

Natural and Cultural Resources Management Program


AN ADDENDUM
TO THE NATURAL AND CULTURAL
RESOURCE MANAGEMENT PLAN
FOR

Tuzigoot National Monument Arizona

JULY 1981 REVISION

Prepared by

TUZIGOOT NATIONAL MONUMENT
NATIONAL PARK SERVICE/DEPARTMENT OF THE INTERIOR



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MANAGEMENT PROGRAM

An Addendum to the
NATURAL AND CULTURAL RESOURCES MANAGEMENT PLAN
for
TUZIGOOT NATIONAL MONUMENT
ARIZONA

Prepared by
Tuzigoot National Monument
National Park Service
Department of the Interior

Revision of July 1981

NATURAL AND CULTURAL RESOURCES MANAGEMENT PROGRAM

OVERVIEW AND NEEDS

The Tuzigoot Natural and Cultural Resources Management Plan and Environmental Assessment was completed in April 1975. That Plan included an addendum, the Management Program. This 1981 edition represents the first revision of the original Management Program.

This reference document is used in carrying out resource projects at Tuzigoot National Monument. While the Resources Management Plan proposes a long-term action program, this Management Program deals with the next five years only. The Program proposes projects for Fiscal Years 1982 through 1986. As often as needed, generally annually, the Management Program will be revised and updated for a new five-year period as work is completed and new projects are proposed.

The Management Program presented on the subsequent pages of this document consists of:

1. Resources Projects Programming Sheet. This summarizes each project's priority and proposed time schedule for a five-year period. This sheet indicates which projects require additional funds from Western Regional Office to carry them out.
2. New Resources Project Statements. These serve as "blueprints" for proposed actions that were not included in the original Management Program.

This revision proposes that one additional project be carried out. This new proposal is outlined in the following Project Statement:

W-2 Water Resources Management Plan

3. Formerly Proposed Resources Project Statement. These projects were included in the original Management Program but haven't yet been completed and some not yet started.
4. Air Quality General Statement
5. Status of Resources Projects. A summary table of resources management actions underway and proposed.
6. Needs for Assessment of Cultural Resources. This statement reviews steps to be taken to assure proposed development projects will not damage cultural resources.
7. Maintenance Stabilization Program Summary Statement

This revised Management Program includes updates of previously submitted projects and one new project for development of a water resource management plan.

It was determined through public and National Park Service review of the 1975 Natural and Cultural Resource Management Plan, Environmental Assessment, and Management Program the proposed actions would not have significant environmental impacts or adversely affect cultural resources. Because the newly proposed project falls within the "umbrella" of the 1975 Environmental Assessment and Section 106 clearance, no further consultation and/or documentation of impacts is necessary prior to project implementation.

July 21, 1981
Date

8/7/81
Date

Alan E. Henderson
Superintendent, Tuzigoot National Monument

Howard H. Chapman
Regional Director, Western Region

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TUZIGOOT NATIONAL MONUMENT

WESTERN

AZ

Region

State

04/30/81

Date

NATIONAL PARK SERVICE COSTS IN DOLLARS

MONUMENT PRIORITY	PROJECT TITLE	Action Type*	YEAR					Date	
			NPS Cost/ M.Y.	NPS Cost/ M.Y.	NPS Cost/ M.Y.	NPS Cost/ M.Y.	NPS Cost/ M.Y.	YEAR 4	YEAR 5
1.	A-2 Archeological Stabilization & Drainage *	Research & Repair		89,000	2,000				2,000
2.	A-3 Sustaining Area *** Survey	Research			15,000				
3.	W-2 Water Resources *** Management Plan	Research			10,000				
4.	RM-1 Landscaping **	Mgmt.	.01	200	.01	2 00	.01	200	.01
5.	W-1 Monitor Water ** Resources	Monitoring	.01	100	.01	1 00	.01	100	.01

* Western Archeological Center has funding for research; funds for stabilization and drainage system requested from WRO. (Western Regional Office)

** Base - Funds available for use in park base.

*** New - Funds unavailable in park and requested from WRO.

RESOURCES PROJECT STATEMENT

1. PARK AND REGION: Tuzigoot National Monument, Western Region.
2. PROJECT NAME AND NUMBER: Archeological Stabilization and Drainage, TUZI-A-2.
3. STATEMENT OF PROBLEM: Tuzigoot Ruin lies on a low ridge of loose, unconsolidated conglomerate, river boulders, and soft limestone deposits. As a result, there are varying levels of construction throughout the ruins, causing drainage problems. The prehistoric building material and techniques were inadequate and ruin walls and floors retain moisture for long periods following heavy rains. This retention causes deterioration of rock and mortar, including underlying sections of limestone bedrock. While Tuzigoot appears to be a massive site, it is inherently weak and has always been a difficult ruin to maintain.
4. WHAT HAS BEEN DONE: The site was excavated from 1933 to 1935. By 1939 many of the walls were in deplorable condition. In 1940, small local crews were hired to repair walls and this practice continued intermittently until 1947. Restored roofs which were rotting were removed in 1942 and 1973, except one protecting an excellent piece of original construction. In 1953 riprapping of unconsolidated sub-wall areas was begun and completed in a 1961 project. In 1964 a minor patching of walls to plug rodent burrows and holes was accomplished. In 1968 plioform sheets were placed under the dirt floors of rooms with the worst drainage retention. Since the sheets were only partial, water retention was often increased and the films were removed. Cleaning of drains and minor stabilization is done by the area maintenance staff on an ad hoc basis.
5. DESCRIPTION OF THE WORK TO BE UNDERTAKEN: Stabilize and excavate selected rooms through a drainage project. Data gathered from Project TUZI-A-1 will be analyzed with information obtained from present research on drainage problems and used to determine locations of excavation and drains. The pueblo will be stabilized and brought to a state of good repair. Data obtained from the necessary excavation and stabilization will be used to answer or verify specific problems or conclusions concerning the architectural history and use of the site.
6. LENGTH OF TIME NEEDED: One year.
7. WHAT WILL HAPPEN IF PROJECT NOT UNDERTAKEN: Continued deterioration of ruin walls due to improper drainage. Subsequent extensive maintenance and continued reconstruction of collapsed walls. Continued deterioration of bedrock wall footings may lead to major wall collapse. Continued lack of data which could be used for scientific and interpretive research.

8. WHAT ARE THE ALTERNATIVES: 1. No action. 2. Re-doing pliofilm sheeting under the dirt floors. 3. Roofing the pueblo.
9. PERSONNEL: Arizong Archeological Center ruins stabilization.
10. ADMINISTRATION AND LOGISTICS: Late spring through summer excavation and stabilization work to be used as an interpretive device to explain archeological methods to visitors, followed by a final report. Funding, labor, equipment and materials to be furnished through the monument and the Arizona Archeological Center.

FUNDING	Year in Program Sequence				
	1st	2nd	3rd	4th	5th
Personal Services		50,000	2,000		2,000
Other than Personal Services		<u>39,000</u>			
GRAND TOTAL		89,000	2,000		<u>2,000</u>

Funds available in park

Funds requested from Region

89,000

On Form: 10-238

Date Submitted: 11/17/77

11. MANAGEMENT AND ASSESSMENT NEEDS:
- | | Required | Done |
|--|----------|------|
| List of Classified Structures | | X |
| Nomination to National Register of Historic Places | | X |
| Executive Order 11593 Report | | |
| Section 106 Report | X | |
| Land Classification Review | | |

12. REFERENCES AND CONTACTS:

Mayer, Martin and Waggoner, William

1963 Tuzigoot Ruin, Tuzigoot National Monument, Arizona.

Arizona Archeological Center: Tucson.

Richert, Roland

1953 Stabilization Report, Tuzigoot Ruin, Tuzigoot National Monument. Arizona Archeological Center: Tucson

Shiner, Joel

1961 Stabilization of Tuzigoot Ruin. Arizona Archeological Center: Tucson.

Voll, Charles B.

1964 Maintenance Stabilization, Tuzigoot National Monument. Arizona Archeological Center: Tucson

13. DATE OF SUBMISSION: September 1, 1974
Revised July 1, 1981

CULTURAL RESOURCES PROJECT STATEMENT

1. PARK AND REGION: Tuzigoot National Monument, Western Region.
2. PROJECT NAME AND NUMBER: Sustaining Area Survey, TUZI-A-3.
3. STATEMENT OF PROBLEM: The small size of the monument means that much of the data that has a bearing on the full economic, social and cultural story of Tuzigoot lies outside its boundaries. These surrounding sites are being systematically destroyed by modern development. The destruction is a constant and critical loss to the interpretation of the area.
4. WHAT HAS BEEN DONE: Initial survey and excavations in 1933-34; partial survey in the mid-1950's; road surveys and some excavation on Duff Flat in the late 1960's; and Tuzigoot, an Archeological Overview, 1976.
5. DESCRIPTION OF WORK TO BE UNDERTAKEN: An archeological survey of the monument, the recent additions to the monument, and other areas most probably used for farming, gathering and hunting. The emphasis would be on reliable farmlands that could have been irrigated by the ancient inhabitants of Tuzigoot. It would include the local contemporaneous population cluster of the Tuzigoot extension and Hatalacva pueblo. Research would be both cultural and natural. The natural limits to the survey would be a nominal walking and working distance from Tuzigoot, about two miles.
6. LENGTH OF TIME NEEDED: One year.
7. WHAT WILL HAPPEN IF PROJECT NOT UNDERTAKEN: Systematic loss of information for the interpretation of Tuzigoot in the framework of new theory and methods including loss of settlement pattern data, comparative data, ecological data of man-land adaptations, population data and inferences, trends in economic, social and cultural change, and a loss of a priority listing of research potentials inside and outside the monument that bear on the interpretation of Tuzigoot pueblo. The better the data base upon which to sample known non-renewable resources (and professional archeological investigation represents an irretrievable commitment and irreversible effect on archeological resources), the less the impact and the greater the yield of interpretive information. This information is needed to plan for visitor use of Tavaschi Marsh and the other areas added to the monument by the 1978 National Park and Recreation Act.
8. WHAT ARE THE ALTERNATIVES: 1. No action. 2. Survey the monument and the new additions.
9. PERSONNEL: Work to be done by personnel from the monument, Southern Arizona Group, and the Arizona Archeological Center.

10. ADMINISTRATION AND LOGISTICS: Work to be undertaken within the framework of a professional research design.

FUNDING	Years in Program			Sequence	
	1st	2nd	3rd	4th	5th
Personal Services			15,000		
Other than Personal Services					
GRAND TOTAL			15,000		
Funds available in park					
Funds requested from Region			15,000		
On Form: 10-237			Date Submitted:		

11. MANAGEMENT AND ASSESSMENT NEEDS: Required Done

Nomination to National Register of
Historic Places X

12. REFERENCES AND CONTACTS:

Arizona State Highway Salvage

1972 Arizona Highway Department Project S-211-201 (PC) Clarkdale-Coconino C. Line Corridor Studies for Clarkdale-Williams Highway Proposed SR 279, Alternate Routes A and D. Ms. Arizona State Museum: Tucson.

Caywood, L. P. and Spicer, Edward

1935 Tuzigoot; Excavation and Repair of a Ruin on the Verde River near Clarkdale, Arizona. Ms. National Park Service: Berkeley.

Fish, Paul R. and Whiffen, Godfrey

1967 Arizona N:4:6(ASU): The Excavation of an Early Pueblo III Site near Perkinsville, Arizona. Ms. Arizona State University: Tempe.

13. DATE OF SUBMISSION: September 1, 1974.
Revised July 1, 1981

RESOURCES PROJECT STATEMENT

1. PARK AND REGION: Tuzigoot National Monument, Western Region
2. PROJECT NAME AND NUMBER: Park Water Resources Management Plan
3. STATEMENT OF PROBLEM: In compliance with Public Law 92-500 (Federal Water Pollution Control Act) and as amended by Public Law 95-217 (Clean Water Act of 1977) and as furthered by the Service Memorandum of Understanding with Environmental Protection Agency (EPA), each area must develop a Park Water Plan.
4. WHAT HAS BEEN DONE: No comprehensive water quality management plan has been developed for the area.
5. DESCRIPTION OF WORK TO BE UNDERTAKEN:
 - a. An historical report on management of water resources in the park.
 - b. Classification of all surface waters by present and proposed uses.
 - c. An analysis of the present status of park waters, including:
 - (1) Identification of water quality required to support specified uses and, where appropriate, to comply with or assist in establishing State water quality standards.
 - (2) Relationship of water quality to any threatened, known, rare or endangered species indigenous to the park and the relationship of water quality to the protection of all natural resources.
 - (3) A bibliography of available information concerning the existing quality of park waters.
 - d. A description of proposed actions relating to management of park waters.
 - e. A detailed plan for monitoring the quality of park waters that will reveal existing water quality and significant trends.

Future coordination/cooperation with EPA and the State is required to ascertain established water standards.
6. LENGTH OF TIME NEEDED: 5 years
7. WHAT WILL HAPPEN IF PROJECT NOT UNDERTAKEN: Service noncompliance with the above Federal laws.

8. WHAT ARE THE ALTERNATIVES: None.
9. PERSONNEL: Regional assistance with contracted U.S. Geological Survey to develop/initiate basic aspects. After which, future monitoring will be done by area staff.
10. ADMINISTRATION AND LOGISTICS:

<u>Funding</u>	<u>Year in Program Sequence</u>				
	<u>1st</u>	<u>2nd</u>	<u>3rd</u>	<u>4th</u>	<u>5th</u>
Personal Services					
Other than personal services					
Grand Total					
Funds available in park base					
Funds requested from Regional Office				10,000	
<u>On Form</u>	<u>Date Submitted</u>	July 14, 1981			

11. REFERENCES AND CONTACTS:
12. DATE OF SUBMISSION:

These water quality studies are needed to provide base data and insure that management is in compliance with PL 92-500 and as amended by PL 95-217 and as furthered by the Service Memorandum of Understanding with EPA

ALTERNATIVE ACTIONS IMPACT CATEGORIES	PROPOSED ACTION	NO ACTION	ALTERNATIVE	ALTERNATIVE	ALTERNATIVE	ALTERNATIVE
	Compliance with Public Law, agency policy and research	Service non-compliance with the above Federal laws				
Water Quality	Insure no monument activities will de-grade water supplies passing through monument.					
Visitor Use	Should cause no impact on visitor use.					
Management	Should provide guidelines to insure compliance with Federal laws and provide data base to allow Service to address future/potential external threats to the monument.					

NATURAL RESOURCES PROJECT STATEMENT

1. PARK AND REGION: Tuzigoot National Monument, Western Region.
2. PROJECT NAME AND NUMBER: Landscaping, TUZI-RM-1.
3. STATEMENT OF PROBLEM: Bare areas created during construction of the parking lot have not been revegetated. These bare areas are highly subject to soil erosion and invasion by exotic plants. Near the parking lot and in other areas off-trail visitor use has lead to trampled vegetation and soil erosion. The utility and residential buildings need more screening from the visitor's view. To date, very little effort has been made to interpret the use of local plants by the area's early inhabitants.
4. WHAT HAS BEEN DONE: The area's maintenance staff has transplanted a few native shrubs when work schedules and planting cycles permitted.
5. DESCRIPTION OF WORK TO BE UNDERTAKEN: Plant native desert shrubs and grasses in barren areas around parking lots and areas disturbed by off-trail use. Professional assistance will be sought as needed, to determine appropriate species to be used, techniques for increasing survival, planting patterns and any necessary soil conditioning. Those plants close to visitor foot trails will be labeled with descriptive metalphoto labels describing any uses by Indians and early pioneer settlers of the Verde Valley area. Exotic plants will be pulled as they sprout. Plants will be placed to screen utility and residential buildings from visitor's view.
6. LENGTH OF TIME NEEDED: The project can be accomplished in a one-year period, with replacement of plants that do not succeed in becoming established within two to three years.
7. WHAT WILL HAPPEN IF PROJECT NOT UNDERTAKEN: Continuing erosion in barren areas and those areas impacted by off-trail use. Little natural regrowth has occurred in the 7 years since the parking lot was constructed and it may be many years before vegetation could be established by natural processes. Utility and residential areas will remain unscreened. Indian and pioneer use of local plants will not be adequately interpreted for the visitor.
8. WHAT ARE THE ALTERNATIVES: No action.
9. PERSONNEL: Planting to be done by two maintenance men, interpretive labels by one member of interpretive staff, professional assistance from Regional staff or a local university.
10. ADMINISTRATION AND LOGISTICS: Must be coordinated with best transplanting period for plants selected. Area will supply labor, equipment, materials.

FUNDING	Year in Program Sequence				
	1st	2nd	3rd	4th	5th
Personal Services					
Other than Personal Services					
GRAND TOTAL					
Funds available in park	200	200	200	200	200
Funds requested from Region	0				

11. REFERENCES AND CONTACTS:

Dodge, Natt N.

1963 100 Desert Wildflowers, Southwest Parks and Monuments
Assoc.: Globe.

1967 100 Roadside Wildflowers, Southwest Parks and Monuments
Assoc.: Globe.

Sweet, M.

1962 Common Edible and Useful Plants of the West, Naturegraph
Co.: Healdsburg.

12. DATE OF SUBMISSION: September 1, 1974
Revised: July 14, 1981

NATURAL RESOURCES PROJECT STATEMENT

1. PARK AND REGION: Tuzigoot National Monument, Western Region.
2. PROJECT NAME AND NUMBER: Monitoring of Water Resources, TUZI-W-1.
3. STATEMENT OF PROBLEM: Numerous domestic wells are located in the vicinity of the monument, drawing upon the same groundwater resources as Tuzigoot. Increasing visitation and use of water for irrigating landscaped areas will require monitoring of long-term water level fluctuations to determine adequacy of supply. Fluctuations in the level of trace elements in the water also need to be monitored.
4. WHAT HAS BEEN DONE: A meter was installed in 1973 to measure usage on a monthly basis for the visitor center and residences. Water analysis to check chemical content is done every three years. In 1980, the Water Records Division measured the water level in the well.
5. DESCRIPTION OF WORK TO BE UNDERTAKEN: Continue to monitor and measure long-term water level fluctuations on a regular basis. Chemical analysis will be made every two to three years.
6. LENGTH OF TIME NEEDED: Continuing.
7. WHAT WILL HAPPEN IF PROJECT NOT UNDERTAKEN: Future water problems might not be foreseen in time to assure an adequate and safe supply.
8. WHAT ARE THE ALTERNATIVES: No action.
9. PERSONNEL: Regular monitoring system to be accomplished with aid of Regional personnel. Data recording to be done by monument personnel.
10. ADMINISTRATION AND LOGISTICS: Continuous.

FUNDING	Year in Program Sequence				
	1st	2nd	3rd	4th	5th
Personal Services	100	100	100	100	100
Other than Personal Services					
GRAND TOTAL	100	100	100	100	100
Funds available in park	100	100	100	100	100
Funds requested from Region	0	0	0	0	0

11. REFERENCES AND CONTACTS: Division of Water Resources, Western Region.
12. DATE OF SUBMISSION: September 1, 1974
Revised: July 14, 1981

AIR QUALITY
GENERAL STATEMENT

As an addendum to the
TUZIGOOT NATIONAL MONUMENT RESOURCES
MANAGEMENT PLAN

At present there is no air quality threat to the monument.

Although there is no monitoring of air quality on the monument itself, nearby Montezuma Castle National Monument does have two monitoring devices provided by the State of Arizona and University of California which could provide air quality information.

The Resources Management Plan is due for complete revision next year and air quality requirements will be addressed in its entirety at that time.

List of Resources Projects

TUZIGOOT NATIONAL MONUMENT

The following lists the status of resource projects

<u>Reference Numbers</u>	<u>Project Title</u>	<u>Status of Project</u>
NATURAL RESOURCES PROJECTS		
TUZI		
RM-1	Headquarters Landscaping	Complete except for Maintenance and Replacement
RM-2	Erase Equipment Access Road	Complete
W-1	Monitor Water Resources	Continuing
RM-3	Bat Control	Not feasible
N-1	Bat Control Study	Complete
W-2	Water Resources Study	Not started
CULTURAL RESOURCES PROJECTS		
A-1	Archeological Site Map	Complete
A-2	Archeological Stabilization and Drainage	Data collection in progress
A-3	Sustaining Area Survey	Not started

NEEDS FOR ASSESSMENT OF CULTURAL RESOURCES
EFFECTED BY DEVELOPMENT PROJECTS

Explanation

Assessment: This consists of a review of a proposed development project to determine if it will affect cultural resources. It will determine if field inspection is required to determine effects, what steps are required to mitigate impact on the resources, and what steps are necessary to comply with legislation and policies on historic preservation. Assessment will be made with the concurrence of the regional office, according to current guidelines for environmental assessment.

Field Inspection and Report: If the project has the potential for disturbance of new ground, and if it is not documented by a report of previous field inspection, an on-site inspection or intensive survey by a professional archeologist should be provided for. If inspection shows that no cultural remains will be affected, a report by the archeologist can be used to document a determination of no effect, based on an archeological clearance by the Regional Archeologist. Projects that may require inspection are: fence construction, utility lines burial, water-sewer system burial; building construction or trail or road construction. In areas that are known to have cultural resources on or below the surface it may be necessary to perform professional test excavations to insure that no cultural resources will be disturbed by any proposed projects.

E.O. 11593 Report: If the proposed action may result in the transfer, sale, demolition, or substantial alternation (adverse effect) of a potential National Register property, or land under the control or jurisdiction of the National Park Service, the expected effects must be reported, according to the latest procedures of the Advisory Council on Historic Preservation. Determination of effects will require professional assessment and/or field inspection.

Section 106 Report: If a project will affect a National Register property, steps must be taken to comply with Section 106 of the Historic Preservation Act as described in the latest procedures published in the Federal Register by the Advisory Council on Historic Preservation. Determination of effects will require professional assessment and/or field inspection.

Participation in planning, meetings, etc.: This activity involves having archeological consultation in master planning, development planning, interpretive planning, etc., to insure that such plans do not present any adverse impacts to cultural resources.

This professional participation can also be applied to reviews of other indirectly related projects, such as flora/fauna studies, water resource studies, etc.

MAINTENANCE STABILIZATION PROGRAM

RUINS PREVENTIVE MAINTENANCE BY AREA STAFF

This calls for performing at the comparatively simple but most necessary jobs which will have the effect of delaying wall failures and erosion in the ruins generally. The following checklist is intended to serve as a guideline which may be supplemented by the area staff to meet local conditions and used as a suspense file, preferably to be retained in a single file folder marked Ruins Preventive Maintenance, which will serve as a reminder of recurring maintenance tasks.

A. Tuzigoot Ruin

1. Wherever applicable, keep the drains cleaned out.
2. Grade drainage areas outside the ruins where this is required.
3. Grade interior drainage where wind- or water-deposited sand diverts drainage.
4. Control destructive rodent activity.
5. Repair loose stone work in wall masonry.
6. Control weed and vegetation growth where it may damage ruins features.

Any special problems concerning either preventive maintenance or structural ruins maintenance will be referred to the Ruins Stabilization Office.

