has not existed.
5. DESCRIPTION OF WORK TO BE UNDERTAKEN: The activities of this project should be correlated with the design, development, and construction plans of backcountry recreation facilities. That is, bear proof containers (food storage and/or garbage) should be placed in, or approximately near backcountry recreation sites and trail heads when these facilities are developed. Concepts of these facilities are described in the draft master plan. The garbage collection system will be expanded to include the additional containers as these sites are completed.
6. LENGTH OF TIME NEEDED: Developing the backcountry facilities could be completed in five years (non-recurring). Collecting the refuse would be a recurring activity. This workload would be generated by, and run parallel to visitor use. The winter rains will negate this use during the period December through March.
7. WHAT WOULD HAPPEN IF NOT UNDERTAKEN: The draft master plan outlines extensive backcountry use development. As stated earlier, this will intensify public use and generate

an additional garbage load. Bears will be attracted to the recreation sites or other areas where garbage is stashed. Without bear proof refuse--and where appropriate, food storage containers--plus a timely collection system, the problem as stated in Item #3 above, would develop.

8. WHAT ARE THE ALTERNATIVES:

- a. Do nothing.
- b. A drastic reduction in the bear population through public hunting.

9. PERSONNEL:

Site Plans and Specifications: Denver Service Center
 Construction and Supervision: Denver Service Center
 and/or park staff
 Refuse Collection: Park staff
 1 Caretaker: June through September, 4 days per week
 April/May and October/November, 1 day per week

10. ADMINISTRATION AND LOGISTICS: Denver Service Center will include bear proof facilities in development plans and supervise on-site construction. Schedules for refuse collection shall be governed by visitor use. Collection shall be performed by the Maintenance Division. Information for reviewing the schedule shall be received from inspections by Maintenance and Visitor Activities & Resource Management personnel. Incident reports shall be made on Form 10-343 for constant evaluation of the program. Direct supervision will be given by the Maintenance Division. One vehicle (pickup) will be needed from June through September.

FUNDING	Year in Program Sequence				
	1st	2nd	3rd	4th	5th
Planning (advance & project)					
(P)*	P				
Construction & Supervision (C)*		C	C	C	C
Personal Services			2,200	4,200	4,200
Vehicle Rental			200	200	200
Off-Site Removal (contract)			100	200	200
Supplies			100	200	200
	_____	_____	_____	_____	_____
GRAND TOTAL	P	C	C+2,600	C+4,800	C+4,800
Funds Available from					
Park Base	0	0	00	00	00
	_____	_____	_____	_____	_____
Funds Requested from					
Regional Office	P	C	C+2,600	C+4,800	C+4,800

*That portion of backcountry site development costs for bear proofing containers (refuse and/or food storage)

On Form

Date Submitted

10-237

10-238

10-250

11. REFERENCES AND CONTACTS:

Whiskeytown Draft Master Plan

Public Law 89-336

12. DATE OF SUBMISSION:

NATURAL RESOURCE PROJECT STATEMENT

1. PARK AND REGION: Whiskeytown National Recreation Area, WRO.
2. PROJECT NAME AND NUMBER: Spring Development, WHIS-W-1.
3. STATEMENT OF PROBLEM: From May through October, the watershed receives relatively no precipitation. All but five of the streams south of the lake dry up during this six month period. Although there are numerous seeps, they provide little water for wildlife and none for backcountry recreational use during the highest potential backcountry use period. The draft master plan provides for a network of hiking and horseback riding trails. It is along these trails, rest and overnight stops will be provided. The availability of water now is inadequate for the planned action of anticipated use for visitors, horses, and wildlife.
4. WHAT HAS BEEN DONE: Nothing
5. DESCRIPTION OF WORK TO BE UNDERTAKEN: Activity of this project will be correlated with trail concepts of the draft master plan. Sites of proposed work will be selected accordingly; prospective sites include McGuire trailside rest, South Fork campground, Meadows campground, Crystal Creek, Boulder Creek, Monarch Pass and Mill Creek campground. Those along existing trails which become part of the planned trail network, will be accomplished first. Other site locations, presently with no access, will be accomplished along with trail construction.

The work will include: locating favorable sites with respect to trail and spring or seep; increase spring flow by digging out soil, rock and vegetative material; installing perforated tile, pipe, sand and rock. Collecting basins for horses and wildlife may be needed in some cases. The Division of Water Resources, WRO, will be requested to evaluate water sources, and in some cases assist in locating suitable development sites.
6. LENGTH OF TIME NEEDED: This project can be accomplished by a crew of three in six months. Natural siltation, erosion, and wildlife activity can restrict a site's maximum potential; so, annual maintenance will be needed.
7. WHAT WILL HAPPEN IF NOT UNDERTAKEN: If nothing is done:
(1) hiking activity will be restricted to those areas

where water is presently available; (2) many of the proposed longer trails through dry country would receive minimal use, if any; and (3) the range in wildlife activity would remain much as it is now, without the benefit of available water in the drier areas; hence, lower wildlife sightings.

8. WHAT ARE THE ALTERNATIVES: Do nothing.
9. PERSONNEL: 3 Park Technicians, GS-5.
10. ADMINISTRATION AND LOGISTICS: The project will be directly supervised by supervisory park ranger in the Branch of Resources Management and Land Use.

FUNDING	Year in Program Sequence				
	1st	2nd	3rd	4th	5th
Personal Services	14,000	3,000	3,000	3,000	3,000
Materials & Supplies	<u>6,000</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
GRAND TOTAL	20,000	3,100	3,100	3,100	3,100
Funds Available in Park Base	<u>00</u>	<u>00</u>	<u>00</u>	<u>00</u>	<u>00</u>
Funds Requested from Regional Office	20,000	3,100	3,100	3,100	3,100
<u>On Form</u>	<u>Date Submitted</u>				
10-237 X	3/74				
10-238					
10-250 X	Pkg. 128, (2/72)				
	Pkt. 130, 131, 132, 133, 134, 136, 138, (8/69)				

11. REFERENCES AND CONTACTS:
 - a. California Department of Fish and Game
 - b. California Division of Forestry
12. DATE OF SUBMISSION: November 14, 1974.

NATURAL RESOURCE PROJECT STATEMENT

1. PARK AND REGION: Whiskeytown National Recreation Area, WRO.
2. PROJECT NAME AND NUMBER: Study to Determine Methods to Alter Vegetative Cover, WHIS-N-1.
3. STATEMENT OF PROBLEM: The drainages to the east and north of the lake consist primarily of manzanita and chamise with some interspersed oak and pines (Digger and Knobcone). According to reports of long-time residents, fire and smelter fumes from the Iron Mountain Mine may have contributed significantly to the present brush type.

Logging has been the primary altering factor on the south and west side of the lake. Stands of mixed conifers have been high-graded with an increase of understory shrubs, mostly scrub oak and manzanita.

Natural reproduction has and is taking place in some areas; however, the competition from the present ground cover has restricted growth potential of a more diverse forest cover which would increase the quality of the visitor's experience.

The present brush type restricts accessibility of the visitor with a result of low hunter success and reduced wildlife observations. Altering the vegetative type should also increase the upland game populations.

4. WHAT HAS BEEN DONE: Very little has been done to manipulate the habitat for wildlife. The only known project aimed at improving deer range was accomplished by California Department of Corrections inmate crews in 1961-64. The work involved stripping brush from a hillside of 100-150 acres and allowing natural revegetation to occur. The object was to provide more succulent young growth with easier accessibility to browsing by deer. Another project which was conducted by the Crystal Creek Conservation Camp, although accomplished for another reason, did provide an improved habitat for deer. The project involved the creation of fuel breaks which extended approximately 50-100 feet on either side of county roads within the area boundaries. The removal of understory vegetation and the trimming of trees to a height of approximately 8 feet encouraged the growth of ceanothus species which are, in this area, a preferred deer forage plant.

5. DESCRIPTION OF WORK TO BE UNDERTAKEN: Establish test plots, collect and evaluate data to determine feasible methods to use in altering the vegetative site conditions in the area, especially in the brush types. Fire and/or mechanical methods will be utilized and compared. The history of fire and its relationship to the area's ecology will also be incorporated into the study. This will be followed with a vegetative/habitat alteration plan and subsequent implementation of that plan.
6. LENGTH OF TIME NEEDED: It is anticipated that three years will be needed to collect sufficient data. An additional year will be needed for evaluation and formulation of the action plan.
7. WHAT WILL HAPPEN IF NOT UNDERTAKEN: Wildlife populations would remain static--low productivity, low hunter success. The time period for natural reproduction and natural plant succession would be greatly prolonged. The area would retain its present high fire danger fuel. Accessibility for hunting and wildlife would remain restrictive.
8. WHAT ARE THE ALTERNATIVES: No action.
9. PERSONNEL: Contract
10. ADMINISTRATION AND LOGISTICS: Project will be supervised by the Division of Visitor Activities and Natural Resources Management

FUNDING	Year in Program Sequence				
	1st	2nd	3rd	4th	5th
Personal Services	00	00	00	00	00
Other than Personal Services	<u>5,000</u>	<u>5,000</u>	<u>5,000</u>	<u>5,000</u>	<u>00</u>
GRAND TOTAL	5,000	5,000	5,000	5,000	00
Funds Available in Park Base	<u>00</u>	<u>00</u>	<u>00</u>	<u>00</u>	<u>00</u>
Funds Requested from Regional Office	5,000	5,000	5,000	5,000	00
<u>On Form</u>	<u>Date Submitted</u>				
10-237					
10-238					
10-250					

11. REFERENCES AND CONTACTS:

- a. California Division of Forestry
- b. California Department of Fish and Game
- c. U.S. Soil Conservation Service
- d. U.S. Forest Service, Shasta Trinity National Forest
- e. U.S. Bureau of Land Management

12. DATE OF SUBMISSION: November 14, 1974.

NATURAL RESOURCE PROJECT STATEMENT

1. PARK AND REGION: Whiskeytown National Recreation Area, WRO.
2. PROJECT NAME AND NUMBER: Determine Human Carrying Capacity in Backcountry Environments, WHIS -N-2.
3. STATEMENT OF PROBLEM: Most of the backcountry, until just recently, was in private ownership. Human impact with the exception of mining and lumbering was negligible. With the formation of the reservoir by a dam across Clear Creek, recreation potential was established. And with the subsequent legislative enactments, the recreation area was created. Development began within the Bureau of Reclamation's take-line to accommodate the user, in close proximity to the lake. The development, therefore, focuses primarily on water-oriented recreation. Culmination of land acquisition, and development of the master plan (which is the first document setting down concepts of total park development), dictates that a study is needed now to determine the amount of use which can be reasonably allowed without detrimental influences to the backcountry environment.
4. WHAT HAS BEEN DONE: Very little has been done thus far. Backcountry camping is allowed with a permit beyond a one-mile radius of the lake. This permit system, started in 1973, will provide information regarding: visitor flow; number of persons per site; site preferences (geographic and environmental); repetition of site use and total backcountry overnight use. No data has been accumulated for backcountry day use.
5. DESCRIPTION OF WORK TO BE UNDERTAKEN: Compile and evaluate data and determine human carrying capacity for both day use and overnight stays in the backcountry with the least amount of impact for the long-term recreational benefits of this and succeeding generations.
6. LENGTH OF TIME NEEDED: This probably would be a two year project.
7. WHAT WILL HAPPEN IF NOT UNDERTAKEN: With no planned management action regarding the limits of backcountry use by numbers of people, overuse of the environment will result. Natural resources will be affected which will eventually impair public recreation and other values contributing to public enjoyment.

8. WHAT ARE THE ALTERNATIVES: No action.
9. PERSONNEL: Contract.
10. ADMINISTRATION AND LOGISTICS: Project will be supervised by the Division of Visitor Activities and Natural Resources Management.

FUNDING	<u>Year in Program Sequence</u>				
	1st	2nd	3rd	4th	5th
Personal Services	00	00	00	00	00
Other than Personal Services	<u>2,500</u>	<u>2,500</u>	<u>00</u>	<u>00</u>	<u>00</u>
GRAND TOTAL	2,500	2,500	00	00	00
Funds Available in Park Base	00	00	00	00	00
Funds Requested from Regional Office	<u>2,500</u>	<u>2,500</u>	<u>00</u>	<u>00</u>	<u>00</u>
<u>On Form</u>	<u>Date Submitted</u>				
10-237					
10-238					
10-250					

11. REFERENCES AND CONTACTS:
 - a. U.S. Forest Service, Shasta-Trinity National Forest.
12. DATE OF SUBMISSION: November 14, 1974.

Whiskeytown National Recreation Area, California

September 1975

Increase or Package Priority No.			Area Reference No.	Project Title	Yr. 1 (76) BASE* NEW**		Yr. 2 (77) BASE NEW		Yr. 3 (78) BASE NEW		Yr. 4 (79) BASE NEW		Yr. 5 (80) BASE NEW		Form No. & Date 10-250 10-237 10-238		No. of Contr
128	1	RM-4		Yellowjacket Control	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1			
	2	RM-1		Poison Oak Control	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.6			
	3	RM-3		Soil Stabilization	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	19.4		11/74	
	4	W-1		Spring Development: Fire Control/Wildlife Habitat	20.0	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1		3/74	
130				McGuire Trailside Rest											2/72		
131				South Fork Campground											8/69		
132				Meadows Campground											8/69		
133				Crystal Creek											8/69		
134				Boulder Creek											8/69		
136				Monarch Pass Campground											8/69		
138				Mill Creek Campground											8/69		
123	5	TM-5		Bear-Proof Cans & Garbage Collection	*****	*****	C+2.6	C+4.8	C+4.8								
	6	M-2		Backcountry Capacity	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5			
	7	N-1		Vegetation Alteration	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			
	8	RM-2		Exotic Plant Control	2.5	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2		1/72	
BASE - Funds Available in Park Base				**NEW - Funds Requested from Regional Office										Page 1 of			

As the Nation's principal conservation agency, the Department of the Interior has basic responsibilities to protect and conserve our land and water, energy and minerals, fish and wildlife, parks and recreation areas, and to ensure the wise use of all these resources. The Department also has major responsibilities for American Indian reservation communities and for people who live in island territories under U. S. administration.

United States Department of the Interior / National Park Service

