RP Review File

RESOURCES MANAGEMENT PLAN

LAKE MEREDITH RECREATION AREA



Division of Natural Sciences
Southwest Region
National Park Service
Department of Interior

RESOURCES MANAGEMENT PLAN

FOR

LAKE MEREDITH RECREATION AREA

NOVEMBER

1982

Concurred by: _____ 12-15-82
Superintendent, Lake Meredith Recreation Area — Date

Approved by: _____ 1/18/83
Regional Director, Southwest Region — Date

NATURAL RESOURCES MANAGEMENT PLAN

FOR

LAKE MEREDITH RECREATION AREA
TEXAS

December
1974

Prepared by: Lake Meredith Recreation Area Staff and Southwest Region Office of Natural Science

Reviewed by: Southwest Region Offices of History, Archeology, Planning, Maintenance, Interpretation, and Resources Management

Approved for Implementation by: _____
Regional Director, Southwest Region

Revised and Approved on October 30, 1981

revised and Approved on December 15, 1982

This Resources Management Plan will be reviewed annually.

Next Review scheduled for November, 1983.

Gerard B. Waddenbach 30 Dec 1982

Resources Management Plan Coordinator
Southwest Region

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I. INTRODUCTION

A Resources Management Plan is a strategic planning document and a key factor in good management and preservation of the resources.

This plan is a set of project statements which include proposed actions for implementation, as well as 5-year programming sheets for management and research actions. Other sections of the plan serve as an introduction and a set of guidelines. Project statements are determined on the basis of approved Management Objectives and Land Classification. Management Constraints and Completed Research serve as guidelines for projects. The plan serves the Superintendent in two ways: 1) as a manual for management activities which will preserve the environment or achieve an environmental status quo to comply with Park Service Standards, and 2) a set of research projects and priorities that are designed to obtain additional information for management and interpretation.

A. GENERAL PROGRAM

Management Program

Actions included in the project discussions will be divided into four types and designated in each action statement. The four types of actions are:

I. Those Actions Whose Implementation Will Have a Significant and Measurable Effect on the Environment or are Highly Controversial.

II. Those Actions Which Will Continue Existing Maintenance.

III. Those Actions Which Will Initiate New Maintenance.

IV. Those Actions Which Entail Research.

B. GENERAL OVERVIEW AND NEEDS

MISSION: Lake Meredith forms the largest lake in the Texas and Oklahoma Panhandles. It attracts people from as far away as New Mexico and Kansas, and is, consistently, one of the top National Park Service areas in visitation in the Southwest Region. No legislative mandate exists to justify the park service operation here, since the lake is managed under a memorandum of agreement from the Bureau of Reclamation. In addition to the water recreation, people come from a four state area to hunt, fish, ride horseback, use motorcycles and dune buggies in the off-road vehicle areas, and to camp at numerous spots both near and away from the water.

RESOURCE KNOWLEDGE: Much of the resource at Lake Meredith is poorly known. Mammals, birds and vascular plants have received the most attention, and species lists for these organisms are virtually complete. Data is needed to determine relationships between different species and different phases of the environment. Though general soil conditions are known for each of the counties surrounding the lake, much local data needs to be added for proper management of this valuable resource. Potter County has a fairly accurate geology study completed in 1923, but this must be updated, and data for Moore and Hutchinson Counties needs to be added. Water quality has been studied for the lake proper, but the quality and quantity of tributaries needs further research. Air quality varies from excellent to poor, due to the presence of numerous gas and oil activities on and around the area. No definitive study has been made on air quality in the Texas Panhandle, or if it has, the data is not readily available.

SIGNIFICANT RESOURCE PROBLEMS: Resource problems center on man and his past and present use of the land. Foremost among these are problems dealing with archeological sites, including finding and protecting this resource within the recreation area. Research has already begun on fire as a management tool, and the park is seeking cooperation with individuals involved with the off-road use of motor vehicles and the oil and gas industry, to lessen the effects of these activities on the area.

PAST AND PRESENT RESEARCH: Research has been completed on walleye perch, water quality and limnology, small mammals, vegetation survey, and others as listed in the appendix of this plan. Other research is underway or proposed, however, overall, much information is lacking and research remains to be done.

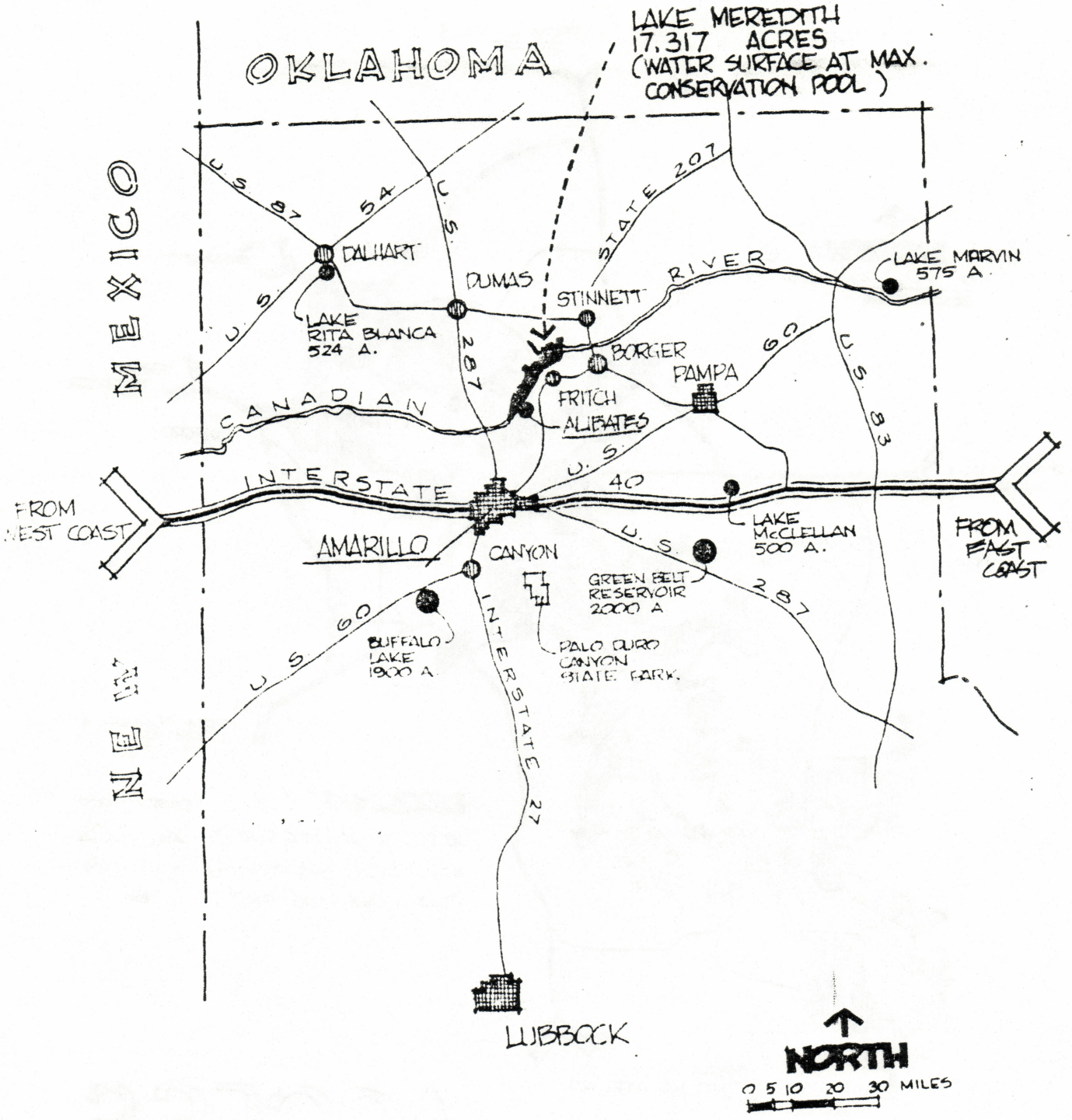
NEEDS: In recent years, the upsurge in activities in oil and gas leases has made it apparent that working relationships with the oil and gas producers are not at their best. The larger companies notify the park before beginning any type of earth moving activities, but the smaller companies often fail to notify us, since their offices are remote from the area of production. This has resulted in numerous disturbances of local ecology around the lake, and the potential for resource damage to historic or Prehistoric structures. Petroleum producers are not the only ones guilty of these infractions, and, at times, local developments or public service companies also move dirt within the lake boundaries without prior notification. This calls for more frequent patrols and the establishing of better relationships with the various entities around the lake, to ensure better communications and proper inspection of proposed sites.

Archeological sites are common around the area, and pothunting has been a favorite pastime of local residents since the 1920's and before. This "pothunting" is really digging for arrowheads and other complete artifacts, and damage to cultural resources often occurs. The local people seem to believe that this is their right, and that the National Park Service is merely preventing their natural rights and favorite recreation, by not allowing digging in historic and prehistoric sites, and by forbidding the use of a metal detector in the area. The need for public education in this area is obvious, but the ingrained nature of the problem also calls for stepped up patrols in areas of cultural resources.

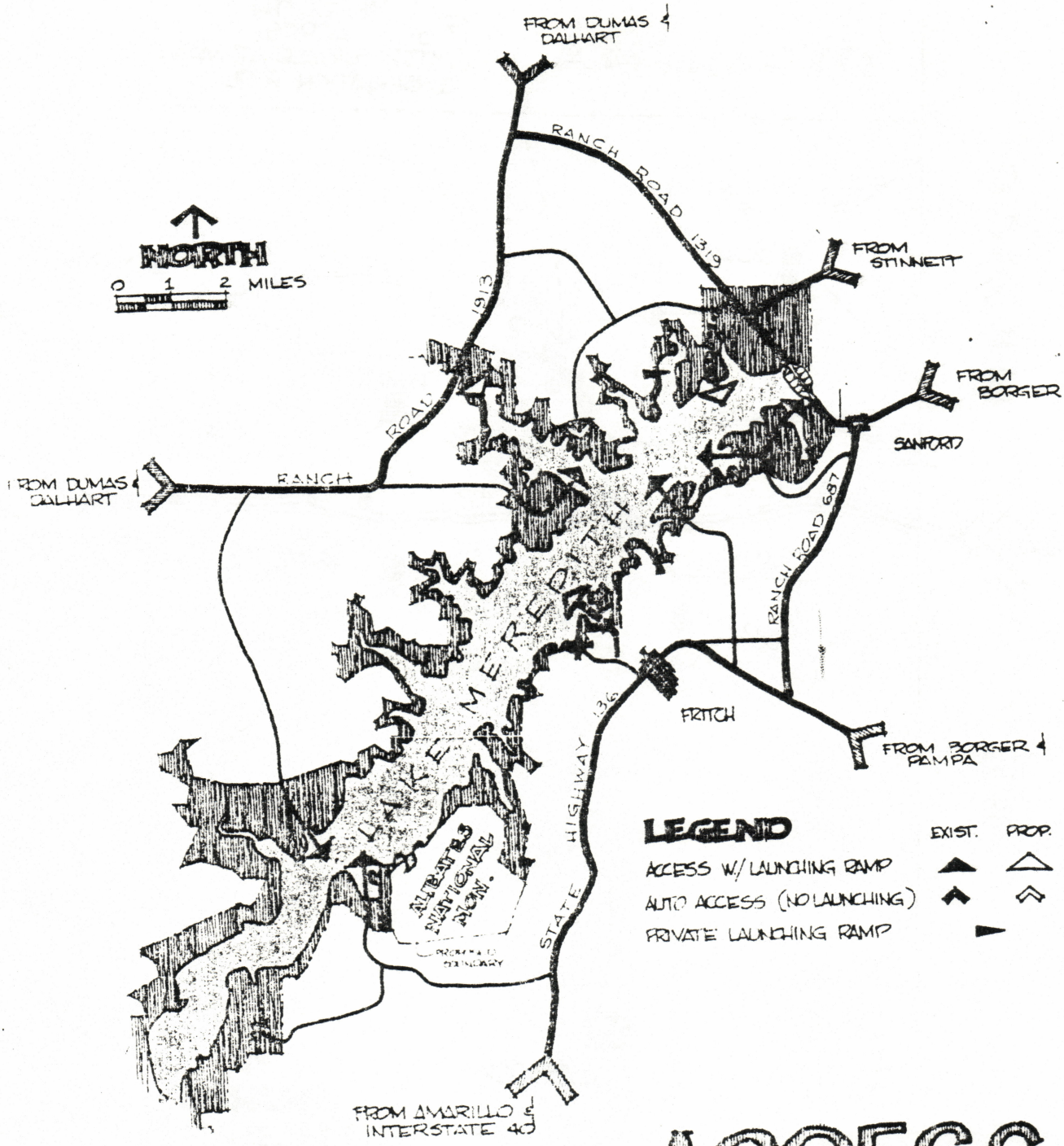
Grazing is an historic resource in this area, and, presumably, should be continued, but the data is accumulating that grazing on the easily eroded lands, in the Canadian River breaks, is a separate resource management problem. Even in relatively flat areas, the cattle tend to form trails, and in the canyon lands, these trails may cut trenches up to five feet deep in the banks, making a natural stream channel, which runoff continues to deepen and widen. The resulting erosion effects quality of water in the lake, and hastens silting. As money becomes available for fencing, grazing should be discontinued, at least within the breaks areas, and, eventually, throughout the entire area of the lake, to ensure pure water in the resource.

Two off-road vehicle use areas have been formed in the Lake Meredith Recreation Area. One, in the Rosita Flats area at the upper end of the lake, and the other in the Blue Creek area, on the north side of the lake. As long as use is confined to the river and creek bottoms, or to areas which will be inundated, there is no special problems with this kind of recreation. The need arises when the vehicles operate above the fill line for the lake, or when they operate in areas not designated as off-road vehicle areas. The resulting actions are similar to the erosion caused by cattle, as mentioned above, and cause unsightly scars which seem never to disappear in this semi-arid climate. Public education and stepped up patrols are once again necessary to control this problem.

SUMMARY: Lake Meredith is an area of high visitation with a resulting high impact, due to the concentrated use in various areas. Many resource problems, such as flora, fauna, water quality, erosion and geology are poorly known, and these lack of data make management of the resource difficult. Activities of man, other than recreation area uses, also cause management problems, especially in the areas of cultural resources and erosion caused by petroleum company activities and "pothunting", as well as cattle grazing operations. Regulation of the activities is not possible under current funding, due to the need for stepped up patrols and public education, which current funding precludes.

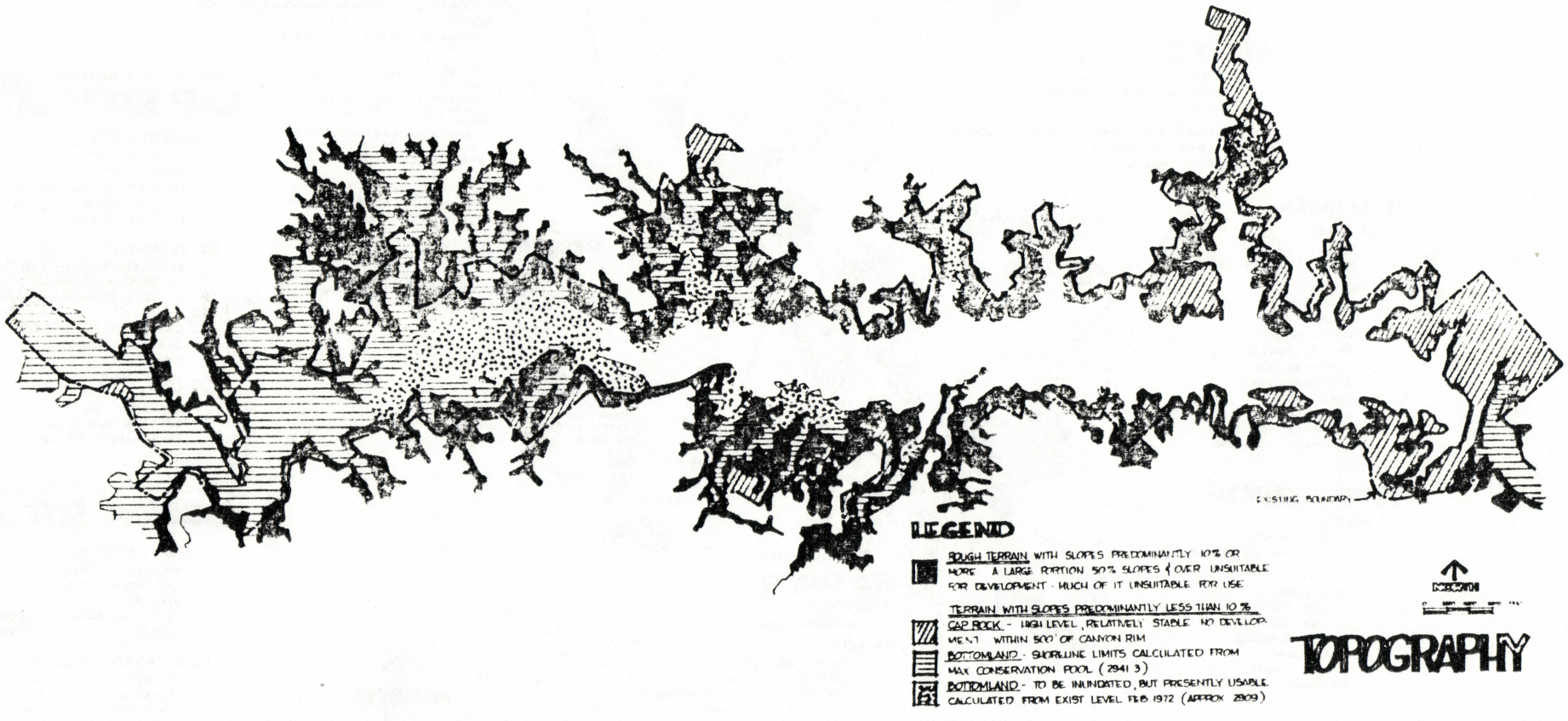


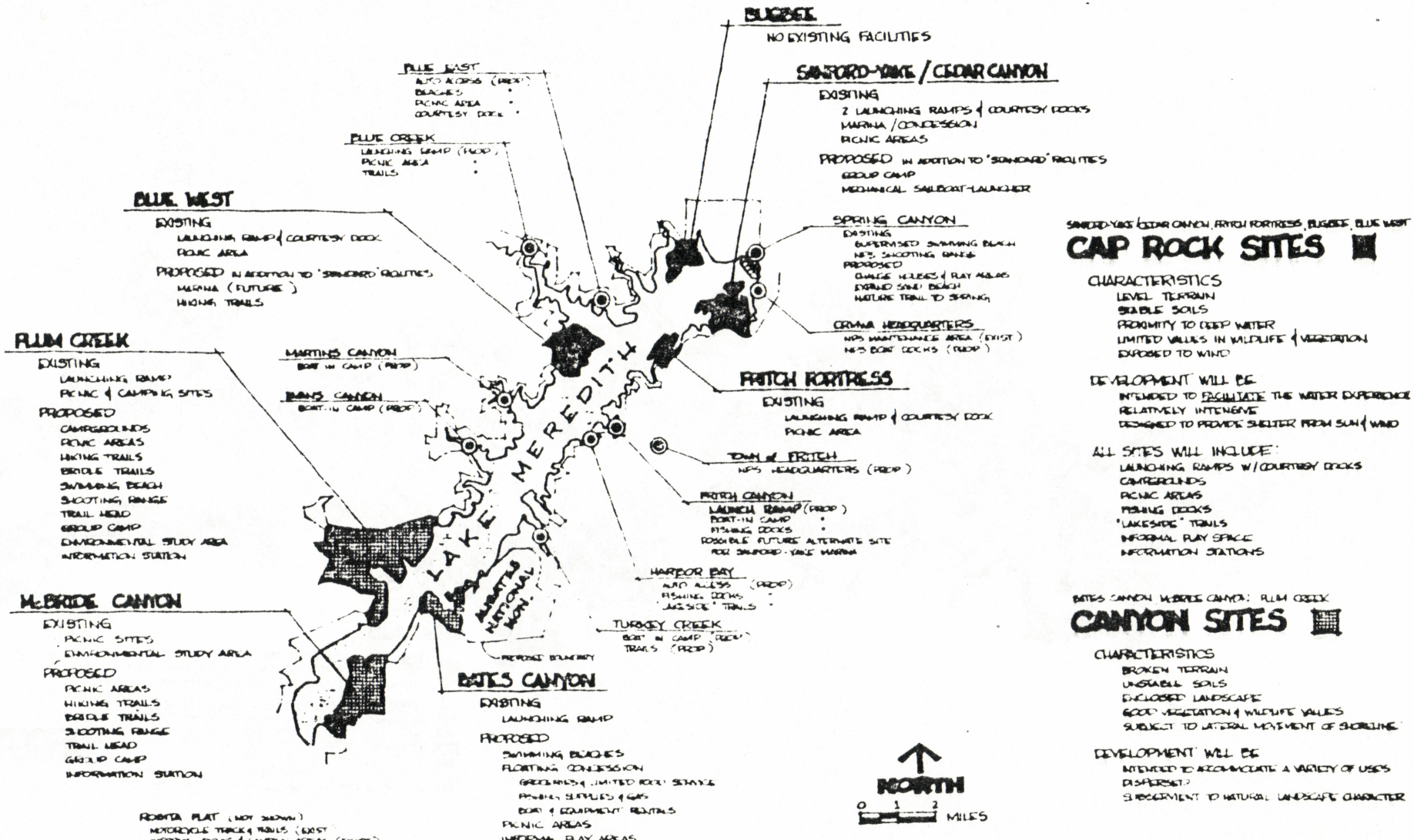
THE TEXAS PANHANDLE REGION



ACCESS

PART of the GENERAL DEVELOPMENT PLAN


EXISTING BOUNDARY
LEGEND
ROUGH TERRAIN WITH SLOPES PREDOMINANTLY 10% OR MORE A LARGE PORTION 50% SLOPES & OVER UNSUITABLE FOR DEVELOPMENT - MUCH OF IT UNSUITABLE FOR USE
TERRAIN WITH SLOPES PREDOMINANTLY LESS THAN 10 %
CAP ROCK - HIGH LEVEL, RELATIVELY STABLE NO DEVELOPMENT WITHIN 500' OF CANYON RIM
BOTTOMLAND - SHORELINE LIMITS CALCULATED FROM MAX CONSERVATION POOL (2941.3)
BOTTOMLAND - TO BE INUNDATED, BUT PRESENTLY USABLE CALCULATED FROM EXIST LEVEL FEB 1972 (APPROX 2909)
NORTH
TOPOGRAPHY



SANFORD-YAKE / CEDAR CANYON, FRITCH FORTRESS, BUGBEE, BLUE WEST

CAP ROCK SITES

CHARACTERISTICS
- LEVEL TERRAIN
- STABLE SOILS
- PROXIMITY TO DEEP WATER
- LIMITED VALUES IN WILDLIFE & VEGETATION
- EXPOSED TO WIND

DEVELOPMENT WILL BE
- INTENDED TO FACILITATE THE WATER EXPERIENCE
- RELATIVELY INTENSIVE
- DESIGNED TO PROVIDE SHELTER FROM SUN & WIND

ALL SITES WILL INCLUDE:
- LAUNCHING RAMPS W/ COURTESY DOCKS
- CAMPGROUNDS
- PICNIC AREAS
- FISHING DOCKS
- 'LAKESIDE' TRAILS
- INFORMAL PLAY SPACE
- INFORMATION STATIONS

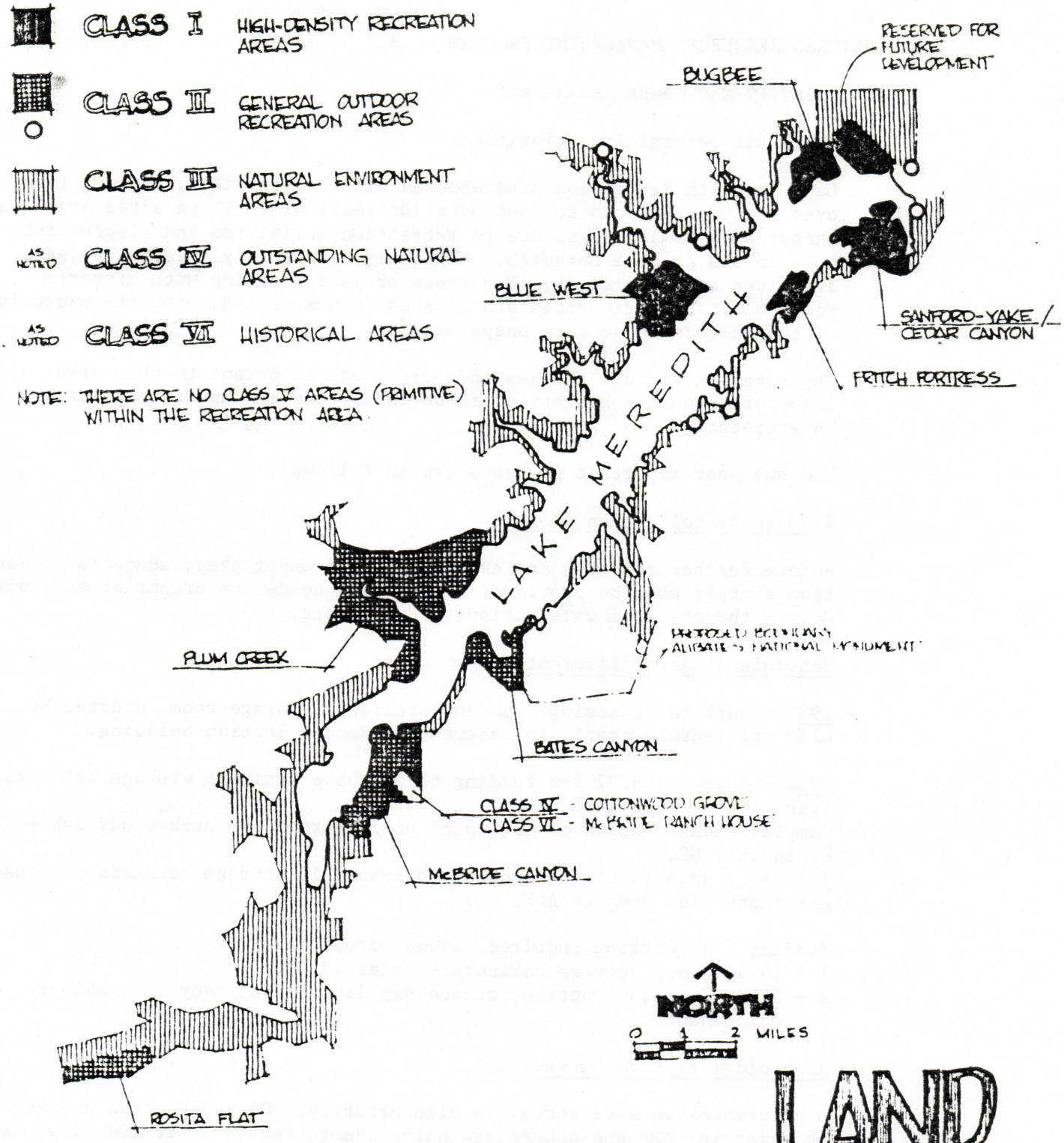
BATES CANYON, McBRIDE CANYON, PLUM CREEK

CANYON SITES

CHARACTERISTICS
- BROKEN TERRAIN
- UNSTABLE SOILS
- ENCLOSED LANDSCAPE
- GOOD VEGETATION & WILDLIFE VALUES
- SUBJECT TO LATERAL MOVEMENT OF SHORELINE

DEVELOPMENT WILL BE
- INTENDED TO ACCOMMODATE A VARIETY OF USES
- DISPERSED
- SUBSERVIENT TO NATURAL LANDSCAPE CHARACTER

GENERAL DEVELOPMENT



LAND CLASSIFICATION

II. CULTURAL RESOURCES MANAGEMENT PROGRAM

A. Overview and Needs Assessment

Basis for Determining Priorities:

Lake Meredith Recreation Area abounds with Indian sites, ranging from over 11,000 years old to just over 100 years old. These sites are being threatened in many ways, due to recreation activities and fluctuating lake levels at Lake Meredith. Generally, archeology related projects are given higher priority than those projects dealing with historic resources. Historic sites are limited in number and, with the exception of the McBride House, are unspectacular.

The ranching and oil and gas industries are important to this area, and information on the history of these industries is important to area interpretation.

The two most important projects are as follows:

Inadequate Collection Storage

Before further research and excavations are undertaken, adequate collection storage must be provided. Excavation needs are urgent at some sites, due to threats from wave action, ORV use, etc.

Schedule of Accomplishments

1982 - Work on archeology lab and artifacts storage room, started by LAMR maintenance staff, in basement of Ranger Station building.

1983 - Submit 10-237 for funding to purchase artifact storage cabinets. (See ALFL project ALFL C-6).
Complete construction of artifacts storage room and archeology lab - began in 1982.
1984 - Or upon receiving funding, purchase 15 storage cabinets to house artifacts (See project ALFL C6).

Funding and staffing required beyond normal levels.
1 - 15 artifact storage cabinets - Total $3,000.
2 - Items for construction, archeology lab, are already available to maintenance.

Archeological Site Survey

A comprehensive site survey is high priority. Over 300 sites are known to exist in LAMR and others are being identified on a hit and miss basis. Many more could be located through a site survey.

Schedule of Accomplishments

Prior to 1982 - Sites are recorded on existing site map on hit or miss basis, as time allows, by existing staff. Site survey done at Rosita and Blue West.

1983 - Revise and re-submit 10-238 and update cost estimates for comprehensive site survey.

1984 - Or when funding is generated by 10-238. Arrange for comprehensive site survey, through a qualified institution.

Funding and staffing requirements are summarized under project ALFL C6. These cost estimates cover both ALFL and LAMR.

1985 - Or following site survey, update site maps, incorporate information into interpretive message, use information prior to construction projects involving dirt moving. Done by existing staff.

RESOURCES PROGRAMMING SHEET

Lake Meredith Recreation Area (Park) Southwest (Region) TEXAS (State) ____ Natural X Cultural 11/82 (Date)

Area Priority	RMP Ref. #	Pkg. #	Project Title	Action Type	Year 1 NPS MY	Year 1 NPS Cost	Year 2 NPS MY	Year 2 NPS Cost	Year 3 NPS MY	Year 3 NPS Cost	Year 4 NPS MY	Year 4 NPS Cost	Year 5 NPS MY	Year 5 NPS Cost
1	LAMR C4		Inadequate Collections Storage	New Maint.	-	-	0.2	3.0	Base Funding		Base		Base	
2	LAMR C1		Archeological Survey	Research and Monitor	-	-	0.3	34.5	0.5	0.5	0.5	0.5	0.5	0.5
3	LAMR C3		Wave Action on Archeological Sites	Research and New Maint.	Action begins, following site survey and receding lake level.									
4	LAMR C2		Archeological Collecting	Existing and New Maint.	Base		Base		Base		1.0	20.0	Recurring	
5	LAMR C5		Historic Resources	Research and Existing & New Maint.	Base		Base		0.5	10.0	0.5	5.0	0.5	5.0
6	LAMR C6		History of Petroleum Industry	Research and New Maint.	Base		Base		0.5	20.0	Base		Base	
7	LAMR C7		History of Area Ranching	Research and New Maint.	Base		Base		0.5	20.0	Base		Base	

C. PROJECT STATEMENTS

Project Title and Number:

Archeological Survey of Lake Meredith Recreation Area

LAMR C1

1. Statement of the Problem

A comprehensive site survey has not been accomplished for the lake and the archeological base map is incomplete.

1.1 Background Information

Over 400 archeological sites have been reported by Park Rangers, Park Archeologists and other individuals, and have been recorded on the archeological base map. Many of the recorded sites lack needed information. Other sites undoubtedly exist and have not been identified. An archeological survey and base map are necessary for management purposes, both in planning and in the protection of archeological resources.

1.2 Current Management Action

Record sites on base map as sites are identified by existing personnel during routine trips to the area. Lack of adequate manpower prevents a coordinated comprehensive site survey.

1.3 Legal Authority

1906 Antiquities Act
1979 Archeological Protection Act

2. Alternative Actions and Probable Impacts

2.1 No Action

Through this action, many sites will not be identified and could be lost, through time.

2.2 Current Management Action

This action relies on the existing staff on an "as time is available" basis. Some sites would be identified and recorded but many would not, and could be lost, in time.

2.3 Comprehensive Archeological Survey of Lake Meredith Recreation Area

An archeological site survey would accomplish the following:

a. A complete inventory of archeological and historical sites, to provide information needed for management, protection and interpretation of archeological and historical resources.

b. An archeological/historical base map.

c. Obtain sufficient data to formulate research designs for further investigations.

d. Attempt to answer or determine the potential for answering the following questions:

1. Ethnogeography. What was the natural resource base and what was the natural resource exploitation by prehistoric and historic Indians.

1) Tool kits used
2) Flora and fauna - uses and how used
3) Land utilization
4) Water resources
5) Minerals and stone

2. Settlement patterns, demography and changing cultural patterns.

a. Much more data needed on Paleo-Indian, Archaic and Woodland cultures in the area.

b. Data needed on historic and proto-historic Indian occupations.

3. Recommended Course of Action (Research)

3.1 A comprehensive archeological survey, including testing, through contract to a qualified institution. (Done in conjunction with ALFL)

4. Requirements to Accomplish Action

4.1 Research

A 10-238 "Archeological Survey" has been approved for a comprehensive survey of LAMR and ALFL. Funding generated by the 10-238 is required for this project.

4.2 New Maintenance

ALFL staff would provide routine coordination of site survey done by a qualified institution. Periodic visits to sites by existing staff, once they are identified, is required.

Project Title and Number:

Archeological Collecting

LAMR C2

1. Statement of the Problem

Illegal digging and surface collecting for artifacts are common occurrences at Lake Meredith Recreation Area. These resources must be protected to the extent of present regulations.

1.1 Background Information

The earliest excavators from research institutions, who excavated in the Texas Panhandle, mentioned holes dug by "treasure hunters", as early as the 1920's. Many local collectors see nothing wrong with going out for an evening or afternoon of amateur archeology digging, in sites on Federal property. More common than digging is surface collecting, and this activity is especially hard to detect. A surface collector may be engaged in such legal activity as hunting, boating, picnicking, hiking or other nominal activities, but, in reality, be engaged in artifact collecting on prehistoric or historic sites. If an artifact is found, it is easy to put it in a pocket, and, if the action isn't witnessed by a law enforcement officer, it often goes undetected.

1.2 Current Management Action

Patrols incorporate archeological site visits as part of the regular law enforcement function, but this is seldom the major reason for a patrol. Sites are scattered over 45,000 acres, and enforcement personnel are limited, so artifact collecting is seldom detected. Occasionally, a violator will, inadvertently, turn himself in, by showing a Ranger the artifacts he has collected, but this is an unusual occurrence, and by the second violation, he often knows better.

1.3 Legal Authority

1906 Antiquities Act
1979 Archeological Protection Act

2. Alternative Actions and Probable Impacts

2.1 No Action

If no action is taken, the cultural resources will continue to be damaged and the resources will, eventually, be lost to future generations.

2.2 Current Management Action

Patrols will continue to discourage the less determined artifact hunters, but the more experienced will continue

to collect, and the infrequent patrols will seldom encounter the violator, but will continue to report sites which have been potted, after the fact.

2.3 Proposed Action

Increase patrols and, when violators are caught, media coverage should be extensive. This would not only deter present violators, but would discourage future violators, before they became involved in site destruction. This action would require a larger staff, and increased funds for vehicle use.

3. Recommended Course of Action

3.1 Continue present infrequent patrols, combined with media coverage of the problem, until funds are available to increase the number of law enforcement qualified individuals available for patrols. Educate present Ranger staff on the nature of the problem, and what to look for if a violation is suspected.

4. Requirements to Accomplish Action

4.1 Research

No research is planned.

4.2 New Maintenance

A 10-237 to restore the number of law enforcement personnel to 1970 levels, or better, should be prepared and submitted. A second 10-237 should also be prepared and submitted, to increase seasonal law enforcement personnel, especially during hunting season, when many of these violations may be occurring.

Project Title and Number:

Wave Action on Archeological Sites

LAMR C3

1. Statement of the Problem

The fluctuating lake level, combined with wave action, is destroying archeological sites.

1.1 Background Information

The Sanford Dam was completed in 1965, and, previous to this time, archeological investigations were carried out on several sites which would, in time, be covered by the lake. Beginning in 1966, the lake began to rise, and many sites were flooded by the lake, or destroyed during the filling process. In 1973, the lake reached a high point of 101+ feet and began to drop in level until 1981, when a low point of 63 feet was reached. At that time, a shoreline survey was performed by the National Park Service and the Bureau of Reclamation, in which 50 sites were located between the 1973 high water mark and the 1981 low water mark. Several kind of damage were noted on these sites, and several were selected for excavation, since they would be destroyed if the lake were to rise again. Shortly after the survey was completed, but before excavation could commence, the lake did, indeed, come up, and has continued to rise, through 1982. Most of the sites discovered during this period are once again under water, and may never be found again. It was found that sites are being lost to the following factors: 1) Sites at the present water mark are being washed away, directly, and are also subject to pothunting activities from individuals with boats, who have access to these areas; 2) Sites just below the water line may suffer from wave action and, also, from boat propellers cutting into the soil; 3) Sites well below the surface suffer from silting and may be lost, due to silt cover obscuring the site; 4) Sites above the present water mark may suffer from slumping, with entire blocks slumping into the lake from above and destroying the site, even though it has not been inundated.

1.2 Current Management Action

Funds are seldom available to excavate these sites. This causes much valuable data to be lost, due to erosion and actions by man. Management currently can do little to prevent loss of the sites and subsequent loss of the data from these sites. One site was partially excavated through the YCC program.

1.3 Legal Authority

1979 Archeological Protection Act
Archeological Salvage Act

2. Alternative Actions and Probable Impacts

2.1 No Action

If no action occurs, and the lake continues to rise, many more sites will be affected by the water and wave actions. This will result in the loss of more data, as well as the loss of valuable cultural remains.

2.2 Current Management Action

Sites are currently being mapped as they are located, and placed on a site map for the lake. Those which seem threatened are salvaged, if funds are available, but, usually, the sites will be lost, due to erosion.

2.3 Proposed Action

If Project LAMR C1, Archeological Survey, was completed, the sites in immediate danger would be known and could be evaluated as the lake rises Funds would have to be provided on a regular basis for excavation of important sites. An important consideration should be the fact that sites of the Texas Panhandle represent unusual cultures which have not been extensively studied, and could add knowledge to the data base for use in interpretive programs, if properly excavated. This would require a 10-238, and a line item in the budget for a continuing funding of archeological programs. A full time archeologist should be hired through the 10-237 process.

3. Recommended Course of Action

3.1 Sites will have to be protected as they are found and, as funds become available, excavations could be undertaken on selected important sites. In the future, if budgetary constraints are lifted, a full time archeologist should be hired and salvage work started on those sites which are most threatened and appear to be the most important for data recovery. Investigate the possibility of salvage by well-directed volunteer groups.

4. Requirements to Accomplish Action

4.1 Research

Project LAMR C1, dealing with a complete site survey, should be accomplished before further research will be possible. Once that project is finished, data will be available to indicate those sites most threatened and best for excavation.

4.2 New Maintenance

Some important sites may need stabilization, including riprapping, if funds are not available to excavate.

Project Title and Number:

Inadequate Collection Storage

LAMR C4

1. Statement of the Problem

Collections are subject to deterioration and loss, due to inadequate curation, i.e., lack of proper storage spaces and adequate trained staff.

1.1 Background Information

Archeological collections were begun during salvage operations with construction of Sanford Dam, which now impounds Lake Meredith. Lake Meredith and Alibates share collection facilities, which house all collections kept in the area. In addition to collections in the area, there are collections at Texas Technological College in Lubbock, West Texas State University in Canyon and Texas University in Austin. Though these collections are housed at the aforementioned institutions, they have expressed an interest in returning them to us for curation, due to the amount of materials they are storing from contracts with other agencies. Some of these collections, stored off-site, have received excellent preservation and storage, while others are merely "housed" with no real preservation efforts possible. The total number of artifacts may be in excess of 200,000 items owned by the National Park Service, plus another 200,000 items owned by West Texas State University, which came from excavations at Alibates ruin in 1938 thru 1941, with the aid of WPA labor. Current collections at the area consist of surface collections made by various collectors over the years, plus uncatalogued collections from several seasons of YCC digs, which took place from 1976 through 1980. Collection facilities are currently in a state of turmoil. The Ranger Station and associated activities have been moved within the last year, but no facilities have been completed to house the collections. Work has been underway for the last few months on completing the collection storage facility in the new building, but, currently, no progress is being made. Cataloguing is currently going on for the Blue Creek dig, which was a project of the Texas Archeological Society Summer Field School, in 1969. When this cataloguing is completed, there will be approximately 100,000 other artifacts which we will need to have stored. These are currently at the Panhandle Plains Historical Museum in Canyon, but, due to a small staff, these cannot be properly cared for at that institution. The current staff needs training directed to the care and preservation of prehistoric artifacts, mostly lithic materials, but also bone, shell and, possibly, basketry.

1.2 Current Management Action

Due to shortage of funding and, consequently, manpower loss, completion of the proposed storage facility has been delayed. The present archeological lab has become a catchall for the materials and furniture not yet transferred to the new complex. Though the present staff has completed the course in Curatorial Methods, this course failed to

direct itself to the problem of archeological collections consisting mostly of stone, bone and shell. Further training or cross training with Regional personnel is needed to completely retrain individuals in collections management.

1.3 Legal Authority

2. Alternative Actions and Probable Impacts

2.1 No Action

If no action were taken, collections would continue to deteriorate. Dust is a major problem in the old archeological lab, and, to this is added the clutter, due to failure to complete the move to the new building.

2.2 Current Management Action

Current management action is essentially the same as no action. Collections are at a distance from the curatorial staff, and, therefore, no curatorial actions are being taken. As funds and personnel are returned, the new lab will be finished and this will provide better collection storage.

2.3 Proposed Action

To bring the collections up to an acceptable standard, the storage facility must be completed and curatorial staff must be adequately trained. Additional cabinets will be needed if the collections, housed at the Panhandle Plains Historical Museum are transferred to our card, and, if adequate storage is to be provided for YCC collections.

3. Recommended Course of Action

3.1 Storage facilities will be completed, and the staff adequately trained to manage what is becoming a large collection of potentially valuable artifacts. (See ALFL C6).

4. Requirements to Accomplish Action

4.1 Research (none)

4.2 Maintenance (See ALFL C6)

Funding for carpenter to complete storage facility.

Funding for 10 new cabinets to house materials from YCC digs.

Funding for 10 other cabinets if we take over curation of TAS materia[illegible].

Funding for 5 additional cabinets if ALFL research projects take place.

Project Title and Number:

Historic Resources

LAMR C5

1. Statement of the Problem

Numerous foundations of historic structures are scattered around the Lake Meredith area. Some of these have been plotted on maps, but others are not yet properly located on historic site maps. One structure, the McBride Ranch House, has been restored and is on the register of historic places.

1.1 Background Information

The last Indian tribes in the Texas Panhandle, the Comanches and Kiowas, were placed on reservations, in Oklahoma, by 1875, and the following year, ranches were established. By the 1880's, small farmers purchased the school lands, scattered in the dry and well-watered canyons of the Canadian River breaks. Here, they built rock houses, using the native rock and what timbers they could find, along the river, often using old bridge timbers, which had washed out in floods. There were often feuds between these small farmers and the local ranches, and, in time, the small farmers were, for the most part, pushed out by larger operations, who often used the historic structures for line camps or stage stations. In time, the structures deteriorated and were abandoned. Oil and gas well operations began in the 1920's, and, by now, some of these early sites are also old enough to be classified as historic structures.

1.2 Current Management Action

Most of the historic structures are not in heavy use areas, and are not in any immediate threat from park visitors. The one historic structure, which has been restored, the McBride House, is in a visitor use area, but is protected by a cyclone fence. In spite of the fence, vandals have broken out the windows and have carved initials and names on the walls. As structures are located, they are being placed on the archeological site maps, but no attempt has been made to restore or stabilize any other than the McBride Ranch House. Some of the structures are near the lake, and, periodically, are inundated by the water of Lake Meredith.

1.3 Legal Authority

Historic Preservation Act of 1966
Archeological Protection Act of 1979

2. Alternative Actions and Probable Impacts

2.1 No Action

If no action is taken, these sites will continue to deteriorate and

will, eventually, be lost.

2.2 Current Management Action

Current action is governed by budgetary constraints. Without proper funding, the current action is merely a holding action to identify and protect historic sites without a chance to really keep the sites from deteriorating.

2.3 Proposed Action

The proposed action would be to stabilize all historic structures as they currently appear, to prevent further deterioration. The exact location would be plotted on a map during the implementation phase of Project LAMR C1, Archeological Site Survey. With increased staffing, the McBride Ranch House could be opened to guided tours, and historic furnishings could be added, if protection was improved.

3. Recommended Course of Action

3.1 Continue plotting historic sites as they are found, and establish a separate map showing locations and names of historic structures, if known. When the Archeological Site Survey is completed for the lake, this listing would be complete. Continue researching the history of these structures, and use any information obtained to improve the area interpretive programs. As funds become available, begin to stabilize these foundations, and interpret those of importance.

4. Requirements to Accomplish Action

4.1 Research

Research is currently under way to determine the individuals who lived around the Lake Meredith Recreation Area, when they lived here, and the historic scene at the time of residence. A final study should be made in connection with regional personnel, to determine if all sources of historic data have been consulted.

4.2 New Maintenance

Structures must be stabilized to keep them from deteriorating. This will entail new maintenance, which will require 10-238 data.

4.3 Continuing Maintenance

The McBride House is showing signs of decay in its restoration. The tar paper roof is leaking, and this, in turn, will further weaken the structure, until it, too, will fall into decay. Park maintenance forces are at a low point in funding, and nothing can be done to repair the structure at this time.

Existing historic foundations will have to be examined on a periodic basis, to determine if stabilization is working properly, and if new maintenance is needed on any of these.

Project Title and Number:

History of Petroleum Industry and its Impact on LAMR

LAMR C6

1. Statement of the Problem

The oil and gas industry is very visible in and around Lake Meredith Recreation Area. Activities relating to this industry have had a profound influence on the area and this influence is continuing.

1.1 Background Information

The activities of the gas and oil industry in the Texas Panhandle are an historic function, dating back to the early 1920's, around the lake. Numerous well pads, wells, pipeline scars, petroleum company roads, and buildings are distributed throughout the lake area. Each year, the Park Service is called on to investigate new pipeline locations, well locations, and other operations withing the area, primarily to insure that the operations do not disturb archeological sites or damage the environment, by causing erosion or other unnecessary disturbances. With the operations so visible, it is necessary that we use the petroleum industry as an interpretive vehicle. The best way to do this is to gather the history and operations of the industry into a readable form and then cooperate with the petroleum industry in interpreting their operations. Approximately one and one half million visitors come to the lake, annually, and, of this number, a great percentage come from families involved with the oil and gas production near the lake. By properly interpreting this resource, it could make our job easier when it comes to cooperating with the industry in other matters, such as pipeline and road placement.

1.2 Current Management Action

Mention of the petroleum industry in our interpretive talks is at present, of a minimum nature. In interpreting the Alibates Flint Quarries, mention is made of the importance of gas and oil to our society today, as compared with the importance of Alibates Flint to the Indians.

1.3 Legal Authority

Historic Preservation Act of 1966
Minerals Management Guidelines

2. Alternative Actions and Probable Impacts

2.1 No Action

If no action were taken, the importance of the petroleum industry to our area would go uninterpreted. This would result in poorer relationships with the oil and gas companies and could end up, indirectly,

causing damage to other cultural resources, such as historic sites and archeological sites.

2.2 Current Management Action

Current action provides for only a minimum of interpretation of this valuable resource.

2.3 Proposed Action - Research

This project calls for research into the history of the gas and oil industry in the LAMR area. Questions relating to the initial discovery of gas and oil, first drilling and production activities, establishment and development of neighboring towns, company towns, factories, and other operations. From gas and oil activities, development of specific gas and oil facilities, within the recreation area, and other questions should be addressed.

3. Recommended Course of Action

Initiate research into the history of the gas and oil companies, around Lake Meredith. When the research is completed, approach the companies involved, to produce a cooperative effort on interpreting the facilities around the lake.

4. Requirements to Accomplish Action

4.1 Research

Research should be initiated to determine the history of the petroleum industry in our area. This could be done through the 10-238 route, or by cooperating with the companies involved, around the lake.

4.2 New Maintenance

As interpretive displays are installed, agreements as to upkeep and exhibit maintenance should be worked out with the petroleum industry.

Project Title and Number:

Study of History of Area Ranching

LAMR C7

1. Statement of the Problem

No current, concise history of ranching in the lake area is available, though many early settlements in the LAMR area were brought about by cattle ranching, and the ranching industry is important to the area today.

1.1 Background Information

Ranching in the LAMR area was begun in the 1880's, with several large ranches being established near the Canadian River. The only towns were Mobeetie, to the east, Tascosa to the west, and Clarendon, far to the south. When the railroad came in, it missed both Mobeetie and Tascosa, but a railhead was established at what came to be Amarillo, for the shipping of cattle to the northern markets. Ranching continued with only moderate success, until the Panhandle oil and gas field came in, and, at that time, the ranches proved successful, because of the added income from oil and gas leases. The ranching industry continues to play a major part in the area economy, and a definitive study would give the area interpreters information for interpretive programs.

1.2 Current Management Action

Currently, several sources are being consulted for the ranching history of the area. A recent history of ranching in the Texas Panhandle area, by Robertson, should prove to be especially valuable, but takes the problem from an area view, rather than a local viewpoint.

1.3 Legal Authority

2. Alternative Actions and Probable Impacts

2.1 No Action

If no action is taken, the full potential of the area's ranching history will be lost to the interpretive program.

2.2 Current Management Action

Current action entails research in many different sources, to ensure proper interpretation of the area's ranching history.

2.3 Proposed Action

This project calls for research into the history of the ranching industry in and around Lake Meredith Recreation Area. Questions relating

to establishment and make-up of the first ranchers, how ranches have been developed and divided to present time, family trees of early ranching families, geographic location of ranches from early times to present, and other related issues should be addressed.

The study should cover the period from establishment of the very first ranches to the present time.

3. Recommended Course of Action

3.1 Continue incorporating information into the interpretive program as it becomes available. When funds are budgeted for the research, a reliable research institution or individual should be contracted to provide a complete report on area ranching.

4. Requirements to Accomplish Action

4.1 Research

A 10-238 should be submitted for the required basic research and to provide funds for writing the report.

4.2 New Maintenance - None

4.3 Continuing Maintenance

Existing staff gather ranching information as time permits.

III. NATURAL RESOURCES MANAGEMENT PROGRAM

A. Overview and Needs Assessment

Basis for Determining Priorities:

Those natural resources management projects considered to be resource threatening, are given highest priority. Some projects involving research are also important.

The four most important projects are as follows:

Oil and Gas Exploration and Development

Mineral rights were not acquired when lands for the Lake Meredith project were purchased. Oil and gas exploration, development and maintenance are continuing and may increase. This activity is an intrusion.

Schedule of Accomplishments

1982 and Prior - Bureau of Reclamation map and list, showing oil and gas installations, is available for use, but not up to date. Frequent requests for new work and to maintain and upgrade existing facilities have been received and handled on a case by case basis.

1983 - Contact each company with operations and facilities at LAMR. Send a copy of Minerals Management Comprehensive Regulations and discuss if necessary. Continue to monitor existing operations, oversee and coordinate new projects.

1984 - Submit 10-237 to request Resources Management Specialist, to oversee gas and oil and other resource management activities.

1985 - Or when funding and FTE's permit, hire a Resource Management Specialist to oversee gas and oil and other resource related projects.

Funding and staffing beyond normal levels:

GS 9 - Resources Management Specialist	$20,000.
Support Costs	10,000.
Total Costs	$30,000.

1986 - Recurring costs from 1985.

Off-Road Vehicle Use

Off-road vehicle use was administratively approved at two sites, in about 1970. The Rosita ORV area is comprised of about 1,500 acres and the Blue Creek area about 275 acres. Use at these two areas is heavy and riders often go beyond the limits of the approved boundaries. ORV's are destroying archeologic sites, vegetation and soils within the ORV areas. Illegal ORV use, elsewhere, on the recreation area has an adverse impact.

Schedule of Accomplishments

1982 and Prior - Limits of ORV areas, described and published in Federal

Register, and appear in Title 36 CFR.
Annual meeting with organized ORV clubs.
Annual clean-up day by organized ORV clubs.
Fencing and signing at lower limits of Rosita ORV site at Chicken Creek.
ORV regulations enforced by existing staff.

1983 - Continue annual meetings with organized ORV clubs and press for twice annual clean-up by clubs - Existing staff and funding - $00.00
Replace signs and river crossing fence at Chicken Creek as necessary, following high water - Personnel Services - $300.
Fence Materials - 500.
Continue archeological salvage of site at Chicken Creek - Already funded.

1984 - Continue above recurring projects (except Chicken Creek Archeological Salvage - $700.
Submit 10-237 for base funding for increased patrols to control ORV use.

1985 - Same recurring.

1986 - Continue recurring projects - $700.
Move fence west of Chicken Creek to follow existing boundary line - $20,000.

1987 - Hire additional seasonal personnel to control indescriminate ORV use - $4,000.

Funding and staffing beyond normal levels: Total cost - $46,000.

Faunal Factors

Hunting is permitted in designated areas within the recreation area, subject to State and Federal regulations. Seasons are established for deer, turkey, dove, quail and waterfowl. Hunting pressure is increasing and exceeds carrying capacities for the larger game animals.

1982 and Prior - Hunting brochure developed and printed, annual hunting patrols, marking boundaries.

1983 - Annual boundary marking by existing funding.
- Hunting season patrol by existing staff and funding.

1984 - Annual boundary marking by existing funding.
Meet with Texas Parks and Wildlife personnel and plan research base needed to implement permit system for deer and turkey - by existing funding.
Hunting season patrol by existing staff.

1985 - Annual boundary marking by existing funding
Develop permit and informational items prior to permit system for deer and turkey - Additional funding - $500.
Submit 10-237 for additional seasonal help to implement permit system.
Hunting season patrol by existing staff.

1986 - Annual boundary marking with existing funding.
- Hunting season patrol with existing staff.
- Fence construction of unfenced areas (See Grazing).

1987 - Boundary marking by existing staff.
Implement permit system, by additional seasonal staff during deer and turkey season Additional funding $2,000.

Continue fence construction (See Grazing)

Vegetative Cover and Effects of Grazing

A century of grazing within the recreation area has resulted in considerable change to the ecosystem. Livestock grazing continues today, with three leases existing.

1982 and Prior - Two grazing leases eliminated. Line grazing transects implemented. Three grazing leases executed annually.
Grazing converted to dormant part of growing season.

1983 - Continue issuing grazing leases by existing staff.
- Read line transects - existing staff.
- Implement clipping studies - by existing staff.

1984 - Continue above activities with base funding.

1985 - Continue recurring duties from above. When funding allows, construct five miles of boundary fence annually until entire boundary is fenced
Funding beyond normal $30,000.

1986 - Recurring duties from 1985 fence construction. When funding allows, initiate research on "Grazing as a Management Tool" by a qualified institution
Funding needed $30.000.

1987 - Fence Construction
Funding needed $30,000.

RESOURCES PROGRAMMING SHEET

Lake Meredith Recreation Area | Southwest Region | TEXAS State | X Natural ___ Cultural | 11/82 Date

Area Priority	Park RMP Ref.#	Pkg. #	Project Title	Action Type	Year 1 NPS MY	Year 1 NPS Cost	Year 2 NPS MY	Year 2 NPS Cost	Year 3 NPS MY	Year 3 NPS Cost	Year 4 NPS MY	Year 4 NPS Cost	Year 5 NPS MY	Year 5 NPS Cost
1	LAMR N13		Oil and Gas Exploration and Development	Existing and New Maint.	Base		Base		1.0	30.0	Recurring		Recurring	
2	LAMR N14		Off-Road Vehicle Use	Existing and New Maint.	0.1	0.8	0.1	0.8	0.1	0.8	0.3	2.7	0.5	4.0
3	LAMR N9		Faunal Factors	Research and Existing and New Maint.	Base		Base		0.1	0.5	Base		0.2	2.0
4	LAMR N6		Vegetative Cover and Effects of Grazing	Research and Existing and New Maint.	Base		Base		0.2	30.0	0.5	30.0	0.5	30.0
5	LAMR N1		Natural Resources Basic Inventory	Research	When 10-238's are approved								0.5	39.0
6	LAMR N7		Fire as a Management Tool/Grassland Fires	Research and Existing Maint.	Research when 10-238 Approved				Base		Base		0.3	15.0
7	LAMR N10		Depletion of Flint and Petrified Wood	Existing and New Maint.	Base		Base		Base		Base		Base	
8	LAMR N3		Maintenance of Trees & Shrubs	Existing and New Maint.	New Maintenance when 10-238 Approved				Base		Base		0.3	50.0
9	LAMR N12		Neighboring Real Estate Development	Existing Maintenance	Base		Base		Base		Base		Base	

RESOURCES PROGRAMMING SHEET (Continued)

Lake Meredith Recreation Area | Southwest Region | TEXAS State | X Natural | Cultural | 11/82 Date

Area Priority	Park RMP Ref.#	Pkg. #	Project Title	Action Type	Year 1 NPS MY	Year 1 NPS Cost	Year 2 NPS MY	Year 2 NPS Cost	Year 3 NPS MY	Year 3 NPS Cost	Year 4 NPS MY	Year 4 NPS Cost	Year 5 NPS MY	Year 5 NPS Cost
10	LAMR N13		Control of Exotic Plants	Research and Existing and New Maintenance	Base		Base		Base		Base		Base	
11	LAMR N8		Control of Hazardous Animals	Existing and New Maintenance	Base		Base		Base		Base		Base	
12	LAMR N5		Control of Exotic Animals	Existing and New Maintenance	Base		Base		Base		Base		Base	
13	LAMR N4		Impact of Man on the Eco-system	Existing and New Maintenance	Base		Base		Base		Base		Base	
14	LAMR N11		Chemical Pollutants	Existing and New Maintenance	Base		Base		Base		Base		Base	

C. PROJECT STATEMENTS

Project Title and Number:

Incomplete Natural Resources Basic Inventory

LAMR N1

1. Statement of the Problem

An inventory of natural resources is required by Natural Science Studies and Activity Standard, and is fundamental to planning for wise resource management. While part of the information has been assembled in this area, the inventory is not yet complete.

1.1 Background Information

Partial checklists have been prepared for plants, reptiles, amphibians, mammals, birds and fish. The list of birds is most nearly complete, due to aid by the Audubon Society in the Texas Panhandle. Other check lists need further documentation to even complete a species list. Once a species list is prepared, further data should be added, to indicate distribution habits and habitats. To date, two such studies have been made. These are:

1) A Survey and Population Analysis of Mammals by Habitat at Lake Meredith Recreation Area and Alibates National Monument, by Flavius C. Killebrew, and -

2) The Vegetation of the Lake Meredith Recreation Area, Texas, by Robert A. Wright and Keith Meador.

General soils maps have been prepared by the Soil Conservation Service and are available for all three counties adjacent to the lake. Two geological reports are available. These are:

1) The Geology of Potter County, by Leroy Patton, and -

2) Petrography and Petrogenesis of Alibates Dolomite and Chert, by Roger Bowers.

1.2 Current Management Action

Data is being collected by the park staff on various aspects of the park's natural resources, but there is no one on the staff who is assigned a primary job category as biologist, forester, geologist or other staff specialist. As a result, the data is coming in on a piecemeal basis, and, due to frequent transfers, some of the data may be lost, either in the files or in the heads of departing personnel.

1.3 Legal Authority

Natural Science Studies
Activity Standards

2. Alternative Actions and Probable Impacts

2.1 No Action

If no action is taken, the park will continue to operate programs blindly, and without proper input to consider future changes in the park's ecosystems and possible destruction to valuable habitat.

2.2 Current Management Action

Under current management action, the data, or at least some of it, will be collected, but the process will be a long one, and valuable ecosystems may be destroyed in the meantime.

2.3 Proposed Actions

Research

Several studies are needed to provide the park with a basic natural resources inventory. They are:

1) A species list of all vascular and significant nonvascular plants, including a list of bacteria and fungi, denoting those species that are considered rare and or endangered or of unusual size or of visitor and scientific interest.

2) A species list of all vertebrates, e.g., fish, amphibians, reptiles, birds and mammals, and all invertebrates that are considered rare and/or endangered or of high visitor or scientific interest.

3) An inventory of all significant geologic features and processes, e.g., caves and rock systems.

4) An inventory and distribution map of major soils found within the area.

5) An inventory of all the hydrologic features, e.g., perennial and intermittent streams, ponds, groundwater and other water resources of the area.

6) An overall ecosystem analysis.

3. Recommended Course of Action

3.1 Continue to gather data as it becomes available, and, when funds are available, complete the Natural History Basic Inventory, as outlined above.

4. Requirements to Accomplish Action

4.1 Research

10-238's should be drafted to provide for the studies indicated when funds become available.

4.2 New Maintenance

None

4.3 Continuing Maintenance

None

Project Title and Number:

Control of Exotic Plants

LAMR N2

1. Statement of the Problem

Salt Cedar (Tamarix sp.) and Russian Thistle (Salsola kali) are common exotics in the recreation area. Salt cedar is a threat to other phreatophytic vegetation and Russian thistle is a visual intrusion and fire hazard.

1.1 Background Information

Salt cedar occurs in the bottomlands of the recreation area, along the Canadian River and its tributary streams. It has invaded areas which lie at or below the high water mark of the lake, with heavy concentrations found, in and around high visitor use areas. These heavy concentrations provide cover for potentially hazardous animals, such as the hispid cotton rat, skunks and wild dogs, all of which pose a threat to the visiting public. Other phreatophytic vegetation is crowded out, as salt cedar invades new areas. Russian thistle, commonly known as "Tumbleweed," is a native to the steppes of Asia, and was introduced into this country in the mid 19th century, in grain shipments from Russia. It has spread until it is a common roadside plant, throughout the west. In the fall, following wet years, Russian thistle accumulates in numbers as they break off and travel across the soil, scattering seeds to produce more growth the following year. By the time of the spring windy period, in February or March, the thistle is dry enough that great numbers break off during high winds and accumulate along fencerows, roadsides and in natural depressions, causing extreme fire danger in dry periods.

1.2 Current Management Action

In the spring of 1982, management burns were utilized in high visitor use areas, to reduce salt cedar and thistle populations. This action opened up areas which visitors were able to utilize for camping in the Bugbee and Harbor Bay areas of the recreation area. Thistle has been removed by hand, where practicable and where it presents a visual intrusion to the visitors enjoyment of the area, such as along roadsides and at vistas. In recent years, with smaller budgets, it has not been possible to even have this preventive maintenance and thistle accumulates in ever increasing numbers, where it is a visual intrusion, as well as a fire hazard, and where it is crowding out the native flora.

1.3 Legal Authority

2. Alternative Actions and Probable Impacts

2.1 No Action

If no action is taken, salt cedar will continue to increase and provide more habitat for plague carrying and rabid animals, crowd out native flora, and decrease available area for visitor use. Thistle will increase in numbers and crowd out native plants, especially in areas where the soil is constantly disturbed.

2.2 Current Management Action

Current management actions have set back the spread of salt cedar, allowing the visitor to utilize the area which has an effect of also setting back the spread. This action, however, has only provided a stopgap measure, at best, and does not eliminate the spread of salt cedar. Current action for thistle has been, essentially, no action, as budgetary limitations have made it, virtually, impossible to provide the preventive maintenance needed to prevent accumulations of thistle. It also does not control the bigger problem of wind distribution in the early spring.

2.3 Proposed Action

Resource Management Actions

During the fall season, cut down salt cedar in visitor use areas, using hand labor, and allow the fuels to dry out. In early spring, conduct management burns to eliminate the fuels created by the cutting and drying of the salt cedar and to retard new growth. Conduct management burns in areas of heavy Russian thistle growth. This will take place in the fall, when the grasses are cured, but prior to the weed setting seed, and should control new growth of thistle.

Continued Maintenance

Conduct management burns for fuel hazard reduction in areas of heavy concentrations of thistle and, where management burns are not feasible, continue to remove heavy concentrations by hand labor.

New Maintenance

Investigate the use of the herbicide "weed-one" which is currently approved for use by the Canadian River Municipal Water Authority, for control of salt cedar, in and around the stilling basin, below Sanford Dam. If approval for use can be obtained, apply to new growth of salt cedar, using portable sprayers, in areas previously cut and burned.

Research

As management burns are made, collect data on percent of exotics before and after the burn, and use this data for application of management burns at later periods. Collect data to determine the effects of fire on the grassland vegetation and use in conjunction with research obtained in project LAMR N7, Fire as a Management Tool/Grassland Fires. As weed-one is used, collect data on new sprouts before

and after application for future use in other areas of salt cedar concentrations, and collect data on effects on nearby vegetation.

3. Recommended Course of Action

3.1 Cut salt cedar in high visitor use areas and conduct management burns, to eliminate the subsequent fuel hazard. Use herbicide "Weed-one" to eliminate new salt cedar growth, in areas that are cut and burned. Conduct management burns for thistle as correct conditions become available.

4. Requirements to Accomplish Action

4.1 Resource Management Actions

Submit plans for management burns per Fire Management Plan, to SWRO for approval.

4.2 Research

Compile data for submission of Form 10-21a to SWRO, for approval of use of herbicide "Weed-one."

Project Title and Number:

Maintenance of Trees and Shrubs of Visitor Use Areas

LAMR N3

1. Statement of the Problem

High winds, insects and disease damage trees and shrubs in public use and other areas. Some of the damage presents safety hazards to visiting public and employees.

1.1 Background Information

Primary trees species in public use areas include cottonwoods, junipers, and elms. In excess of 1,000 trees exist in LAMR visitor use sites. There are also several native and introduced shrub species common in these areas. The taller growing species, primarily the cottonwoods, receive extensive damage from high winds that are common to this area. The high winds, in combination with disease and insects which attack the cottonwoods, cause damage to the limbs and trunks of the trees. The limbs become cracked and broken and eventually fall to the ground. Heart rot and borers also attack the cottonwoods and weaken and eventually kill the trees. In the past, limbs have fallen across roads, in campsites and other use areas. Bagworms are also a common problem in shrubs and smaller trees.

1.2 Current Management Action

No annual tree maintenance occurs at this time, due to lack of trained personnel and funding. There is no current program to identify and treat problem/hazard trees. Due to agency policy concerning employees climbing trees, no action is taken when hazard trees are identified in use areas, by field personnel. Dangerous limbs are allowed to fall on their own and cleared later.
Efforts have been made to accomplish annual pruning and removal of hazard trees/limbs, through contract work. Local contractors would not bid on the work, however.

1.3 Legal Authority

2, Alternative Actions and Probable Impacts

2.1 No Action

Trees will continue to be lost, due to disease and insects. Visitors will be in danger from falling limbs and trees, in use areas, and along roadways, resulting in injury and possible liability.

2.2 Current Management Action

Hazard trees are identified on a random basis by field personnel.

Limbs are usually allowed to fall naturally and then removed.

2.3 Proposed Action

Update 10-238 to increase base funding to cover annual tree and shrub maintenance. Attempt to get work done on contract basis. Work to include periodic pruning of all trees, treatment of diseased and insect affected trees. Also removal of hazard limbs and trees, when needed. Train staff members to identify and treat hazard trees that require immediate attention to prevent visitor injury.

3. Recommended Course of Action

Submit updated 10-238 to increase base funding to cover annual tree and shrub maintenance.
Establish a periodic survey of all trees in recreation area to identify hazards, diseased trees and insect problems. Also establish periodic maintenance to prune, treat disease and control insects. This maintenance should, preferably, be on a contract basis. Train maintenance personnel to handle hazards that require immediate attention.

4. Requirements to Accomplish Action

4.1 Resource Management Action

Identify and remedy hazards occurring in trees. Treat disease and insects attacking trees. Routinely, prune area trees to avoid possible hazards.

Funding Required: $50,000. recurring.

4.2 Initiate New Maintenance

Routine inspection for disease and insects. Initiate a pruning program. Train key maintenance personnel and initiate contracts for bulk of work.

4.3 Research

Establish inventory of trees in use areas.

Project Title and Number:

Impact of Man on the Ecosystem

LAMR N4

1. Statement of the Problem

Random off-road use, gas pipelines and oil company roads have scarred and will continue to scar the area around and within Lake Meredith Recreation Area.

1.1 Background Information

Unauthorized off-road vehicle use has established many roads throughout the area. Some of the roads serve no practical purpose. High pressure pipeline right-of-ways and random roads, established by gas company drivers, also exist. All of these situations have caused scars on the land and, in most cases, have resulted in minor to severe soil erosion. The establishment of a trail by one vehicle encourages succeeding visitors to follow the trail. This use tends to perpetuate the existence of the road.

1.2 Current Management Action

When manpower is available, abandoned roads are blocked, by barricades and/or signed, and, thereby, allowed to recover.
As roads are identified as serving no function, they are also blocked.
Field Rangers contact unauthorized off-road users and, through a combination of education/enforcement action, attempt to prevent further off-road use.

1.3 Legal Authority

Title 36 CFR 4.19.

2. Alternative Actions and Probable Impacts

2.1 No Action

Roads and pipeline right-of-ways will continue to cause erosion and visual intrusion on the landscape. New roadways will continue to be established.

2.2 Current Management Action

The petroleum industry is still active within the recreation area boundaries. Existing well roads are graded regularly and, occasionally, widened by equipment operators. Occasionally, gas company employees create new roads by driving around bad spots in existing roads. This activity is monitored and companies involved are contacted and asked to correct the problem.
Roads that serve no practical purpose, i.e., dead end roads, several roads to one point, impassable roads, are closed off by blockades

and/or signs, as time permits.
Field personnel use a combination education/enforcement approach during contacts, to try to prevent future unauthorized off-road use.

3. Recommended Course of Action

3.1 Close off all roads with no practical purpose to further vehicle traffic. Take measures to control erosion caused by these roads. Continue contacts with gas companies to gain their cooperation.

4. Requirements to Accomplish Action

4.1 Resource Management Action

Break up and reseed roadbeds that will not reseed naturally, due to compaction and erosion.

4.2 Continue Existing Maintenance

Block roadways with no purpose and repair erosion as it occurs.

Project Title and Number:

Control of Exotic Animals

LAMR N5

1. Statement of the Problem

Free roaming dogs and dog packs enter the area and may endanger visitor safety and health, and wildlife. Occasionally, stray cats will enter the area. Animals are occasionally abandoned in the area.

1.1 Background Information

Domestic dogs and cats, from private property near the areas, are frequently allowed to roam freely. The dogs sometimes enter campgrounds and other visitor use areas. Frequently, the dogs will form packs and roam the area. The problem of free roaming animals has increased, as development near the area boundaries has increased. Occasionally, totally wild dogs and cats will enter the areas and prey on wildlife, as do the domesticated stray animals.

1.2 Current Management Action

When stray animals are observed, they are captured and an attempt is made to locate the owner. If an owner is not found, the animal is turned over to local animal control authorities. Visitors are encouraged to place refuse in receptacles and to not attract dogs and other animals into use areas.
Occasionally, direct reduction is necessary on feral dogs and cats that cannot be caught or trapped.

1.3 Legal Authority

Title 36 CFR 2.8.

2. Alternative Actions and Probable Impacts

2.1 No Action

Exotic animals will continue to roam the area. This will pose a threat to visitor safety and health, from physical attacks and, possibly, tetanus and/or rabies.

2.2 Current Management Action

Stray animals are captured and an attempt is made to locate the owner. If the owner cannot be located, the animal is turned over to local animal control authorities/veterinarians. If exotic species are observed endangering visitors or wildlife, immediate action is taken to eliminate the dangers. Visitors are encouraged to keep pets restrained at all times. Capturing stray animals does present some danger to employees, i.e., bites, scratches, etc. Occasional direct reduction is necessary.

3. Recommended Course of Action

Continue current management action. Initiate public relations program, primarily through newspapers, radio media, to encourage landowners to keep their dogs and cats on private property. Maintain contacts with local health/animal control agencies, to monitor reports of rabies in the area. Provide basic training for all maintenance and Ranger field personnel, in safe and humane animal control procedures.
Contact adjacent landowners, through media articles, to gain assistance in controlling loose pets. Incorporate comments within interpretive programs and visitor contacts, to alert visitors to possible dangers from exotic animals. Also, continue to require visitors to keep pets under restraint while in the area. Capture stray animals, when not too hazardous to employee. Eliminate exotic animals that pose a danger to visitor safety or wildlife.

4. Requirements to Accomplish Action

4.1 Resource Management Action

Capture or otherwise control exotic animals that enter the area and pose a threat to visitor safety and wildlife. The actions will be undertaken after reasonable attempts to locate the animal's owners.

4.2 New Maintenance

Obtain basic training for field personnel in safe and humane animal control procedures.

4.3 Research

Initiate an informal survey by field personnel, to establish numbers of exotic species in the park areas.

4.4 Continue Existing Maintenance

(As listed under 2.2)

Project Title and Number:

Vegetative Cover and Effects of Grazing

LAMR N6

1. Statement of the Problem

A century of grazing, within the recreation area, has resulted in considerable change in the ecosystem. Evidence suggests that continued cattle grazing (three grazing permits are extant) is harmful to the natural vegetation and may be undesirable, in view of the limited acreages involved and the heavy visitor use.

1.1 Background Information

Prior to 1880, this area was open range, occupied by bison and antelope. Cattle ranching began in about 1880, and continues today in selected areas under grazing lease agreements by neighboring ranchers. The impact of intense grazing, prior to establishment of the recreation area, is not fully known. Since the establishment of the grazing lease agreements, information has been obtained through evaluation of the vegetation in cooperation with the Soil Conservation Service, utilizing line transects within the grazing areas.

1.2 Current Management Action

Livestock are currently being excluded from areas of high visitor use, insofar as fencing allows, since their presence is an intrusion on the scene and is not compatible with visitor use. Livestock are restricted to three grazing lease areas with stocking rates determined by evaluation of the vegetation, along line transects within the grazing lease areas. Due to budgetary limitations, the recreation area is not completely fenced in the lease agreement areas and control of stocking rates, in some allotments, is basically thru the "honor system" by the ranchers. Grazing is restricted to the vegetation's dormant part of the year and control over grazing, during the growing season, is maintained by routine area patrols and contacting ranchers when cattle enter the recreation area.

1.3 Legal Authority

2. Alternative Actions and Probable Impacts

2.1 No Action

If no action is taken, cattle would overgraze, which would be detrimental to the environment, allowing for exotic plants to encroach on the area, for water quality to be decreased, and for increased competition with wildlife for the natural vegetation. Conflicts between

livestock and visitors, at the high visitor use areas, would increase.

2.2 Current Management Action

Though current management action lessens the impact on the environment, from past practices, there is still no way in which complete control of the grazing leases can be obtained, due to lack of fencing to the adjoining ranches. The presence of livestock also disturbs the environment by cattle trail scars, which allow for invasion of exotic plants on disturbed areas.

2.3 Eliminate All Grazing Leases

If all grazing leases within the recreation area were eliminated, the cover in the lease areas would be given the chance to recover to its natural state, water quality would increase, and disturbance to the natural scene would be minimized. Competition between wildlife and cattle, and people and cattle, would be eliminated. This action, however, has the potential for strained neighbor relations, due to the fact that the neighboring land owners used the area for grazing, prior to establishment of the recreation area, and have been operating under lease agreement, since establishment of the recreation area. There could also be political ramifications, if leases were eliminated, since this area has, traditionally, been one of cattle ranching.

2.4 Proposed Action

Construct boundary fences, on boundary that lacks fencing, to properly control grazing activities. Utilize research from ALFL N4, to determine pre-grazing vegetative conditions, and to establish benchmarks for a monitoring system that will provide a warning system for vegetative changes. Eliminate grazing where data indicates a need.

3. Recommended Course of Action

3.1 Continue to restrict grazing in the recreation area, thru grazing lease agreements, with stocking rates determined by annual evaluation of vegetation along the line transects in each grazing area. Continue to notify neighboring land owners when they are in violation of grazing rights and seek voluntary cooperation from the landowners. Construct boundary fence to restrict the free flow of cattle into the recreation area. Utilize research obtained from ALFL N4, to establish a monitoring system that will provide a warning system for vegetative changes. Eliminate grazing if data indicates a need.

4. Requirements to Accomplish Action

4.1 Resource Management Actions

Evaluate line transects annually, in cooperation with Soil Conservation Service, and evaluate changes in vegetative conditions, i.e., percent of ground cover, successional patterns, etc., to be utilized in grazing lease agreements.

4.2 New Maintenance

Budget for approximately 60 miles of fencing, to restrict free flow of cattle into the recreation area. Fencing costs equal $6,000. x 60 miles equals $360,000.00.

4.3 Continuing Maintenance

Check fencing and gates, prior to beginning of grazing in the fall, and notify permittees of repairs as needed. Issue grazing leases annually.

4.4 Research

Research to be contracted with a qualified research institution as per ALFL N4.

Project Title and Number:

Fire as a Management Tool/Grassland Fires

LAMR N7

1. Statement of the Problem

Drying of vegetation after the annual rainy season, often results in an abundance of dead grasses and herbs, which constitute a hazard to visitors and visitor use facilities and areas. In the past, it has been the policy to suppress all fires, both man-caused and natural fires.

1.1 Background Information

In September or October, the annual rains often stop and, as the herbaceous vegetation cures, it is susceptible to burning. Hunting season begins during this dry time and the threat of wildfire is present. Fire fighting response is usually from both the National Park Service and the City of Fritch, and, past practices of fire containment often produced more environmental damage than the results of the fire. No data is available on the natural effects of fire, in maintaining the grasslands, but, it seems likely that growth of mesquite and other brushy plants was controlled, in part, by fire. Though the nearby ranch land is often overgrazed, the consequences of a fire spreading from the recreation area onto the ranch land would be difficult to determine. This would be more difficult if the fire was man caused.

1.2 Current Management Action

All wildfire is currently suppressed within the recreation area, utilizing suppression methods, which cause the least amount of damage to the environment. Due to lack of data on the effects of fire, all natural fire is also suppressed. Management burns are conducted within the recreation area for control of exotic plant species (See LAMR N_) and fuel reduction. Fire behavior data is collected on all management burns, as well as pre and post burn fuels data, for evaluation of the use of fire as a management tool. Data is collected on wildfire when feasible.

1.3 Legal Authority

2. Alternative Actions and Probable Impacts

2.1 No Action

If no action were taken, the possibility of tort claims would exist, if fire spread onto the adjacent ranchland, and the destruction of

archeological /historical resources would occur if fire were allowed to burn in these significant areas. Allowing fire to burn, at the wrong time of the year, could result in irreversible damage to the vegetation, with resultant erosion.

2.2 Current Management Actions

Current policy of suppressing all natural fire could result in damage to the resource and disappearance of the historical scene. Data collected on management burns will be utilized, for fire research, into the role of fire in the environment. Data which is collected on wildfires and natural fires will also be utilized for fire research. Management burns are being utilized, to reduce fuels build-up, in and around areas of high visitor use, to decrease the danger of wildfire and to protect real property.

2.3 Proposed Actions

Suppress all wildfire by direct attack, when feasible, when fires have the potential of spreading onto ranch land, or threaten historical resources. Suppress all other wildfire and natural fires, utilizing man-made and natural fire barriers for suppression, and collect fire behavior and environmental data, for research into the effects of fire.

3. Recommended Course of Action

3.1 Continue suppressing all wildfire and natural fires, utilizing man-made and natural barriers, for suppression. Continue to utilize management burns, to reduce fuel buildup. Collect data on all wildfire, natural fire and management burns, to be utilized for research into the role of fire in the environment and, as a management tool.

4. Requirements to Accomplish Actions

4.1 Resource Management Actions

Evaluate environmental conditions in those areas with the potential for wildfire and/or natural fire, with data collected to be utilized for comparison on post-burn research.

4.2 Continuing Maintenance

Utilize management burns to reduce fuel build-up, in areas of high visitor use.

4.3 Research

Submit 10-238 to initiate research into the role of fire in the natural environment, and into the use of fire as a management tool. Research should be directed at answering the following questions: Are periodic fires a normal part of the ecosystem, i.e., are they required for the maintenance of that ecosystem, or for a particular vegetative type within the ecosystem? If so, what is the periodicity of such

fires? What special adaptations are present in such an ecosystem? Can there be too much fire in a fire adapted ecosystem? What is the fire behavior in the ecosystem under varying conditions? Can heat, smoke, etc., from wildfire, damage neighboring plant communities, and, is so, do the benefits outweigh the disadvantages?

Project Title and Number:

Control of Hazardous Animals

LAMR N8

1. Statement of the Problem

Rattlesnakes and skunks are attracted to visitor use areas. They present a danger of venomous bites, and bites and scratches that may transmit tetanus or rabies. Also present in the area are prairie dogs and hispid cotton rats that could possibly serve as carriers of bubonic plague.

1.1 Background Information

Rattlesnakes, skunks, prairie dogs and the hispid cotton rat are all indigenous to the area. Tamarisk and weed species, near visitor use areas, serve as habitat for skunks, snakes and rats.
Skunks and rats are further attracted to refuse near camp and picnic sites. In turn, rattlesnakes enter the areas in search of small prey animals, such as rats and mice. Prairie dogs have established several towns in the area, though they do not normally occur near high use areas.
Though there have been few reported snakebites or wild animal injuries, the potential for injuries still exist. No instances of plague have been reported in the Texas Panhandle. There have been reports of plague cases in Eastern New Mexico.

1.2 Current Management Action

Visitors are encouraged to maintain clean camp and picnic sites, so as not to attract rodents, etc.
Rattlesnakes that are found in high use areas, including NPS facilities, are usually removed from the area. Prairie dog towns are observed for unusual die-offs.
Prairie dog numbers are controlled in a colony near the Ranger Station and maintenance area.

1.3 Legal Authority

2. Alternative Actions and Probable Impacts

2.1 No Action

Failure to remove rattlesnakes from high use (visitor and employee) areas will increase the probability of injury. Increased populations of rodents, prairie dogs and other species, will increase the likelihood of disease within that species.

2.2 Current Management Action

Due to the lack of skills in safe handling of hazardous reptiles by

field personnel, some rattlesnakes found in use areas are killed. Areas are cleared of refuse on a regular basis and visitors are encouraged to maintain clean campsites.
Reptile identification and the safety of visitors are incorporated into interpretive programs and field contacts.

2.3 Proposed Action

Continue current action. Also, allow qualified employees to remove hazardous animals from concentrated use areas. Maintain contacts with public health agencies to keep track of diseases that may occur in local animal populations, i.e., rabies, plague. Make sure field personnel are knowledgeable in identifying indicators of diseased populations.
Control of weed plants, i.e., tamarisks, tumbleweeds, etc., is an important factor in controlling populations of hazardous species near high use areas.

3. Recommended Course of Action

Remove or exterminate hazardous animals as situation dictates. Monitor animal populations, susceptible to disease.
Control populations of these animals in areas where human contact is likely. Control weed plants that provide habitat for hazardous animals.

4. Requirements to Accomplish Action

4.1 Resource Management Actions

Control hazardous animal activity and populations by relocation and/or extermination and control of habitat.

4.2 Continue Existing Action

4.3 Research

Research on control of weed plants that provide habitat is initiated in other projects.

Project Title and Number:

Faunal Factors and Decimation of Wildlife

LAMR N9

1. Statement of the Problem

Some wildlife game species are over-hunted during prescribed hunting seasons and are poached outside of the hunting seasons. Other non-game and protected wildlife forms are wantonly killed.

1.1 Background Information

Hunting is permitted in designated areas, within the recreation area, subject to State and Federal Regulations. Seasons are established for turkey, deer, quail, waterfowl and dove. Hunting pressure is increasingly heavy for deer and turkey, with the hunter success well below 10% for these two species and hunting pressure probably exceeds the carrying capacity for them. A permit system to limit hunting pressure on deer and turkey is needed, although this is not determined from a biological data base. Texas Parks & Wildlife officials have expressed an interest in helping gather a biological data base, to justify a permit system for deer and turkey, but will not help operate such a system. Game species are poached in violation of regulation. In addition, there is wanton killing of non-game species, such as coyote, bobcat and rabbit, and protected species including hawks and songbirds. Limited funds prevent adequate hunter patrols and open entry to hunting areas, along with numerous roads, allow great maneuverability of hunters and poachers. Despite use of a hunting brochure, limits of the hunting areas are not well distinguished, in some areas, due to lack of boundary fencing.

1.2 Current Management Action

Hunting season opening and closing dates, bag and possession limits, and other regulations, are set according to State and Federal regulations.
A special permit system is not in use. Game studies have not been made.
Hunting information is handed out.
As manpower levels permit, hunting and poaching patrols are made during hunting seasons, and at other times, but the patrol level is too low. Rangers cooperate with Texas Parks & Wildlife Game Wardens during hunting patrols.
Counts of hunter success are made for deer and turkey when possible.
Wildlife observation counts are made on a hit or miss basis.
Wildlife related news releases are issued and hunting information disseminated.

1.3 Legal Authority

2. Alternative Actions and Probable Impacts

2.1 No Action

With no action, wanton killing of non-game species will continue, overhunting of deer and turkey will continue, a biological information base will not be gathered and the mandate for management of the areas wildlife would not be fulfilled.

2.2 Current Management Action

Current management action is probably adequate for waterfowl, quail and dove. Overhunting of deer and turkey will continue. Wanton killing of some wildlife forms will continue and confusion as to hunting area boundaries will continue.

3. Recommended Course of Action

Arrange with Texas Parks & Wildlife Biologists to gather wildlife data base at LAMR. Use this information to develop a permit hunting system for deer and turkey, to limit the number of hunters to carrying capacity. Implement the permit system with the assistance of Texas Parks & Wildlife employees.
Develop guidelines and regulations to eliminate or control trapping, including for so-called "varmint" animals, such as coyote. Increase hunting/poaching patrols to control illegal hunting and wanton wildlife killing. Fence unfenced portions of the boundary (see Vegetative Cover and Effects of Grazing, LAMR N6). Increase hunter education efforts.

4. Requirements to Accomplish Action

4.1 Resource Management Actions

Develop permit system for deer and turkey.

4.2 Existing Maintenance/Monitoring

Continue hunter patrols, bag counts for deer and turkey and boundary marking. Work with Texas Parks & Wildlife Game Wardens.

4.3 New Maintenance

Upgrade manpower to increase hunter and poacher patrols.
Increase hunter education efforts.
Fence unfenced areas.
Develop trapping guidelines.

4.4 Research

Contact Texas Parks & Wildlife Biologists and work with them to develop biological data base to justify permit system and limiting number of deer and turkey hunters.

Project Title and Number:

Depletion of Flint and Petrified Wood

LAMR N10

1. Statement of the Problem

Collecting of rocks presents a problem, since Alibates Flint is viewed as a semi-precious stone and is much sought after, by local rockhounds.

1.1 Background Information

Regulations state that in recreation areas, it is permissible to collect small quantities of pebbles or small rocks, by hand. Alibates Flint is much sought after, for cutting and polishing, as is some of the local petrified wood. As long as flint is available in the recreation area, it is felt that there will be less flint depletion in Alibates Flint Quarries National Monument, thereby, protecting that resource. On the other hand, rocks represent a non-renewable resource which must be protected, to the extent of the regulations.

1.2 Current Management Action

Visitors are allowed, by regulation, to pick up a small amount of flint or other rock, by hand. We have further limited this use, by stating that each person may pick up one handful of flint, but no more. As long as people obey this regulation, we have no problem, but, there have been several cases of commercial rock dealers collecting flint and/or petrified wood in large quantities, for resale.

1.3 Legal Authority

1916 Organic Act

2. Alternative Actions and Probable Impacts

2.1 No Action

No action implies letting the visitors pick up all the flint and other rocks they want, excluding only commercial dealers. This is unacceptable since we are enforcing the Organic Act, which states we must leave the area unimpaired for future generations (of rock collectors).

2.2 Current Management Action

Current action allows the visitor to pick up a small amount of rock for his own use, but restricts this collecting to one handful per person. Though this depletes the resource, it does so at a slower rate than if the unlimited collection was allowed. Collection of rocks may, at times, include artifacts made of flint, and this, especially, is hard to control.

2.3 Work with Local Rockhounds to Encourage Support

By working with local clubs and interested individuals, our losses can be minimized, and damage to Indian sites can be lessened.

2.4 Establish Study Plots to Record Rock Depletion

By using this alternative, in conjunction with the above alternative, we can monitor the loss of flint, and, thereby, set further limits if needed.

3. Recommended Course of Action

3.1 Continue allowing the collection of a small amount of flint and petrified wood, by hand, discouraging commercial use and artifact collection. Give talks to rockhounds and other interested groups as the opportunity arises. If flint depletion seems to be increasing, establish plots and make active efforts to contact rock clubs.

4. Requirements to Accomplish Action

4.1 Research

Research would consist of study plots set up by the local staff, and the major cost would be film and development.

4.2 Continuing Maintenance

Visitors will continue to pick up flint, and the park staff must continue to monitor this collecting to ensure that it doesn't get out of hand.

4.3 New Maintenance - None

Project Title and Number:

Chemical Pollutants

LAMR N11

1. Statement of the Problem

There is a continued potential for adverse effects upon the area's flora and fauna, caused by the drift of agricultural chemicals from adjacent private ranch lands. When such pollution occurs, action should be taken to identify and eliminate the source.

1.1 Background Information

Local ranchers are aerially spraying herbicides (2, 4, 5-T and Tordon) on grazing lands to kill mesquite. Aerial spraying of insecticides on pastures, for grasshopper control, is also a common practice. Average wind velocity in this locality is 12.5 MPH (20 km/hr) with frequent prolonged velocities up to 30 MPH (48 km/hr).
It seems likely that residues from these aerial applications are entering the recreation area, through drift and run-off, affecting water quality, and entering the food chain of area wildlife. Several species may be threatened. Golden and bald eagles and osprey winter and/or migrate through the area, and fish are a recreational resource, as well as a food source. The primary purpose for the impoundment of water at Lake Meredith was to provide a public water supply for the eleven member cities of the Canadian River Municipal Water Authority.

1.2 Current Management Action

NPS officials maintain close communication and cooperation with the Canadian River Municipal Water Authority, the primary agency involved in protecting water quality at Lake Meredith.

1) The two agencies cooperate in conducting water quality studies, with samples collected by both agencies for analysis by CRMWA. Results of the studies are shared by the two agencies.

2) Prompt notification occurs between the two agencies when evidence of chemical pollution is observed, and mutual assistance is given during investigations conducted to determine the source of the pollution.

3) Communications are maintained with adjacent ranchers to encourage aerial spraying when there are no winds or when winds will carry chemicals away from the lake.

1.3 Legal Authority

2. Alternative Actions and Probable Impacts

2.1 No Action

Selection of this alternative would leave the entire burden of detecting, correcting and preventing all chemical pollution problems to CRMWA. Such activities would continue to be carried out, due to the critical need to deliver high quality water to CRMWA's member cities. A lack of willingness to assist would set a poor precedent for cooperation between the two agencies, however, and working relationships would be adversely affected.

2.2 Continue Current Management Action

Such action would continue present joint efforts to detect, investigate and alleviate chemical pollution problems through cooperation in field observations, sampling techniques and education programs. It would recognize CRMWA as the lead agency in these activities, with the NPS serving in an assisting role.

2.3 Investigate Potential Problems

Investigate (through Regional Office assistance) potential problems that may develop from spraying of chemicals on adjacent lands. Such actions should be carried out in close cooperation with CRMWA, to expand present joint efforts and avoid duplication of effort.

2.4 Develop Joint Procedures

Develop jointly, with CRMWA, procedures under which other State and Federal environmental protection agencies might be called upon to assist, including the conditions under which such assistance might be necessary, and the capabilities and proper roles of these agencies.

3. Recommended Course of Action

3.1 Continue Current Management Action

This action will continue present monitoring procedures, to detect any problems which may occur, continue present public education efforts, maintain cooperation with CRMWA, and avoid duplication of efforts.

3.2 Investigate Potential Problems

Research designed to identify potential problems will allow quicker recognition of the problems if, and when, they should occur.

3.3 Develop Joint Procedures

Development of contingency plans for dealing with chemical pollution hazards will allow quicker implementation of procedures for eliminating them.

4. Requirements to Accomplish Action

4.1 Research

Consultation with SWRO, CRMWA and other State and Federal environmental protection agencies.

4.2 Continue Existing Maintenance

Continue present field observations, sampling procedures, and communications with CRMWA.

4.3 New Maintenance

Consultation with CRMWA concerning methods to be used and proper roles of all agencies involved in mitigation efforts.

Project Title and Number:

Adverse Effects of Neighboring Real Estate Development

LAMR N12

1. Statement of the Problem

Developments along the recreation area boundary must be constantly monitored for encroachment and for roads that appear from landowners gaining access into the area, from their lands. Ingress and egress is blocked in some places that have potential for public use. Septic tanks and trash disposal/dumping at these developments may be a threat to water quality of the lake.

1.1 Background Information

The recreation area is totally bordered by private lands, and portions of these private lands, on the lower end of the lake, have been developed for housing projects and resort areas. Presently, four developments, Arrowhead, Double Diamond Estates, Lake Meredith Harbor and Sanford Estates, exist on the south side of the lake, and two developments, Bugbee Shores/Bugbee Heights and Retreata del Plano, exist on the north side of the lake. With the influx of many people into the Panhandle area during the past year, because of new construction, some of these areas have seen increased development where, previously, little or no development existed.

1.2 Current Management Action

Current actions support any moves by CRMWA, seeking County zoning, to ensure orderly development on lands around the lake and to maintain water quality for recreational use. Checks are periodically made of the boundary to prevent encroachment and to detect new roads. Any sightings made of trash that has been dumped in drainages, which lead to the lake, are reported to CRMWA.

1.3 Legal Authority

2. Alternative Actions and Probable Impacts

2.1 No Action

If no action was taken, encroachment onto recreation area lands would occur, which would decrease the already limited land available for public use. Increased development would result in the probability of detrimental land alteration, increased erosion and a decrease in the water quality.

2.2 Current Management Action

Current actions provide surveillance of boundary lines to prevent encroachment, but, due to boundary marking inadequacies, is overly time consuming, to ensure encroachment is kept in check. Due to decreases in available personnel over the past few years, it has become increasingly difficult to provide proper protection to the environment, against the indiscriminate use of motor vehicles entering the area from private land and off of established roads. Due to the fragility of the ecosystem, the scars left by this vehicle use are slow to heal.

2.3 Proposed Action

Construct fence along the boundary to prevent encroachment and off-road use of motor vehicles, with entrances into the area limited to already existing roadways. Work with developers to seek cooperation in using wise land management practices to reduce irreparable environmental damage. Work with CRMWA and County officials to reduce unauthorized dumping of trash on lands adjacent to the recreation area, in order to maintain water quality.

3. Recommended Course of Action

Continue to support CRMWA actions that seek County zoning for orderly development of adjacent lands. Construct fence on the boundary to provide better control of uses within the recreation area and to prevent encroachment and environmental damage. Work with CRMWA in providing developers with information on land practices, which are least damaging to the land and water quality. Continue boundary patrols to detect trash dumping in drainages, which lead to the lake.

4. Requirements to Accomplish Action

4.1 Continuing Maintenance

Continue to monitor the boundary for control of encroachment, off-road use of vehicles and trash dumping.

4.2 New Maintenance

Construct boundary fence. Meet with land developers, to discuss new development and to establish a system of information exchange for environmentally sound land developments.

Project Title and Number:

Gas and Oil Extraction and Development

LAMR N13

1. Statement of the Problem

Gas and oil facilities exist in and near the recreation area. Mineral rights were not acquired by the Bureau of Reclamation when lands for Lake Meredith were purchased. New pipeline construction and other development may be proposed in the future.

1.1 Background Information

The petroleum industry has been active in the Texas Panhandle since the early 1920's. Existing wells, transmission lines, cleaning facilities, booster stations, meter houses and access roads have been built in and near the recreation area, and there is the possibility that others could be constructed in the future. Since the mineral rights still belong to the petroleum industry, it is possible that they might propose new wells and facilities within the recreation area

1.2 Current Management Action

Management currently monitors all gas and oil extraction activities within the recreation area. Companies are required to file a plan of operations with the National Park Service before beginning a new facility, but operations within present facilities are exempt from this regulation.

1.3 Legal Authority

Title 36 CFR Part 9.

2. Alternative Actions and Probable Impacts

2.1 No Action

No action would be unacceptable, since it has been shown in the past that this course of action allows the oil and gas companies to move in as they please and build where they see fit, resulting in grave environmental damage.

2.2 Current Management Action

If current action is continued, the petroleum industry will be controlled to a certain extent, within the boundaries of the recreation area, because of the Minerals Management Regulations. However, operations within existing facilities will continue to be exempt from these regulations.

2.3 Proposed Action

Develop lists and maps of all existing gas and oil facilities in and

immediately adjacent to the recreation area, with a listing of owners and operators of these facilities. Maintain a close working relationship with these companies to ensure we are notified when changes are made to current operations. Monitor existing facilities to ensure that the area near the facilities is not being damaged.

3. Recommended Course of Action

3.1 Continue to monitor present activities of the petroleum industry. Develop lists and maps of operations within and near the recreation area. Ensure that companies adhere to Minerals Management Regulations prior to establishing any new facility, or modifying existing facilities. Monitor effects of these operations on the surrounding environment. Establish position for Resources Management Specialist when ceilings permit.

4. Requirements to Accomplish Action

4.1 Continued Maintenance

Monitor ecological damage done by oil and gas companies within the area.

4.2 Research

Establish test plots to determine if oil and gas activities are causing excessive disturbance to the environment, and how these developments have influenced the vegetation structure.

Project Title and Number:

Off-Road Vehicle Use

LAMR N14

1. Statement of the Problem

ORV use is damaging or destroying archeological sites, vegetative cover, soils and animal life.

1.1 Background Information

ORV use, in the Canadian River bed, predates the establishment of Lake Meredith Recreation Area. This use continued after the recreation area was established and was made legal by the designation of off-road use areas, Rosita and Blue Creek (36 CFR 7.57). Severe damage to soils and vegetation, and resultant erosion, has occurred within these areas. Damage to a lesser extent has occurred in other portions of the recreation area, due to illegal ORV use outside the off-road use areas. Several archeological sites have been damaged, both within and outside the ORV areas. Noise pollution and conflicts with other types of recreational users have also been problems.

1.2 Current Management Action

Current action can be divided into four categories:

1) Rangers on patrol attempt to explain and enforce ORV regulations.
2) Educational releases to the news media increase public awareness of the problem as part of a visitor education program to inform the public of the desirability of keeping motor vehicles on established roadways and/or within the established ORV areas.
3) Contacts with area ORV clubs are made, to encourage a greater voluntary compliance, in restricting use to the approved ORV areas.
4) A salvage excavation is being done at the archeological site in greatest danger of damage by ORV use, and stream erosion by the Canadian River.

1.3 Legal Authority

Title 36 CFR 7.57
Title 36 CFR 2.20
Archeological Resources Protection Act of 1979

2. Alternative Actions and Probable Impacts

2.1 No Action

Illegal ORV use would increase. There would be an acceleration in environmental damage, both within and outside the designated ORV areas. Visitor conflicts would increase. Greater vandalism would occur at archeological sites.

2.2 Continue Current Management Action

Environmental damage, visitor conflicts and damage to archeological sites would continue at present rates.

2.3 Increase Base Funding for Increased Patrols

Increased patrol coverage would lower the frequency of off-road use violations, accidents and vandalism to archeological sites. More educational contacts could be made with ORV users in the area, and more PR contacts could be made with ORV clubs.

2.4 Conduct Additional Salvage Operations

Conducting salvage excavations at those archeological sites, obviously being lost, would save artifacts which will otherwise be irretrievably lost.

3. Recommended Course of Action

3.1 Continue Current Management Action

Continue current enforcement and education efforts as funding permits, to minimize detrimental effects as much as possible.

3.2 Seek Additional Funding for Increased Patrols

Law enforcement patrols and educational efforts should be increased when additional funding is available.

3.3 Conduct Additional Salvage Operations

Salvage excavations at a second archeological site in imminent danger, should be conducted when funding permits.

4. Requirements to Accomplish Action

4.1 New Maintenance

Submit 10-237 to justify increase in base funding for one additional GS 5 Park Ranger:

Salary costs - $15,000.
Support costs - $10,000.
Additional Salvage Operations - $30,000. to cover salary, equipment and contracting costs.

IV. ENVIRONMENTAL ASSESSMENT

A. Finding of No Significant Impact

Determination

It is determined that all actions outlined above are maintenance, monitor or research in character, and do not significantly affect the environment or cause controversy. Some projects will require a consultation in compliance with section 106 of the National Historical Preservation Act.

Therefore, in accordance with guidelines, NPS 12, Chapter 3, Page 6, concerning the preparation and review of environmental assessments.

NO ENVIRONMENTAL ASSESSMENT WILL BE PREPARED

Recommended by: Milford Fletcher 1/10/83
Chief, Division of Natural Recource Management Date

Recommended by: Richard W. Sellars 1/17/83
Chief, Southwest Cultural Resources Center Date

Concurred by: Jack Neuhuber 1/12/83
Associate Regional Director, Operations Date

Concurred by: Acting Thomas W. Lucke 1/19/83
Associate Regional Director, Planning & Cultural Resources Date

Approved by: Robert L. Kerr 1/18/83
Regional Director, Southwest Region Date

ENVIRONMENTAL ASSESSMENT MATRIX

Project Statement Title: Archeological Survey of Lake Meredith Recreation Area
LAMR C1

NEED FOR PROPOSAL: An Archeological Survey of Lake Meredith Recreation Area has not been accomplished and is necessary for Management Purposes, both in Planning and in Protection of Archeological Resources

* Denotes Current Management Action

Alternative Actions / Impact Categories	PROPOSED ACTION	NO ACTION 1	* ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4	ALTERNATIVE 5
	Archeological Survey Including Testing	No Survey Conducted	List Sites as Current Staff Locate, During Other Duties			
Water	Testing will be away from water	No effect	No effect			
Soils	Some disturbance to soil will occur but no significant impact	No effect	No effect			
Flora	Minimal disturbance	No effect	No effect			
Fauna	No significant disturbance	No effect	No effect			
Cultural Resources	Location and protection of all cultural remains	Many sites will not be located and may be lost	Some sites located - hit and miss			
Cost	Contract with research institution	Loss of resource	Existing staff			
Visitor Use	Gives more data for use in programs	Loss of information for use in visitor programs	Some loss of visitor information			

ENVIRONMENTAL ASSESSMENT MATRIX

Project Statement Title: Archeological Collecting
LAMR C2

NEED FOR PROPOSAL: Illegal Potting of Sites is Occurring Throughout Lake Meredith Recreation Area

*Denotes Current Management Action

Alternative Actions / Impact Categories	PROPOSED ACTION	NO ACTION 1	* ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4	ALTERNATIVE 5
	Increased Patrols, Media Coverage	No Patrols or Media Coverage	Continue Infrequent Patrols as Funding Permits			
Water	Quality improved	Continued deterioration	Continued deterioration			
Soils	Quality improved	Continued deterioration	Continued deterioration			
Flora	Quality improved	Continued deterioration	Continued deterioration			
Fauna	Quality improved	Continued deterioration	Continued deterioration			
Cultural Resources	Protected	Some loss and damage	Some loss and damage			
Coat	Increased personnel cost	lost resource	Lost resource			
Visitor Use	Resource protected	Interpretive information lost	Interpretive information lost			

ENVIRONMENTAL ASSESSMENT MATRIX

Project Statement Title: Wave Action on Archeological Sites
LAMR C3

Archeological Sites Exist that are Being Threatened and Damaged by Wave Action from Water of Lake Meredith. Sites Need to be Fully Identified and Some Salvaged.

*Denotes Current Management Action

Alternative Actions / Impact Categories	PROPOSED ACTION	NO ACTION 1	* ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4	ALTERNATIVE 5
	Document Threatened Sites Thru Survey. Salvage Important Ones	Sites Left to Wave Action Destruction	Sites Identified by Existing Staff as Time Permits. Few Sites Salvaged			
Water	No effect	All resources effected by rising lake level	No effect			
Soils	Slight damage in salvage areas	Resources lost by rising lake level	No effect			
Flora	Slight damage in salvage areas	Resources lost by rising water	No effect			
Fauna	No damages	Some loss	No effect			
Cultural Resources	Lost, if not identified and salvaged	Resource lost	Many cultural resources lost			
Cost	Cultural resource lost. Salary for perm. archeologist	Resource lost	Resource lost			
Visitor Use	Restricted use to salvage areas while work in progress	Resource not available	No effect			

ENVIRONMENTAL ASSESSMENT MATRIX

Project Statement Title: Inadequate Collection Storage
LAMR C4

Problem Statement: Collections are Subject to Deterioration and Loss, Due to Inadequate Curation

*Denotes Current Management Action

Alternative Actions / Impact Categories	PROPOSED ACTION	NO ACTION 1	* ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4	ALTERNATIVE 5
	Provide Future Storage and Train Personnel	No Storage Provided - No Training	Inadequate Storage - Some Training			
Water	No immediate effect	No effect	No effect			
Soils	No effect	No effect	No effect			
Flora	No effect	No effect	No effect			
Fauna	No effect	No effect	No effect			
Cultural Resources	Properly cared for and at times displayed	Collections will deteriorate	Some collections properly stored, most not			
Coat	Training for one or more persons. Cabinets.	Conditions of resources	Some artifact deterioration and loss			
Visitor Use	Displays will have excellent artifacts	Poor displays due to poor artifacts	Poor displays due to poor artifacts			

ENVIRONMENTAL ASSESSMENT MATRIX

Project Statement Title: Historic Resources
LAMR C5

[illegible]: Foundations of Historic Structures Exist. Some Are Identified and Plotted. One Significant Structure, the McBride House, Has Been Restored.

* Denotes Current Management Action

Alternative Actions / Impact Category	PROPOSED ACTION	NO ACTION 1	* ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4	ALTERNATIVE 5
	Stabilize Existing Structures at Current Stage. Tours to McBride House	Existing Sites Deteriorate & McBride House Not Interpreted	Identify Cultural Sites as Time Permits. Repairs to McBride House			
Water	No effect	No effect	No effect			
Soils	No effect	No effect	No effect			
Flora	No effect	No effect	No effect			
Fauna	No effect	No effect	No effect			
Cultural Resources	Cultural resources saved and interpreted	Cultural resources lost and not interpreted	Cultural resources lost - McBride House somewhat protected and maintained Some cultural resources lost			
Cost	Increased personnel cost	Resource lost				
Visitor Use	Able to enjoy historic resources	No enjoyment of cultural resources	Little interpretation available at McBride House. Other sites not known to visitor			

ENVIRONMENTAL ASSESSMENT MATRIX

Project Statement Title: History of Petroleum Industry and Its Impact on LAMR
LAMR C6

Issue or Problem: Oil and Gas Activities Have Had a Profund Impact on Lake Meredith Recreation Area and the Surrounding Area. This Influence is Continuing and Requires Interpretation

* Denotes Current Management Action

Alternative Actions / Impact Categories	PROPOSED ACTION	NO ACTION 1	* ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4	ALTERNATIVE 5
	Research on History of Gas and Oil Industry. Cooperate w/Industry in Joint Interpretation	No Interpretation of Gas and Oil Activities	Minimum Verbal Interpretation of Gas and Oil Activities			
Water	No effect	No effect	No effect			
Soils	No effect	No effect	No effect			
Flora	No effect	No effect	No effect			
Fauna	No effect	No effect	No effect			
Cultural Resources	No effect	No effect	No effect			
Coat	Research cost of cooperative displays & exhibits w/private industry	Knowledge of gas & oil history not obtained	Knowledge of gas & oil history not obtained			
Visitor Use	Enhanced by greater knowledge of gas and oil activities	Desired visitor information lost	Desired visitor information lost			

ENVIRONMENTAL ASSESSMENT MATRIX

Project Statement Title: Study of History of Area Ranching
LAMR C7

[illegible]: Ranching Began in this Vicinity of LAMR in 1880's and is Important in the Area Today. Interpretive Information on Ranching History and Current Ranching Operations is Lacking.

* Denotes Current Management Action

Alternative Actions / Impact Categories	PROPOSED ACTION	NO ACTION 1	* ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4	ALTERNATIVE 5
	Research on History of Area Ranching. Incorporate in Interpretive Message	No Research on History of Ranching. No Interpretive Message	History of Ranching Gathered as Time Allows. Used in Verbal Inter. Message			
Water	No effect	No effect	No effect			
Soils	No effect	No effect	No effect			
Flora	No effect	No effect	No effect			
Fauna	No effect	No effect	No effect			
Cultural Resources	Enhance interpretation of McBride House	Interpretive story of McBride House limited	Limited information on McBride House available			
Cost	Research costs	Information on ranching history lost	Historical information lost			
Visitor Use	Enhanced by receiving information on area ranching and history	Desired visitor information lost	Desired visitor information limited			

ENVIRONMENTAL ASSESSMENT MATRIX

Project Statement Title: Incomplete Natural Resources Basic Inventory
LAMR N1

NEED FOR PROPOSAL: A complete inventory is necessary for wise management and future planning.

*Denotes Current Management Action

Alternative Actions / Impact Categories	PROPOSED ACTION	NO ACTION 1	* ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4	ALTERNATIVE 5
	Develop Natural Resources Basic Inventory	Leave Natural Resources Basic Inventory as at Present	Do a Partial Natural Resources Basic Inventory as time allows.			
Water	Complete the Water Inventory	Use available Topography Maps	Use available Topography Maps			
Soils	Complete the Soils Inventory	Use available County Studies	Use available County Studies			
Flora	Complete and Compile Flora list	No complete list of plants available	Complete and compile lists			
Fauna	Complete and Compile Fauna list	No complete list of fauna available	Complete and compile lists			
Cultural Resources	Complete and Map all Sites	Current maps and site data incomplete	Complete survey and map sites			
Cost	High at first but will aid budget in future	Long term cost high, since sites disappear	Intermediate costs, but some not done			
Visitor Use	Will show where major points of use are	Estimate use from present figures	Do a partial study			

ENVIRONMENTAL ASSESSMENT MATRIX

Project Statement Title: Control of Exotic Plants
LAMR N2

NEED FOR PROPOSAL: Salt Cedar and Russian Thistle present a visual intrusion. Dry Salt Cedar wastes water. Dry Russian Thistle is a fire hazard

*Denotes Current Management Action

Alternative Actions / Impact Categories	* PROPOSED ACTION	NO ACTION 1	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4	ALTERNATIVE 5
	Continue Control by Infrequent Hand Removal and Control Burning	Stop Control and Let Nature Set Limits	Step Up Control with Heavy Machinery			
Water	Small amount of water pollution due to erosion	Salt Cedar uses more water	Water pollution increases			
Soils	Decline slightly and then improve	Continue to decline	Erode heavily			
Flora	Recovers as the exotics are removed	Crowded out by exotics	Destroyed by heavy equipment			
Fauna	Improves as native flora returns	Restricted in areas where exotics grow	Leave area of less flora			
Cultural Resources	Not damaged by hand labor	Hidden by exotic growth	Likely damaged accidently by equipment			
Cost	Salaries of laborers and mileage	Highest to the resource	High to both park budget and resources.			
Visitor Use	Improves with removal of exotics in use areas	Made more difficult	Camping spots easily accessible, scenery less natural			

ENVIRONMENTAL ASSESSMENT MATRIX

Project Statement Title: Maintenance of Trees and Shrubs at Visitor Use Areas
LAMR N3

NEED FOR PROPOSAL: High winds damage trees, especially Cottonwoods, creating visitor hazard.

*Denotes Current Management Action

Alternative Actions / Impact Categories	PROPOSED ACTION	NO ACTION 1	* ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4	ALTERNATIVE 5
	Develop Maintenance of Trees and Shrubs on an Annual Basis	Discontinue Maintenance of Trees and Shrubs	Maintain Trees on Hit or Miss Basis			
Water	No damage	Large limbs fall in creek	No damage			
Soils	No damage	Build up faster	No damage			
Flora	No damage - Trees at visitor use areas improved or removed	Trees remain unpruned and suffer	Some trees at visitor use areas removed or improved			
Fauna	No damage	Wildlife such as rats and mice increase	No damage			
Cultural Resources	No damage	No damage	No damage			
Cost	Salaries of laborers and mileage	Long term due to tree replacement at frequent intervals	Base cost			
Visitor Use	Improved by removing hazards	Damaged by unsightly and hazardous trees	Visitor hazard continues as entire hazard not removed			

ENVIRONMENTAL ASSESSMENT MATRIX

Project Statement Title: Impact of Man on the Ecosystem
LAMR N4

NEED FOR PROPOSAL: Random roads, Abandoned Roads and Pipeline Scars cause erosion and visually impair the Environment.

*Denotes Current Management Action

Alternative Actions / Impact Categories	* PROPOSED ACTION	NO ACTION 1	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4	ALTERNATIVE 5
	Sign and/or Barricade Unneeded Roads and Reseed Roads and Pipelines	Let Roads and Pipelines Develop as Happens				
Water	Improves as erosion declines	Erosion drops water quality				
Soils	Restored	Erosion is hastened				
Flora	Restored	Disappears				
Fauna	Recovers	Declines				
Cultural Resources	No further damage	Highly impacted				
Cost	Minimal by Park Service	Greatest in resource damage				
Visitor Use	Restricted	Visitor caused resource damage				

ENVIRONMENTAL ASSESSMENT MATRIX

Project Statement Title: Control of Exotic Animals
LAMR N5

NEED FOR PROPOSAL: Dog Packs Occasionally Roam the Area and May Threaten Visitors Safety

* Denotes Current Management Action

Alternative Actions / Impact Categories	* PROPOSED ACTION	NO ACTION 1	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4	ALTERNATIVE 5
	Inform Visitors and Restrict Animals. Destroy Animals that Cannot Be Captured	Let Dogs Roam At Will				
Water	No damage	Water quality goes down				
Soils	No damage	Soil is polluted				
Flora	No damage	Plant may be destroyed				
Fauna	No damage	Harrassed by dog packs				
Cultural Resources	No damage	Dogs may dig in ruins.				
Coat	Minimal. May affect NPS image w/park neighbors	High to the re-resources				
Visitor Use	Threatened by animals, but may report any contact	Threatened by dogs, and by diseases from dogs				

ENVIRONMENTAL ASSESSMENT MATRIX

Project Statement Title: Vegetative Cover and Effects of Grazing
LAMR N6

NEED FOR PROPOSAL: Cattle Grazing May be Damaging the Natural Vegetation

* Denotes Current Management Action

Alternative Actions / Impact Categories	PROPOSED ACTION	* NO ACTION 1	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4	ALTERNATIVE 5
	Research on Effect of Grazing. Better Control Existing Grazing Thru Fence Construction	Allow Grazing To Continue As Is With No Change	Discontinue All Grazing			
Water	No damage	Water polluted	Water quality improves			
Soils	No damage	Cattle trails cause erosion	Soils recover			
Flora	No lasting damage	Selectively damaged by grazing	Flora returns			
Fauna	No damage	Cows take food from native species	Fauna recovers			
Cultural Resources	No damage	Trails thru archeological sites	No further damage			
Coat	Contract with research institution	High to the resource	Minimal to budget. Loss of rapport with park neighbors			
Visitor Use	No effect	Impaired by cattle in the camping grounds	Improved			

ENVIRONMENTAL ASSESSMENT MATRIX

Project Statement Title: Fire as A Management Tool/Grassland Fires
LAMR N7

NEED FOR PROPOSAL: Not Enough is Known About the Consequences of Controlled Burning in our Area.

*Denotes Current Management Action

Alternative Actions / Impact Categories	PROPOSED ACTION	NO ACTION 1	* ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4	ALTERNATIVE 5
	Research Use of Fire as a Management Tool at LAMR	Continue to Let Fuel Build Up	Suppress Wildfires and Conduct Management Burns when Possible			
Water	Quality improves during test burns according to CRMWA	No damage	No effect or improves			
Soils	No damage	No damage	No effect or improves			
Flora	Native plants are fire resistant. Exotics may be damaged	Exotics may move in and crowd native plants	Improve native flora			
Fauna	Slight reduction at time of burn, increase later	Rats and mice increase danger of plague	Improve native fauna			
Cultural Resources	Minimal damage by fire. Fire lines may cause damage	No damage. May cover some sites	No damage			
Cost	High at first. Lessens as effects are learned	High in case of accidental fire	Cost of conducting suppression and management fires			
Visitor Use	May impair visitor use temporarily, but in the long run will improve use.	Restricted by rampant growth of weeds and woody exotics	May be temporarily impaired			

ENVIRONMENTAL ASSESSMENT MATRIX

Project Statement Title: Control of Animals that May be Hazardous to the Public
LAMR N8

NEED FOR PROPOSAL: Some Resident Animals, such as Rattlesnakes, Skunks and Rodents may Threaten Visitor Safety.

*Denotes Current Management Action

Alternative Actions / Impact Categories	* PROPOSED ACTION	NO ACTION 1	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4	ALTERNATIVE 5
	Remove Problem Animals and Educate Public	Allow Animals to Roam Freely	Kill Rattlesnakes and Skunks on Sight			
Water	No effect	No damage	No effect			
Soils	No effect	No damage	No effect			
Flora	No effect	No effect	No effect			
Fauna	May change distribution patterns	Rattlesnakes killed by visitor	Cuts down the population of rattlesnakes, more rats & mice			
Cultural Resources	No effect	Little effect	No effect			
Coat	Minimal	None	Minimal			
Visitor Use	Improves area for visitors	Brings visitors into contact with noxious animals	Improves area for visitors afraid of snakes Greater chance of disease from mice and rats			

ENVIRONMENTAL ASSESSMENT MATRIX

Project Statement Title: Faunal Factors/Decimation of Wildlife
LAMR N9

NEED FOR PROPOSAL: The Area's Wildlife is Currently Not Managed, although Hunting is Permitted

*Denotes Current Management Action

Alternative Actions / Impact Categories	PROPOSED ACTION	NO ACTION 1	ALTERNATIVE 2	* ALTERNATIVE 3	ALTERNATIVE 4	ALTERNATIVE 5
	Develop Research and Permit System for Deer and Turkey	Allow Hunting Anytime with TP&WL Controlling All Aspects	Stop All Hunting	Maintain Status Quo with Hunting in Some Areas, as per/ State & Fed. Reg/		
Water	No damage	No damage	Water qualities will improve	Little damage		
Soils	No damage	Possibly compacted during peak	Soils improve	Little damage		
Flora	No damage	Plants trampled	Flora would reach an optimum level	Some damage		
Fauna	Wildlife may decline during study	Overhunting may result	Wildlife will recover	Deer and turkey over-hunted		
Cultural Resources	Archeological sites damaged by Hunters	High impact on cultural areas	Impact on the cultural areas will be reduced	Some damage		
Cost	Contract with research institution	By TP&WL	Cost will increase in visitor complaints	Base		
Visitor Use	Hunters continue using area as they currently do	Hunting will increase, and especially illegal hunting	Visitors will not be able to hunt and will cause more vandalism	Current or increased hunter use		

ENVIRONMENTAL ASSESSMENT MATRIX

Project Statement Title: Depletion of Flint and Petrified Wood
LAMR N10

NEED FOR PROPOSAL: Alibates Flint and Petrified Wood are Favorites with Rockhounds. A Method must be found to Conserve the Flint so that Future Generations will also have Access to this Resource

*Denotes Current Management Action

Alternative Actions / Impact Categories	* PROPOSED ACTION	NO ACTION 1	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4	ALTERNATIVE 5
	Limit Visitors To One Handful of Flint	Work with Local Rockhounds to Encourage Support	Establish Study Plots to Record Rock Depletion	Allow Visitors to Pick Up All the Rocks They Want		
Water	No effect	No effect	No effect	Water quality goes down		
Soils	May expose small areas of soil to erosion	Will aid in slowing erosion	Will monitor soil erosion	Erosion increases		
Flora	May trample some plants	Will help preserve plants	Will monitor plant destruction	Plants trampled and uprooted		
Fauna	No damage	No damage	No effect	Animals suffer		
Cultural Resources	May allow visitors to pick up artifacts accidentally	Will inform of potential site loss	May monitor cultural sites	Cultural resources damaged		
Cost	Minimal	Manpower to go to rockshows, etc	Film, manpower, and developing	Highest cost to the resources		
Visitor Use	Enhanced by having a souvenir of the lake	Rockhounds better understand the value of the resource	No effect	Non-rockhounds will find the area less inviting		

ENVIRONMENTAL ASSESSMENT MATRIX

Project Statement Title: Adverse Effects of Chemical Pollutants from Adjacent Lands
LAMR N11

NEED FOR PROPOSAL: Water Quality and Wildlife may be Damaged by Chemical Pollutants from Adjacent Lands

*Denotes Current Management Action

Alternative Actions / Impact Categories	* PROPOSED ACTION	NO ACTION 1	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4	ALTERNATIVE 5
	Continue Research and Maintenance. Cooperate with CRMWA	Allow Spraying as Needed by Anyone	Ban Spraying On Lands Adjacent to the Lake			
Water	Water will be monitored to ensure quality	Water quality will decline	Water quality will improve			
Soils	No monitoring will be undertaken	Soil will become polluted	Soil will improve			
Flora	If spraying is allowed to keep on, the flora will suffer	Plants will suffer	Plants will thrive			
Fauna	If spraying is allowed, fauna will suffer	Animals, especially endangered species, will suffer	Animals will be protected			
Cultural Resources	No effect	No effect	No effect			
Cost	Minimal as this is a cooperative study	Cost in human and natural resources	Loss of rapport with park neighbors			
Visitor Use	No effect as long as water quality is monitored	Restricted and possibly in danger	Park visitors will be safe			

ENVIRONMENTAL ASSESSMENT MATRIX

Project Statement Title: Neighboring Real Estate Development
LAMR N12

NEED FOR PROPOSAL: Real Estate Development is Occurring Adjacent to the NPS Boundary Line in Six Different Locations

*Denotes Current Management Action

Alternative Actions / Impact Categories	PROPOSED ACTION	NO ACTION 1	* ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4	ALTERNATIVE 5
	Cooperate with CRMWA in Notification and Encroachment. Patrol and Construct Fence	No Patrols or Enforcement	Patrols as Time Permits. Notify CRMWA of Violations			
Water	Improve quality	Increased pollution	Possible increased pollution			
Soils	No effects	Increased erosion	Some increased erosion			
Flora	No effect	Increased vegetation destruction	Some destruction			
Fauna	No effect	Some animals driven from the area	Some animals driven from the area			
Cultural Resources	No effect	No effect	No effect			
Cost	Increased cost and protection	No cost, little protection	Some cost, some protection			
Visitor Use	No effect	Impair visitor enjoyment	Some impairment to visitor enjoyment			

ENVIRONMENTAL ASSESSMENT MATRIX

Project Statement Title: Gas and Oil Extraction and Development
LAMR N13

NEED FOR PROPOSAL: Existing Oil and Gas Wells, in Developed Areas, cannot be Removed until they stop producing, but Exploration and Installation of New Wells will be an Intrusion.

* Denotes Current Management Action

Alternative Actions / Impact Categories	PROPOSED ACTION	NO ACTION 1	* ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4	ALTERNATIVE 5
	Keep Close Contact with Gas Companies and Prepare May of Facilities, Hire RM Specialist	Do Not Monitor Gas Companies or Their Activities	Continue to Check Proposed Development Sites as Brought to Our Attention. Enforce 36 CFRPart 9			
Water	No damage	Badly polluted from numerous sources	Polluted and silted			
Soils	No damage	Erosion of soil common and extreme	Destroyed in areas of operation			
Flora	No effect	Plants torn out and crushed	Exotics encouraged around drill sites			
Fauna	No effect	Animals driven from areas	Animals reduced in number			
Cultural Resources	Protects resources by knowing where facilities are to be placed	Damaged by the uncontrolled operations	Protected if the companies contact us prior to use			
Cost	Saves money by protecting our resources	Costs high in terms of the resources	Minimal			
Visitor Use	Allows park to keep visitors informed	Visitors safety and enjoyment of the park endangered	Enjoyment of area marred by presence of wells			

ENVIRONMENTAL ASSESSMENT MATRIX

Project Statement Title: Off-Road Vehicle Use
LAMR N14

NEED FOR PROPOSAL: ORV Use is Damaging or Destroying Archeological Sites, Vegetative Cover, Soils and Animal Life

*Denotes Current Management Action

Alternative Actions / Impact Categories	PROPOSED ACTION	NO ACTION 1	* ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4	ALTERNATIVE 5
	Increase Visitor Awareness thru Interpretation, Education and Enforcement. Conduct Salvage Archeology	Allow Unrestricted ORV Use	Continue Contacts with ORV Users Who Enter Sites, by Patrols Contacts, Inter.			
Water	Keeps ORV use out of sensitive areas	Pollutes water	Pollution continues			
Soils	Confines erosion to designated areas	Causes erosion and pollution	Soils continue to deteriorate			
Flora	Protects flora outside ORV area	Destroys plants	Destroyed			
Fauna	Protects fauna outside ORV area	Discourages animals in the area	Discourages animals in the area			
Cultural Resources	Protects Ruins outside ORV area	Destroys Ruins	Marginally protected			
Coat	Minimal	High in resource loss	No increase			
Visitor Use	Enhanced by the knowledge of good land use	Enhanced by proper use of the resource	No change			

V. APPENDICES

A. COMPLIANCE WITH PRESERVATION LEGISLATION

All management actions must be in compliance with provisions of the Antiquities Act of 1906, the Historic Site Act of 1935, the National Historic Preservation Act of 1966, Executive Order 11593, the National Environmental Policy Act of 1969, and the Archeological and Historic Data Preservation Act of 1974.

Any construction activities or permits for construction activities, within the proposed boundaries of the recreation area, must have the required archeological surveys, and, where necessary, mitigating actions must be taken to comply with applicable legislation. Special use permits for construction activities, such as natural gas pipelines and associated facilities and roads, require consultation with the State Historic Preservation Officer and the Advisory Council on Historic Preservation, in compliance with Section 106 of the National Preservation Act of 1966.

When construction is located on land under the administration of the Bureau of Reclamation, the Bureau will complete the 106 process before issuing a special use permit. The National Park Service will accomplish this, in cases where NPS managed land is involved. The recreation area Superintendent should notify the Division of Cultural Resources in the Southwest Regional Office, upon learning that construction activities are planned, which will effect the recreation area.

B. COLLECTIONS AND LOCATIONS

a. Natural History Collections

1. Geological Collections

Geological collections have not been pursued in a general way at Lake Meredith. Several Fossil Vertebrates have been removed, and one, in particular, a Bison latifrons skull is located at the Geology Department of West Texas State University.

2. Botanical Collections

Several collections have been made of the vascular plants of the area. One, collected by Barbara Lund, is deposited at the area Ranger Station, for local use. Others are deposited with the collecting institution (West Texas State University - Canyon).

3. Zoological Collections

An insect collection has been established at the park, and is maintained by the park staff. Collections of vertebrates were made during the population survey conducted by Flavius C. Killebrew (See Bibliography). These are deposited at West Texas State University in the Zoology Department collections.

b. Archeological Collections

Archeological collections began before Lake Meredith Recreation Area was established, and have continued up to the present. Collections, prior to the establishment of the recreation area, are deposited at West Texas State University in Canyon, TX. Though these are the property of the university, they have stated that anything we would need for displays could be loaned to us at any time in the future. Davis, from Texas University, collected here in the early 1960's, and his collections, property of the National Park Service, are deposited in that institution. Green, Duffield and others, collected here in the mid 1960's, and their collections are at Texas Technological College in Lubbock, TX. Collections since that time have been placed, for the most part, at West Texas State University, in Canyon. The park is caring for other collections, including artifacts from the various YCC digs of the mid 1970's, and artifacts picked up on the surface, during various site surveys around the lake, and random collections.

C. COMPLETED RESEARCH

(See Attached Bibliography for a summary of completed research)

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BASIC INFORMATION DOCUMENTS

FROM LIBRARY AND FILES --

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   b. Archeological Assessment 1974
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   d. Resources Management Plan 1974
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   f. Management Objectives 1969
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2. CURRENT NATURAL HISTORY, HUMAN HISTORY AND RECREATIONAL INFORMATION RELEVANT TO AREA RESOURCES AND THEMES

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E. CONSTRAINT DOCUMENTS

Legislative and Administrative Constraints

All management and development decisions must comply with the enabling legislation (appended), and with the provisions of the Antiquities Act of 1906; the National Park Service Organic Act of 1916; the Historic Sites Act of 1935; the National Historic Preservation Act of 1966; the National Environmental Policy Act of 1969(NEPA); Executive Order 11593 of May 13, 1971; and the Historical and Archeological Data Preservation Act of 1974. In addition, applicable guidance and procedures are provided by the most current management policies and activities standards of the National Park Service.

The establishment/authorization legislation, Public Law 88-536, 78 Stat. 744, August 31, 1964, authorizes the Secretary of the Interior to -

"...investigate, plan, construct, operate, and maintain, or otherwise provide for basic public outdoor recreation facilities at the Sanford Reservoir area, Canadian Federal reclamation project..."

"...and provides for land acquisition, appropriations, public use, operation, maintenance, cooperative agreements with other agencies, and related matters..."

In 1965, as part of the Canadian River Project, a dam was placed across the river, and Lake Meredith was created. Since then, the National Park Service has administered the recreational use of the lake area--first under the designation "Sanford Recreation Area," and beginning in October, 1972, as "Lake Meredith Recreation Area."

The Canadian River Project and Lake Meredith Recreation Area both resulted from an act of December 29, 1950 (64 Stat. 1124). This congressional action authorized the construction of Sanford Dam, and associated works, by the Bureau of Reclamation, primarily to provide a municipal water supply for 11 cities in the Texas Panhandle. The project also served to benefit irrigation, flood control, silt control, and fish and wildlife habitat, and to provide recreation facilities.

The National Park Service became involved through a memorandum of understanding and agreement (Contract 14-06-500-579, appended_, dated June 26, 1961, with the Bureau of Reclamation. This agreement authorized the Service to investigate, plan, and develop recreational resources for the Canadian River Project.

By a March 15, 1965, memorandum of agreement (Contract 14-06-500-1105, appended), between the Bureau of Reclamation and the National Park Service, the administration of the area for public recreational use became the responsibility of the Service. In July of 1968, the Bureau of Reclamation turned over the operation and maintenance of the dam and associated facilities to the Canadian River Municipal Water Authority (CRMWA). Thus, the present-day management of the reservoir and its facilities is a cooperative effort between the NPS and CRMWA. It is agreed that recreation use shall not interfere with the primary purpose of the project.

Livestock grazing was authorized in the appended memorandum of agreement between the Department of the Interior and the Bureau of Reclamation of March 15, 1965. Negotiation of grazing leases and their continued administration is the responsibility of the National Park Service.

Wildlife reources of the recreation area come under the joint authority of the Texas Parks and Wildlife Department and the National Park Service, in accordance with a memorandum of agreement dated August 1, 1968 (appended).

All lands within the recreation area were acquired with outstanding oil and gas rights and other mineral leases retained by private interests. Access and road easements were allowed in the original purchase of most parcels of land, and numerous pipeline and powerline easements cross the area.

A resolution by the Canadian River Municipal Water Authority granted permission for the National Park Service to use not-to-exceed 350 acre feet of water per annum from Lake Meredith, for domestic and irrigation requirements in recreation and public use development.

Law enforcement jurisdiction at Lake Meredith is fragmented between three counties (Hutchinson, Moore, and Potter), which exercise different jurisdictions within the recreation area. The National Park Service can exercise only proprietary jurisdiction, while having to depend on good working relationships with the three local sheriffs' offices and the Texas Department of Public Safety.

(Reference to propriatory jurisdiction, as stated above, has been superceded, as per attachment, and as of August 14, 1980, thereby authorizing concurrent legislative jurisdiction).

United States Department of the Interior

NATIONAL PARK SERVICE
WASHINGTON, D.C. 20240

IN REPLY REFER TO:
W34

JUN 19 1980

LAKE MEREDITH
RECREATION AREA

SEP 0 6 1980

Honorable William P. Clements, Jr.
Governor of Texas
Austin, Texas 78701

Dear Governor Clements:

It is the purpose of this letter to bring about certain changes in jurisdiction over lands and waters within the exterior boundaries of Lake Meredith National Recreation Area pursuant to applicable Federal and Texas statutes.

The result will be the establishment of concurrent legislative jurisdiction, between the United States and the State of Texas, over these lands and waters. This action will allow for more efficient conduct of both State and Federal functions within the recreation area. It will also comply with the congressional mandate as expressed in Public Law 94-458 (90 Stat. 1939, 16 U.S.C. § 1A-3), that "insofar as practicable the United States shall exercise concurrent legislative jurisdiction within units of the National Park System."

The term concurrent legislative jurisdiction is intended herein as vesting in both the State and the United States the right to exercise by legislation, rules and regulations, jurisdiction over such areas concurrently with each other over matters including but not limited to criminal laws, police power functions, and tax laws subject only to the United States and State constitutional restraints such as, but not limited to, the Supremacy Clause of the United States Constitution and prohibition of taxation of property of one sovereign by another. The acquisition by the United States of concurrent legislative jurisdicton will also assist in the exercise of State criminal laws by not only the State but also the United States under the Act of June 25, 1948 (62 Stat. 686, 18 U.S.C. § 13 (1976)).

It is the purpose of this letter to request a cession of concurrent legislative jurisdiction on behalf of the State and to accept by this letter a cession of concurrent legislative jurisdiction over the lands and waters of Lake Meredith National Recreation Area by the undersigned on behalf of the United States. The Federal project which became, in part, the Lake Meredith National Recreation Area was authorized by the Act of December 29, 1950 (64 Stat. 1124, 43 U.S.C. § 600b (1976)). This Act authorized the construction of Sanford Dam and associated works by the Bureau of Reclamation, primarily to provide a municipal water supply to 11 cities in the Texas Panhandle. The project also provided irrigation, flood control, silt control and recreational facilities.

Vest of the Division

The Act of August 31, 1964 (78 Stat. 744, 43 U.S.C. § 600d (1976)) directed the Secretary of the Interior to operate and maintain the area for recreational purposes. The Bureau of Reclamation and the National Park Service of this Department entered into an agreement in which the National Park Service administers the larger part of the project for recreational purposes. The recreation area is now designated Lake Meredith National Recreation Area. In administering the area for recreational purposes, it has become desirable for both the State and the United States to exercise concurrent legislative jurisdiction over the area as such jurisdiction is defined above.

The conveyance of concurrent legislative jurisdiction to the United States is authorized by Vernon's Revised Civil Statutes, Article 5247. In order to comply with the provisions of this article, I have included an accurate description by metes and bounds of the Lake Meredith National Recreation Area.

Therefore, in accordance with the Act of February 1, 1940, as amended (54 Stat. 19, 40 U.S.C. § 225 (1976)), I hereby accept such cession of legislative jurisdiction, both civil and criminal, as necessary to establish concurrent legislative jurisdiction between the United States and the State of Texas over all lands and waters within the boundaries of Lake Meredith National Recreation Area. Your signature on this letter and such other procedure as may be required under State law will constitute the cession on behalf of the State.

Establishment of concurrent legislative jurisdiction shall become effective upon your receipt of this acceptance. This letter has been prepared in duplicate original. Please return one original, with the acknowledgement of cession duly executed, to us for our records.

Sincerely yours,

Director
National Park Service

Enclosures

I hereby acknowledge that this letter was received at 10:00 o'clock a .m. on the 27th day of June, 1980, and on behalf of the State of Texas, concurrent legislative jurisdiction is ceded effective this 14th day of August, 1980.

x W. P. Clements, Jr.
Governor, State of Texas

LAKE MEREDITH RECREATION AREA
Texas

Statement for Management

January 1976

UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

Appendix F

The Statement For Management is the first documentation in the National Park Service planning process. Every park in the National Park System must have an approved Statement, which is subject to annual review and revision. The Statement will be used to guide short- and long-term management of the park, and to determine the nature and extent of planning required to meet the park's management objectives. In the absence of more specific planning documents, the Statement will provide a general framework for directing park operations, and for communicating park objectives to the public.

STATEMENT FOR MANAGEMENT

Lake Meredith Recreation Area

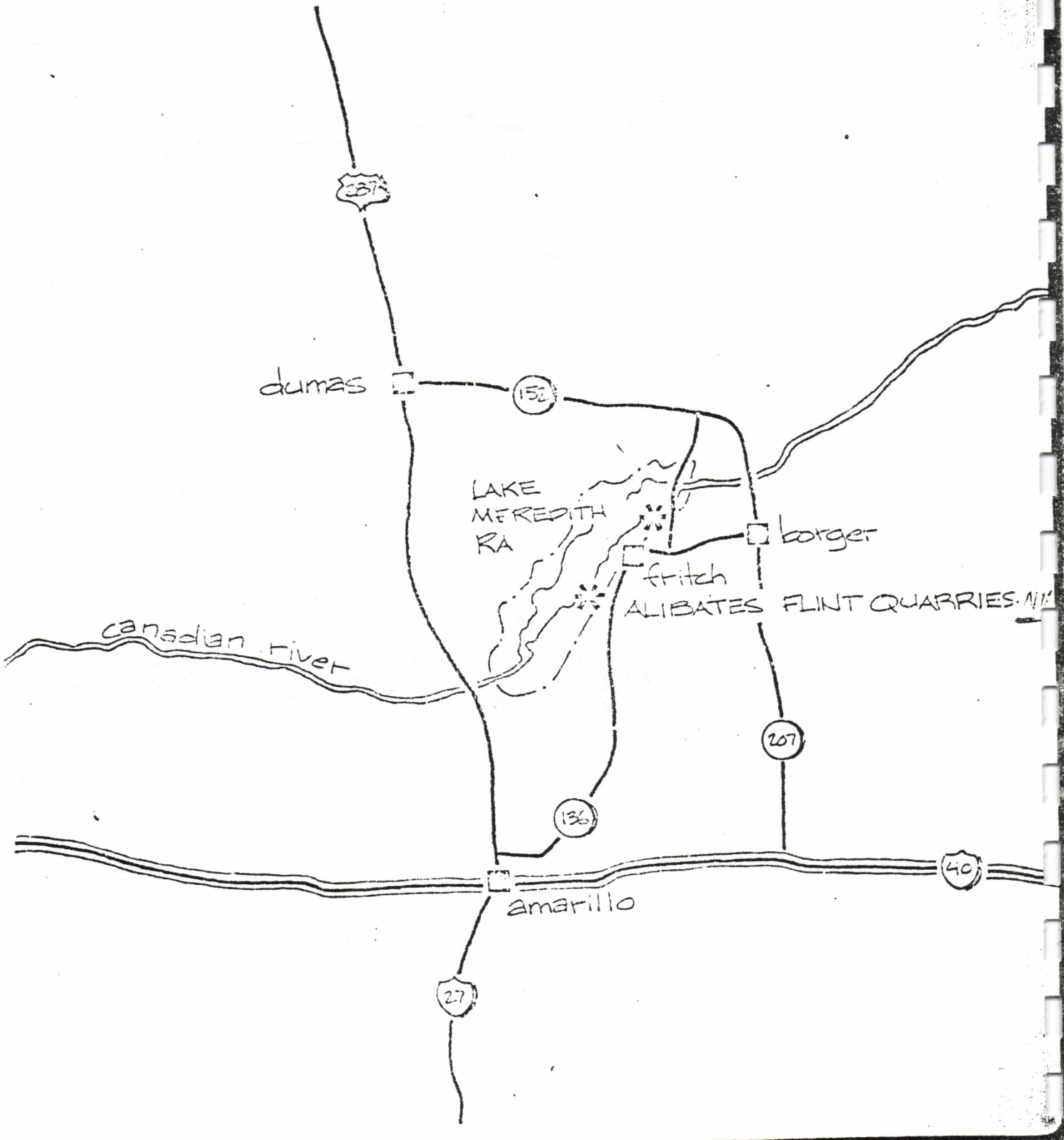
Prepared by: William E. Quick — Superintendent — 1/19/1976 — Date

Recommended by: Jack C. Blomberg — Regional Director, Southwest Region — 1/23/76 — Date

WASO
Policy Review: /s/ John E. Cook — Associate Director — 3/4/76 — Date

Approved by: Jack C. Blomberg — Regional Director, Southwest Region — 6/25/76 — Date

LAKE MEREDITH RECREATION AREA VICINITY



STATEMENT FOR MANAGEMENT

Lake Meredith Recreation Area

I. PURPOSE OF THE PARK

The recreation area is administered to provide a variety of land- and water-based recreational activities.

The establishment legislation, Public Law 88-536, 78 Stat. 744, August 31, 1964, authorized the Secretary of the Interior to ". . . investigate, plan, construct, operate, and maintain, or otherwise provide for basic outdoor recreational facilities at Sanford Reservoir Area. . . ." The purpose of the recreation area is further stated in the National Park Service Organic Act of 1916, as ". . . to conserve the scenery and the natural . . . objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."

II. SIGNIFICANCE OF THE PARK'S RESOURCES

Lake Meredith and Sanford Dam exist primarily to provide a municipal water supply for 11 cities in the Texas Panhandle. The project's public

domain, comprising 45,964.30 acres of land and water, and their recreational benefits, comprise the most significant resource of Lake Meredith Recreation Area.

This region also has a rich and significant archeological and historical background. Preliminary site-survey work indicates that there are several hundred archeological sites within the boundaries of the recreation area. The area was first used by Paleo-Indian hunters 12,000 years ago; almost every culture of the southern Great Plains from that time up until 1874 came into the area, hunting big game and quarrying flint for weapons and tools.

The history of the area is equally impressive: Spanish Conquistadors, Comancheros, and Spanish and Mexican military expeditions, followed by U.S. military operations, frequently crossed through.

The cattle industry and homesteading also represent a significant era in regional history. The McBride place is the oldest remaining ranch-house of that early period in Potter County.

III. LAND CLASSIFICATION

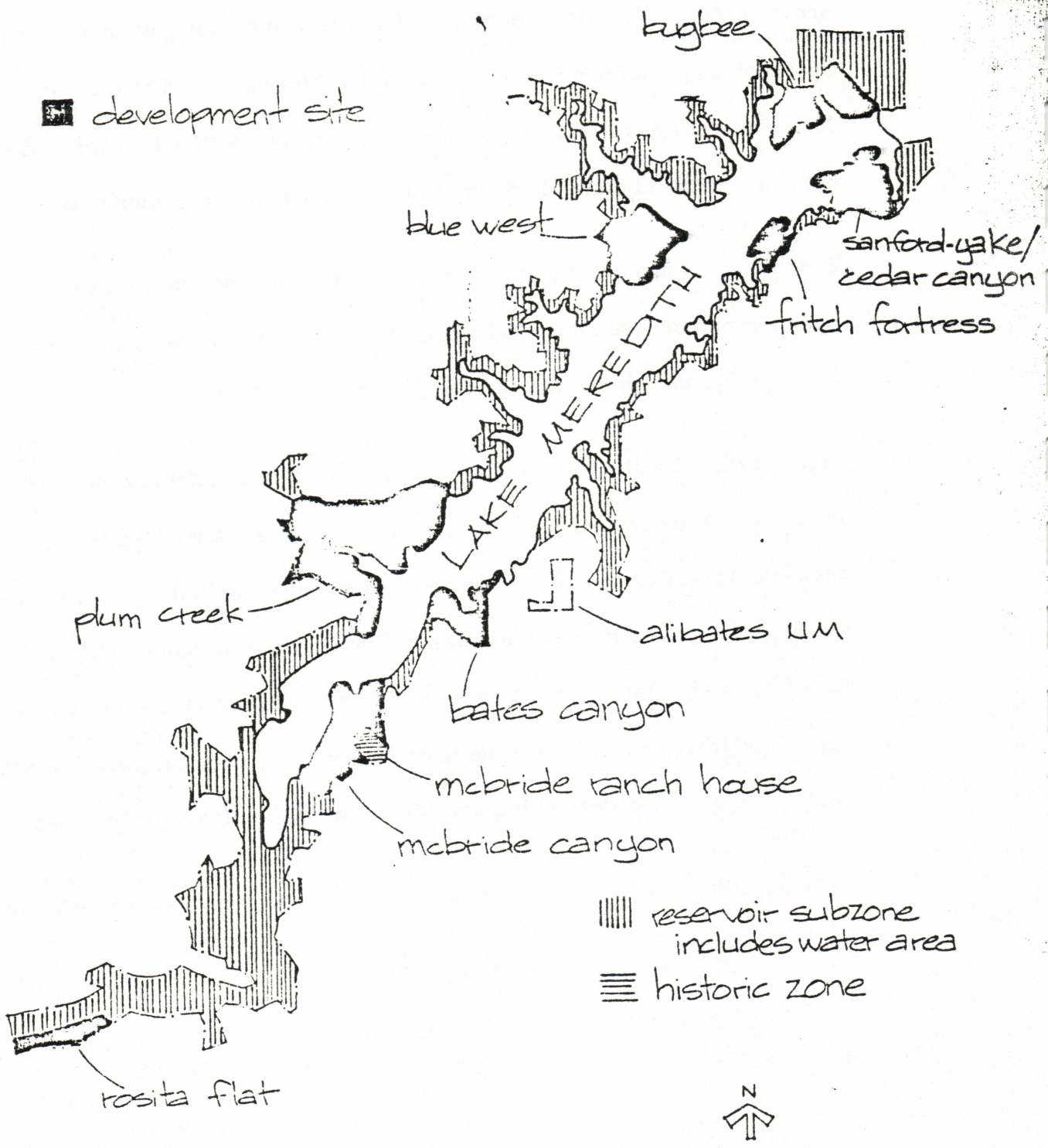
Almost all of Lake Meredith's 45,964 acres are classified as Special-Use-Zones/Reservoir Subzones, which means that they are managed for special

reservoir-recreation uses not normally permitted in natural or historic areas of the National Park Service. The reservoir subzones include major reservoirs and adjacent lands to the high-water mark where the National Park Service does not have exclusive management authority. Minor developments, such as launching ramps and beaches, are also included.

Several areas around the lake in the reservoir subzone have been developed for visitor-use facilities, while others have been designated for the future as demand indicates and funds become available.

The McBride Ranch House and site is classified as a historic zone, and is listed on the National Register of Historic Places. Additionally, all archeological sites are also classified and managed as historic zones pending formal evaluation and nomination to the National Register. Physical development in these historic zones shall be the minimum needed to preserve, protect, and interpret the historical values; and activities therein shall be limited to sight-seeing and the study of the historical features.

Lake Meredith Recreation Area land classification zones and subzones are delineated on the map included in this section.



LAND CLASSIFICATION

LAKE MEREDITH RECREATIONAL AREA • TEXAS

IV. INFLUENCES UPON MANAGEMENT

A. Legislative and Administrative Constraints

All management and development decisions must comply with the enabling legislation (appended), and with the provisions of the Antiquities Act of 1906; the National Park Service Organic Act of 1916; the Historic Sites Act of 1935; the National Historic Preservation Act of 1966; the National Environmental Policy Act of 1969 (NEPA); Executive Order 11593 of May 13, 1971; and the Historical and Archeological Data Preservation Act of 1974. In addition, applicable guidance and procedures are provided by the most current management policies and activities standards of the National Park Service.

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The Canadian River Project and Lake Meredith Recreation Area both resulted from an act of December 29, 1950 (64 Stat. 1124). This congressional action authorized the construction of Sanford Dam, and associated works, by the Bureau of Reclamation, primarily to provide a municipal water supply for 11 cities in the Texas Panhandle. The project also served to benefit irrigation, flood control, silt control, and fish and wildlife habitat, and to provide recreation facilities.

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National Park Service, in accordance with a memorandum of agreement dated August 1, 1968 (appended).

All lands within the recreation area were acquired with outstanding oil and gas rights and other mineral leases retained by private interests. Access and road easements were allowed in the original purchase of most parcels of land, and numerous pipeline and powerline easements cross the area. (See Appendix.)

A resolution by the Canadian River Municipal Water Authority granted permission for the National Park Service to use not-to-exceed 350 acre-feet of water per annum from Lake Meredith for domestic and irrigation requirements in recreation and public-use development. (See Appendix.)

Law-enforcement jurisdiction at Lake Meredith is fragmented between three counties (Hutchison, Moore, and Potter), which exercise different jurisdictions within the recreation area. The National Park Service can exercise only proprietary jurisdiction, while having to depend upon good working relationships with the three local sheriffs' offices and the Texas Department of Public Safety.

B. Regional Influences

Lake Meredith is located 35 miles north of Amarillo, Texas, in the center of the Texas Panhandle. The population is not dense; within a 50-mile radius it exceeds 200,000, and is double this figure at 100 miles. Ranching and farming are the primary uses of lands surrounding the reservoir, with oil- and gas-industry activities liberally scattered throughout the area. The private ownership of land has not allowed much in the way of public recreation until the time of the purchase of the acreage for the water project.

The largest nearby recreation facility is Palo Duro Canyon State Park, a beautiful scenic and historic area about 50 miles to the south. But it is less than half the size of Lake Meredith Recreation Area, and its water resources are limited. Most of its heavy visitor use consists of stream wading, limited camping, picnicking, hiking, and trail riding.

Alibates National Monument, adjoining Lake Meredith Recreation Area on the east, was set aside to preserve flint quarries used

by prehistoric man for at least 12,000 years; and to preserve several adjacent archeological sites and features, particularly dwellings built by Plains Village farmers 600 to 800 years ago. Many of the flint quarries and other archeological features associated with the monument are actually located within the boundaries of Lake Meredith Recreation Area. Presently the 92 acres of the monument are administered by the Superintendent of Lake Meredith Recreation Area.

The recreation area is conveniently accessible by means of many high-standard highways, which radiate in all directions from nearby Amarillo, including Interstate 40 (U.S. 66), one of the Nation's most heavily used transcontinental east-west highways, and three other well-traveled U.S. routes.

Ranching and farming are major contributors to the regional economy. Perhaps the most conspicuous evidence of man's use of the land in the Texas Panhandle, however, is that generated by the oil and gas industry. Both inside and out of the recreation area--and in some cases even beneath the water--pipelines, wells, pumping facilities, and access-roads cross the landscape.

Impoundment of Lake Meredith was followed by extensive development of private recreation property adjacent to the boundary. This development is most advanced near the community of Fritch, and on the north side of the lake, at Bugbee. Unfortunately, local authorities have little power to control esthetic intrusions, and development has been almost completely unrestrained. The lack of proper regulations and construction standards for structures, roads, and utilities has produced a mixed community of mobile-home sites, permanent residences, and a wide range of vacation cottages.

C. Within-Park Influences

Lake Meredith's water is primarily intended to serve as a municipal water supply. Maintaining water purity is a paramount park-management consideration. The Canadian River Municipal Water Authority carefully monitors the water quality at many locations. So far, recreation use has been compatible with the primary purpose of the lake, and stringent controls have not been required.

Other conflicting uses may require eventual control. The waterskier and the fisherman co-exist, but not very peacefully. Sailing craft, speed-boats, and larger vessels that operate out of the marina do not mix very well with either skiers or fishermen, and restraints may eventually have to be exercised.

The park headquarters and superintendent's office are located in the nearby town of Fritch, Texas. Two ranger/naturalist information stations are located in the recreation area--one near the dam, and the other near the Cedar Canyon development site.

Lake Meredith Recreation Area contains land of limited general use. This general deficiency is compounded by the fractured dolomite formation in the caprock areas, and other geological hazards such as "filled chimneys" and hydration domes. The danger of landslides and flashfloods renders the few areas that lie near the water level questionable for any extensive development. And the steepness of the canyon walls, and their continuous sloughing as they become saturated by the advancing shoreline, make bank fishing difficult--even dangerous, at times.

Visitation has maintained a fairly steady upward trend over the past 9 years. In 1966, the first full year of recreation use, visits totaled 1,041,383; by 1975, they had climbed to 1,708,760 annually.

For the most part, the nature of recreation use has remained unchanged--the greatest concentration being generated by water-based activities, of course. Hunting, off-road vehicular sports, horseback riding, sightseeing, picnicking, and camping also attract people to the recreation area.

Except for minor fluctuations, the surface elevation of the lake has remained near 3,906 feet for the past 2 years. At this level, the two boat-ramps in the upper end of the lake are not usable, and boat launching is concentrated at the remaining deep-water ramps. This results in traffic congestions on land and water, which is sometimes complicated by dangerous storms that can blow up on the lake with little warning.

Activities related to the oil and gas industry are increasing in the recreation area, as was mentioned under "Regional Influences." These industrial uses cannot be terminated

under existing legislation, but the companies involved have been cooperative in holding down adverse effects. Even so, pipeline scars, access roads, drilling sites, and other installations leave their mark on the landscape. Although there is little direct bearing on recreational activities, industrial uses are visually intrusive, they can contribute to erosion, may disturb prehistoric remains, and present a potential threat through contamination of lake waters.

Past grazing practices have had a serious adverse impact on the vegetation and lands within the recreation area. Grazing is being better controlled than previously, however, as critical sections of the boundary are fenced. Livestock has been virtually eliminated from visitor-use areas, and the number of acres grazed has been reduced on several allotments. The grazing program now is carefully controlled and based on sound practices developed by Soil Conservation Service surveys and recommendations. There are encouraging signs that deterioration of land resources can be turned around, and it may be possible to restore a portion of the recreation area to native grassland.

Marina-based houseboats and sailing-craft serve as weekend retreats and social centers for many people. The existing marina's 300 slips are generally filled to capacity, and this facility (Sanford-Yake), located at the north end of the lake near the dam, is the only source of fuel and other supplies on the lake. The marina site also is a popular launching-ramp for trailered boats, which concentrates people, boats, and automobiles, and sometimes creates hazardous congestion in and out of the water. Future plans propose several additional marina and access development-areas.

A residential Youth Conservation Corps (YCC) camp, located in the Sanford-Yake area, houses 30 to 60 youth and their supervisors during the summer months. The YCC enrollees carry out beneficial work projects and participate in an environmental-education program. Overall, this energetic work-force is an advantage to the area, but considerable support is required from the park staff.

V. MANAGEMENT OBJECTIVES

1. To preserve and maintain the natural and cultural features of the recreation area.

2. To provide visitors with interesting, enjoyable, and enlightening experiences, so they gain environmental awareness and insight into the natural, cultural, and recreational features of the recreation area.

3. To encourage a continuing research program, which will provide management with guidance needed for accurate and informative interpretation of the natural and cultural aspects of the area in long- and short-term operation.

4. To provide the necessary physical development and maintenance of facilities needed for the proper operation of the area and for the best possible visitor experience in the enjoyment of the recreational, natural, and cultural features of the recreation area.

5. To promote a harmonious integration of activities both within and outside the recreation area, by maintaining close cooperation with the Canadian River Municipal Water Authority, other Federal agencies, and State and other local community-education organizations, in matters of mutually beneficial activities and services.

Public Law 88-536
88th Congress, H. R. 8135
August 31, 1964

An Act

78 STAT. 744.

To provide for the establishment and administration of public recreational facilities at the Sanford Reservoir area, Canadian River project, Texas, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Secretary of the Interior is hereby authorized to investigate, plan, construct, operate and maintain, or otherwise provide for basic public outdoor recreation facilities at the Sanford Reservoir area, Canadian Federal reclamation project, to acquire or otherwise include within the project area such adjacent lands or interests therein as are necessary for present or future public recreation use, and to provide for the public use and enjoyment of project lands, facilities, and water areas in a manner coordinated with other project purposes: *Provided*, That this Act shall not provide the Secretary with a basis for allocation to recreation of water, reservoir capacity, or joint project costs of the Canadian River project nor affect the priority for municipal use of water stored in Sanford Reservoir, or the priority of use for municipal purposes of the capacity of said reservoir. The Secretary is authorized to enter into agreements with Federal agencies or State or local public bodies for the operation, maintenance, or additional development of project lands or facilities, or to dispose of project lands or facilities to Federal agencies or State or local public bodies by lease, transfer, conveyance or exchange upon such terms and conditions as will best promote the development and operation of such lands or facilities in the public interest for recreation purposes. The cost of providing basic recreation facilities shall be nonreimbursable. In carrying out the aforesaid activities the Secretary shall take cognizance of the effect of the fish and wildlife plan approved by the President December 19, 1962, pursuant to the Act of December 29, 1950 (64 Stat. 1124) in providing facilities at the Canadian River project which have general recreation utility.

Texas.
Sanford Reservoir area, recreational facilities.

Operation, maintenance, etc.; agreements.

43 USC 600b, 600c.

SEC. 2. There are authorized to be appropriated such amounts, but not more than $1,100,000, as may be necessary for the investigation, preparation of plans, construction and acquisition of lands authorized in this Act.

Appropriation.

Approved August 31, 1964.

LEGISLATIVE HISTORY:

HOUSE REPORT No. 891 (Comm. on Interior & Insular Affairs).
SENATE REPORT No. 1461 (Comm. on Interior & Insular Affairs).
CONGRESSIONAL RECORD:
Vol. 109 (1963): Nov. 18, considered and passed House.
Vol. 110 (1964): Aug. 18, considered and passed Senate.

[CHAPTER 1183]

AN ACT

December 29, 1950
[H. R. 2733]
[Public Law 898]

To authorize the construction, operation, and maintenance by the Secretary of the Interior of the Canadian River reclamation project, Texas.

Canadian River reclamation project, Tex.
Construction, etc., authority.

43 U. S. C. §§ 371-612; Sup. III, § 373a *et seq.*
Ante, pp. 11, 463.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That, for the purposes of irrigating land, delivering water for industrial and municipal use, controlling floods, providing recreation and fish and wildlife benefits, and controlling and catching silt, the Secretary of the Interior, acting pursuant to the Federal reclamation laws (Act of June 17, 1902, 32 Stat. 388, and Acts amendatory thereof or supplementary thereto), is authorized to construct, operate, and maintain the Canadian River reclamation project, Texas, described in the report of the Commissioner of Reclamation approved by the Secretary May 3, 1950, entitled "Plan for Development, Canadian River Project, Texas", Project Planning Report Number 5–12.22–1, at an estimated cost of $86,656,000, the impounding works whereof shall be located at a suitable site on the Canadian River in that area known as the Panhandle of Texas. In addition to the impounding works, the project shall include such main canals, pumping plants, distribution and drainage systems, and other works as are necessary to accomplish the purposes of this Act. The use by the project of waters arising in Ute and Pajarito Creeks, New Mexico, shall be only such use as does not conflict with use, present or potential, of such waters for beneficial consumptive purposes in New Mexico.

Nonreimbursable costs.

SEC. 2. (a) Notwithstanding any recommendations in the above-mentioned report to the contrary, only the costs of construction allocable to flood control and, upon approval by the President of a suitable plan thereof, to the preservation and propagation of fish and wildlife, and operation and maintenance costs allocable to the same purposes, shall be nonreimbursable.

Restrictions.

(b) Actual construction of the project herein authorized shall not be commenced, and no construction contract awarded therefor, until (1) the Congress shall have consented to the interstate compact between the States of New Mexico, Oklahoma, and Texas agreed upon by the Canadian River Compact Commission at Santa Fe, New Mexico, December 6, 1950, in conformity with Public Law 491, Eighty-first Congress, and (2) repayment of that portion of the actual cost of constructing the project which is allocated to municipal and industrial water supply and of interest on the unamortized balance thereof at a rate (which rate shall be certified by the Secretary of the Treasury) equal to the average rate paid by the United States on its long-term loans outstanding at the time the repayment contract is negotiated minus the amount of such net revenues as may be derived from temporary water supply contracts or from other sources prior to the close of the repayment period, shall have been assured by a contract satisfactory to the Secretary, with one central repayment contract organization, the term of which shall not exceed fifty years from the date of completion of the municipal and industrial water supply features of the project as determined by the Secretary.

Ante, p. 93.

Repayment contract.

(c) The repayment contract shall provide, among other things, (1) that the holder thereof shall have a first right, to which right the rights of the holders of any other type of contract shall be subordinate, to a stated share or quantity of the project's available water supply for use by its constituent industrial and municipal water users during the repayment period and a permanent right to such share or quantity thereafter subject to payment of such costs as may be incurred by the United States in its operation and maintenance of any part of the project works; (2) that, subject to such rules and regulations as the Secretary may prescribe, the care, operation, and maintenance of such portions of the pipeline and related facilities as are used solely for delivering such water to the contract holder and its constituent organizations shall, as soon as is practicable after completion of the municipal and industrial water supply features of the project, pass to the contract holder or to an organization which is designated by it for that purpose and which is satisfactory to the Secretary; and (3) that title to such portions of the pipeline and related facilities shall in like manner pass to the contract holder or its designee or designees upon payment to the United States of all obligations arising under this Act or incurred in connection with the project.

Appropriation authorized.

SEC. 3. There are hereby authorized to be appropriated, out of any moneys in the Treasury not otherwise appropriated, such sums as may be required to carry out the purposes of this Act.

Approved December 29, 1950.

Contract No. 14-06-500-579

UNITED STATES DEPARTMENT OF THE INTERIOR

MEMORANDUM OF UNDERSTANDING AND AGREEMENT
between the
BUREAU OF RECLAMATION AND THE NATIONAL PARK SERVICE
for the
INVESTIGATION, PLANNING, AND DEVELOPMENT OF RECREATIONAL RESOURCES
at
SANFORD DAM AND RESERVOIR
CANADIAN RIVER PROJECT, TEXAS

THIS MEMORANDUM OF UNDERSTANDING AND AGREEMENT is entered into this 26th day of June, 1961, between the BUREAU OF RECLAMATION, hereinafter referred to as the Bureau, represented by the Regional Director of Region 5, Amarillo, Texas, and the NATIONAL PARK SERVICE, hereinafter referred to as the Service, represented by the Regional Director of Region 3, Santa Fe, New Mexico, pursuant to agreement between the Bureau of Reclamation and the National Park Service, approved by the Under Secretary of the Interior on April 5, 1955, which governs the relations of the Service and the Bureau and the responsibilities of each in a cooperative program for the investigation, planning, development, and administration of recreational resources and facilities in the vicinity of Reclamation reservoirs.

WITNESSETH THAT:

WHEREAS, by Act of Congress approved December 29, 1950, the Secretary of the Interior was authorized to construct, operate, and maintain the Canadian River Project, Texas, under the Federal Reclamation laws, and

WHEREAS, the Canadian River Project includes the Sanford Dam and Reservoir, and involves investigation, planning, development, and administration of recreational resources and facilities at the Sanford Reservoir, and

WHEREAS, under a contract with the United States, the Canadian River Municipal Water Authority has agreed to operate and maintain without cost to the United States, the minimum basic recreational facilities to be provided at the Sanford Reservoir, and

WHEREAS, the Service, under agreements with the Bureau, has supplied preliminary plans and proposals for the development and administration of recreational facilities for Sanford Reservoir.

NOW, THEREFORE, the parties hereto agree with respect to the development of the recreational aspects of the Sanford Reservoir, as follows:

1. The Service will perform survey and studies and make a comprehensive overall master recreational development plan.

2. The Bureau will supply the Service with the field survey data and maps required by the Service for the preparation of the plans.

3. The Service will summarize its plans for recreational developments and facilities for the reservoir in a separate report to be made available to the Bureau by June 30, 1962.

4. The Bureau, subject to the availability of funds, will advance funds to the Service, as soon as available in Fiscal Year 1962, in the amount of $8,000 to cover expense for preparation of a plan for recreational facilities. Expenditures from funds advanced may be made for negotiations, investigations, development plans, and for other items necessary to carry out the provisions of this agreement: PROVIDED HOWEVER, That no such funds shall be expended to cover the costs of the normal, usual, and continuing functions and duties of the Service.

5. The Service will submit an itemized statement of expenditures at the end of each fiscal year, and will, upon completion of all of its work and full execution of its responsibilities under this agreement, refund to the Bureau any unexpended funds.

6. THIS MEMORANDUM OF UNDERSTANDING AND AGREEMENT shall be effective from the day first above written, and may be amended at any time by mutual consent of the Regional Directors.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be executed as of the date first hereinabove indicated.

BUREAU OF RECLAMATION

By (Sgd) Leon W. Hill
Regional Director

NATIONAL PARK SERVICE

By Jerome C. Miller
Acting Regional Director
Jerome C. Miller

(2-24-65) Contract No. 14-06-500-1105

UNITED STATES
DEPARTMENT OF THE INTERIOR

BUREAU OF RECLAMATION
NATIONAL PARK SERVICE

MEMORANDUM OF AGREEMENT BETWEEN THE BUREAU OF RECLAMATION AND THE NATIONAL PARK SERVICE FOR ADMINISTRATION OF CERTAIN AREAS OF THE SANFORD RESERVOIR FOR PUBLIC RECREATIONAL USE - CANADIAN RIVER PROJECT, TEXAS

MEMORANDUM OF AGREEMENT, entered into this 15th day of March 1965, between the Bureau of Reclamation, Department of the Interior, herein called "Bureau," represented by the Regional Director, Region 5, Bureau of Reclamation, and the National Park Service, Department of the Interior, herein called "Service," represented by the Regional Director, Southwest Region, National Park Service.

EXPLANATORY STATEMENT

The Bureau is constructing Sanford Dam and Reservoir as a part of the Canadian River Reclamation Project, Texas, authorized by the Act of December 29, 1950 (64 Stat. 1124). The Secretary of the Interior has also been authorized to provide for basic public outdoor recreation facilities by the Act of August 31, 1964 (78 Stat. 744). This act specifically authorized the investigation, planning, construction, operation, and maintenance of recreation facilities as a project purpose on a nonreimbursable basis. The Service is preparing a master recreation plan for the reservoir area and will cooperate with the Bureau and other interested agencies in formulating a reservoir management plan. Such management plan will bring all uses into compatible relationship with the primary purposes for which the reservoir is being constructed. It is the desire of the parties that the Service assume primary responsibility for public recreational use of available land and water areas of the Canadian River Project. The Service will also function in accordance with authority granted to it under Public Law 633-79th Congress, Part (b), approved August 7, 1946 (60 Stat. 885).

AGREEMENT

The parties hereto agree that the following principles shall govern the administration, planning, development, and use of lands and facilities for recreational purposes at Sanford Reservoir.

(3-3-65)

1. The Service will prepare detailed plans for development and administration of public outdoor recreational use facilities and will establish policies, rules, and regulations relating to public outdoor recreational use and occupancy of lands and water areas available for such use. All general development plans and significant changes or revisions thereof will be forwarded for review by the Bureau to assure that said plans will not interfere with the primary purposes of the project. Bureau shall construct, or contract for the construction of, minimum basic recreational facilities authorized by the Act of December 29, 1950, and basic public outdoor recreation facilities authorized by the Act of August 31, 1964. Any additional authorized construction and development shall be performed by the Service.

2. For purposes of operation and management, the Sanford Reservoir area is divided into two segments as indicated on Exhibit A, attached hereto and by this reference made a part hereof. The two areas are: (1) land and water areas needed exclusively for construction, operation, and maintenance activities of the Bureau; and (2) land and water areas to be administered for public outdoor recreational use and for fish and wildlife purposes. Subject to leases which may be issued as proposed in Article 5 hereof and subject to outstanding oil and gas leases and the rights associated with those interests, Service will administer the land and water areas comprising the second group. The Service will provide such visitor services as may be desirable for the land and water areas it administers and will control and administer recreational use thereof by the public. In such administration, the Service will cooperate with other Federal and State agencies and will conform its management plans to those indicated for the remainder of the project area. Annual reports of public use for recreation will be furnished the Bureau.

3. All public outdoor recreational and fish and wildlife facilities and activities shall be planned and constructed so as not to interfere with any Bureau construction, reconstruction, operation and maintenance, rehabilitation, soil and moisture conservation, or any other responsibility of the Bureau. However, the Bureau will cooperate with the Service by coordinating its construction and operation of the Canadian River Project with recreational development and administration of the project area. No recreational use of Canadian River Project areas shall be permitted which is inconsistent with the laws of the State of Texas for the protection of fish and game and the protection of the public health, safety, and welfare. The Service, after consultation with the Texas Parks and Wildlife Department, may issue regulations designating zones where and establishing periods when no hunting, fishing, or trapping shall be permitted for reasons of public safety, administration, or public use and enjoyment.

4. In the event the Service should conclude that it is desirable to permit grazing on any of the project lands to be managed by it under the terms of this agreement, the Service after consultation with the Texas Parks and Wildlife Department, shall notify Bureau of its recommendation, including a designation of the land to be leased, and the term and consideration proposed. Upon approval of the plan by the Bureau, Service will negotiate the grazing leases and be responsible for continued administration of the leases. Under no circumstances shall any leases be considered which will interfere in any manner with management of the areas needed for operation and maintenance of the project under supervision of the Bureau.

5. In the event the Bureau proposes the issuance of oil and gas leases or other mineral leases on any of the lands in and adjacent to the Sanford Reservoir, the Bureau shall consult with the Service on such proposal to issue such leases or accept applications, and the Service shall submit its recommendations on such proposal based upon anticipated interference with recreation facilities and use. In the event the Service concludes that such interference would result, the Bureau shall withhold issuance of oil and gas leases. Land and interests in lands for the Canadian River Project reservoir and the adjacent lands have been acquired subject to outstanding oil and gas leases and other mineral leases, with limited subordination in some cases. Activities proposed hereunder are subject to limitation by those outstanding rights.

6. Based on reports prepared annually by the Service, revenues received from fees and charges paid by the public for use of facilities in the reservoir area shall be disposed of in accordance with applicable law.

7. This agreement shall become effective upon execution by each of the parties hereto and shall remain in force as written unless the parties hereto do mutually agree to its modification or termination, or unless termination is directed by the Secretary of the Interior, or until enactment by the Congress of legislation terminating or superseding it. However, fulfillment of the undertakings expressed in this agreement is contingent upon the appropriation of funds for these purposes.

(2-24-65)

IN WITNESS WHEREOF, the parties have executed this memorandum of agreement as of the day and year first hereinabove written.

BUREAU OF RECLAMATION

By /S/ Leon W. Hill
Regional Director, Region 5

NATIONAL PARK SERVICE

By /S/ Daniel B. Beard
Regional Director
Southwest Region

CONCURRED:

BUREAU OF SPORT FISHERIES
AND WILDLIFE

By /S/ John C. Gatlin
Regional Director
Southwest Region

CANADIAN RIVER MUNICIPAL
WATER AUTHORITY

By /S/ George W. Finger
President

ATTEST:

/S/ Doris Alexander
Secretary

(SEAL)

(FST040865)

Contract No. 14-06-500-1116

UNITED STATES DEPARTMENT OF THE INTERIOR

MEMORANDUM OF UNDERSTANDING AND AGREEMENT
between the
BUREAU OF RECLAMATION AND THE NATIONAL PARK SERVICE
RELATING TO IMMEDIATE ASSUMPTION BY NATIONAL PARK
SERVICE OF THE ADMINISTRATION OF PUBLIC USE AREAS

CANADIAN RIVER PROJECT, TEXAS

THIS MEMORANDUM OF UNDERSTANDING AND AGREEMENT is entered into this 12th day of April, 1965, between the BUREAU OF RECLAMATION, hereinafter referred to as "Bureau", represented by the Regional Director, Amarillo, Texas, and the NATIONAL PARK SERVICE, hereinafter referred to as "Service", represented by the Regional Director, Southwest Region, Santa Fe, New Mexico, pursuant to the Act of Congress of June 30, 1932 (47 Stat. 382, 417; 31 U.S.C. 686), commonly known as the "Economy Act", and pursuant to the agreement by the Bureau and the Service approved by the Under Secretary of the Interior on April 5, 1955, governing the relation between the Bureau and the Service in cooperative programs for the investigation, planning, development, and administration of the recreation resources and facilities in the vicinity of Bureau of Reclamation reservoirs.

WITNESSETH THAT:

The Service is equipped and staffed to accomplish the administration of public use areas for recreational purposes at reservoirs constructed by the Bureau of Reclamation for multiple purposes; and

Service and Bureau have reached agreement concerning the administration, planning, development, and use of lands and facilities for recreational purposes at Sanford Reservoir under that certain Memorandum of Agreement entered into on March 15, 1965 (Contract No. 14-06-500-1105); Provided, however, said Memorandum of Agreement contemplates the undertaking, by Service of certain administrative functions upon appropriation by the Congress of funds therefor, and, inasmuch as certain recreational use facilities are already constructed at Sanford Reservoir it is necessary that certain maintenance functions for such areas be provided for immediately.

(FST040865)

NOW, THEREFORE, the parties hereto agree as follows:

1. Immediately upon execution of this Memorandum of Agreement, Bureau will advance to Service the sum of Fifteen Thousand ($15,000) Dollars. Such sum shall be utilized to provide for the administration and maintenance of public use areas on Sanford Reservoir through June 30, 1965. Such administration and maintenance by Service shall begin as soon as possible after execution of this agreement. In no event shall such sum be utilized for the costs of previously budgeted, normal, usual, and continuing functions and duties of the Service.

2. At the end of fiscal year 1965, Service shall submit an itemized statement of the cost of rendering such service through June 30, 1965, to Bureau, and as soon as possible after the end of the fiscal year, Service shall refund to Bureau any amount remaining unexpended, or the parties shall otherwise adjust payment by Bureau to actual cost of the services.

3. This Memorandum of Understanding and Agreement shall become effective upon execution by each of the parties and shall remain effective until completion of the adjustment of costs at the end of fiscal year 1965.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be executed as of the date first hereinabove written.

BUREAU OF RECLAMATION

BY /S/ Leon W. Hill
Regional Director, Region 5

NATIONAL PARK SERVICE

BY /S/ George W. Miller
Acting Regional Director, Southwest Region

OCT 15 1965

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
REGIONAL OFFICE - REGION 5
P. O. BOX 1609
AMARILLO, TEXAS 79105

IN REPLY
REFER TO: 5-420

OCT 14 1965

To: Regional Director, National Park Service, Southwest Region, Santa Fe, New Mexico

From: Regional Director

Subject: Operation and management of additional segments of land under Memorandum of Agreement dated March 15, 1965 (Contract No. 14-06-500-1105)--Canadian River Project, Texas

In accordance with verbal discussions, the Bureau of Reclamation hereby assigns to the National Park Service the responsibility for administration of public use of a segment of the land located in Area 1 at Lake Meredith as described in the March 15 Memorandum of Agreement and identified on Exhibit A. The segment of land assigned hereunder is identified on the enclosed plat. It shall be operated and managed by the National Park Service in the same manner as lands comprising Area 2 and shall be subject to all conditions and provisions of the March 15 memorandum applicable to lands administered by the National Park Service.

This transfer shall be effective upon approval of this letter by you. Please return one copy with your approval noted.

/s/ Leon W. Hill

In triplicate

Enclosure

Approved and accepted this

25 day of October 1965

/s/
Daniel B. Beard, Regional Director
National Park Service

CONCURRED:

/s/ Horace W. Finger
President, Canadian River Municipal Water Authority

cc:
Superintendent, Sanford Recreation Area, Sanford, Texas
(w/c enclosure)

(FST100465)

Contract No. 14-06-500-1198

UNITED STATES DEPARTMENT OF THE INTERIOR

MEMORANDUM OF UNDERSTANDING AND AGREEMENT

Between the

BUREAU OF RECLAMATION

and the

NATIONAL PARK SERVICE

For the Investigation, Planning, and Development of Recreational Resources and Facilities at Lake Meredith (Sanford Dam), Canadian River Project, Texas

THIS MEMORANDUM OF UNDERSTANDING AND AGREEMENT is entered into this 2 day of December, 1965, between the BUREAU OF RECLAMATION, hereinafter referred to as the Bureau, represented by the Regional Director, Region 5, Amarillo, Texas, and the NATIONAL PARK SERVICE, hereinafter referred to as the Service, represented by the Chief of Western Office, Design and Construction, San Francisco, California, pursuant to agreement between the Bureau of Reclamation and the National Park Service, approved by the Under Secretary of the Interior on April 5, 1955, which governs the relations of the Service and the Bureau and the responsibilities of each in a cooperative program for the investigation, planning, development, and administration of recreational resources and facilities in the vicinity of Reclamation reservoirs.

WITNESSETH THAT:

WHEREAS, by Act of Congress approved December 29, 1950, the Secretary of the Interior was authorized to construct, operate, and maintain the Canadian River Project, Texas, under the Federal Reclamation laws for purposes which include providing recreation and fish and wildlife benefits; and

WHEREAS, the Canadian River Project includes the Sanford Dam and Lake Meredith, and investigation, planning, development, and administration of recreational resources and facilities at Lake Meredith are necessary for performing project objectives; and

WHEREAS, under a contract among the Bureau, the Canadian River Municipal Water Authority, and the Service, the Service has agreed to operate and maintain the recreational facilities to be provided at Lake Meredith; and

WHEREAS, the Service, under agreements with the Bureau, has supplied preliminary plans and proposals for the development and administration of recreational facilities for Lake Meredith; and

WHEREAS, Public Law 88-536 approved August 31, 1964, (78 Stat. 744) authorized an appropriation of not more than $1,100,000 to provide basic public outdoor recreational facilities, and the Service is equipped and qualified to conduct studies and investigations prerequisite to constructing desired facilities.

NOW, THEREFORE, the parties hereto agree with respect to the development of recreational facilities at Lake Meredith, as follows:

1. The Bureau will supply the Service with available field survey data and maps as requested by the Service.

2. The Service will:

a. Perform the necessary survey, and studies therefor, and prepare master recreational development plans for Lake Meredith.

b. Investigate domestic water sources for serving principal recreation areas. Prepare plans and cost estimates on recommended sources.

c. Investigate sewage disposal. Prepare plans and cost estimates on recommended plan.

d. Prepare preliminary recreation use layout for Fritch Fortress, Sanford-Yake overlook, parking expansion and picnic area, and Cedar Canyon marina access, parking, and ramp. Plans will include the suggested location of utility lines and will be available to the Bureau by November 1, 1965.

(FDT100465)

e. Provide plans and specifications for comfort stations, shelters, picnic tables, stoves, and garbage receptacles.

f. Negotiate with local utilities companies for electric, gas, and telephone services, including rates.

g. Provide consultant landscape architectural services during design and construction phases of projects.

3. The Service will submit its plans for recreational developments and facilities for Lake Meredith in a separate report to be delivered to the Bureau on completion, in no event, however, to be later than June 30, 1968.

4. The Bureau, subject to the availability of funds, will reimburse the Service for expenses incurred in accomplishing the obligations assumed in Articles 2 and 3 hereof. Expenditures may be made for negotiations, investigations, development plans, and for other items necessary to carry out the provisions of this agreement: PROVIDED, HOWEVER, That no such funds shall be expended to cover the costs of the normal, usual, and continuing functions and duties of the Service, and PROVIDED FURTHER, that in no event shall reimbursable expenditures incurred exceed $50,000.00. The Service will submit an itemized statement of reimbursable expenditures incurred periodically, but not more often than monthly.

5. THIS MEMORANDUM OF UNDERSTANDING AND AGREEMENT shall be effective as of the day of this agreement, and may be amended at any time by mutual consent of the agency representatives.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be executed as of the date first hereinabove indicated.

BUREAU OF RECLAMATION

By Legd/ Leon W. Hill
Regional Director, Region 5
Amarillo, Texas

NATIONAL PARK SERVICE

By Darrell Lee
Chief, Western Office
Design and Construction

MASTER
MEMORANDUM OF UNDERSTANDING CONCERNING WILDLIFE RESOURCES IN NATIONAL RECREATION AREAS

Texas Parks and Wildlife Department

State of Texas

National Park Service
Department of the Interior

This Memorandum of Understanding between the Texas Parks and Wildlife Department, represented by the Director, hereinafter called the Department; and the National Park Service, Department of the Interior, represented by the Director, hereinafter called the Service; and

WHEREAS, joint and cooperative endeavors between the Texas Parks and Wildlife Department and the Service will contribute substantially toward promoting and providing maximum recreation, hunting, and fishing benefits for the best interests of the people of Texas and of the United States, within Amistad Recreation Area, Padre Island National Seashore and Sanford Recreation Area.

NOW THEREFORE,

The National Park Service agrees:

1. To cooperate with the Department in the joint enforcement of Texas game and fish laws and the Texas Water Safety Act.

2. To practice those forms of resource management that will benefit wildlife as fully as practicable that are compatible with the recreational mission of the area.

3. To authorize no wildlife control work involving the use of poisons, other killing chemical agents or traps on lands and waters administered by the National Park Service until the designated employees of the Department have had an opportunity to review such programs.

4. To recognize the Texas Parks and Wildlife Commission as having the regulatory responsibility for the management of harvesting fish and wildlife by the public.

5. To make available to the Department such National Park Service facilities, equipment, and personnel as can be devoted to wildlife needs consistent and coordinated with other National Park Service requirements.

6. To provide the Department with reports and copies of all vital correspondence directly related to this memorandum.

7. To cooperate with the Department in the development or construction of wildlife habitat improvements within the limitations of funds available for such purposes.

8. To permit the erection and maintenance of structures needed to facilitate wildlife management activities on lands under the management of the Service, provided such structures conform in character and location with the requirements of the Service, and their intended use is not in conflict with policies of the area.

The Department agrees:

1. To notify the Service promptly of changes in the game, fur and fish laws or regulations.

2. To provide the Service with reports and copies of vital correspondence relating to this memorandum.

3. To make, stimulate interest in, or sanction no artificial plant of wildlife which may affect management of the recreation area until a joint investigation has been made and until mutual agreement is reached regarding its effect upon all other resources.

4. To make no use of poisons, other killing chemical agents, or traps for the control of fish and wildlife on the lands and waters administered by the Service without the approval of the Area Superintendent.

5. To erect no signs or structures and perform no construction or other acts not herein provided for without first securing the concurrence of the Superintendent.

6. To create no game preserves, refuges, or sanctuaries within the recreation area without approval of the Regional Director concerned.

7. To recognize the Service as the agency having regulatory authority for determining the proper use of the recreation area lands in the interest of coordination with other uses and values.

The Department and the National Park Service mutually agree:

1. To promote a united approach to the problems relating to wildlife and fisheries management and water safety by all interested parties.

2. To cooperate in the formulation and application of plans and programs to guide the management of wildlife upon lands under the National Park Service administrative policies for recreation areas.

3. To meet jointly at least once annually for discussion of matters relating to the management of fish and wildlife resources on or affecting the lands and waters administered by the National Park Service; and to provide for other meetings at various administrative levels for discussion of law enforcement, educational programs, cooperative studies, plans, wildlife surveys, hunting and fishing and trapping seasons and other such matters as are relevant to the fish and wildlife resource and its habitat.

4. To cooperate in publicity matters by encouraging their local employees to jointly publicize reports of mutual interest and avoiding publicity of a character embarrassing to the cooperating agencies.

5. To cooperate in the restoration and management of fish and wildlife resources in proper relation with the land and water management plans for the area.

6. To require as close cooperation as practicable of all Texas Parks and Wildlife Department and National Park Service personnel, including the prompt and complete interchange of information in all matters such as game counts, population trends, kill records, losses, studies, and all other desirable information required for the wise use and beneficial management of wildlife.

7. That each and every provision of this Memorandum of Understanding is subject to the laws of the State of Texas and the laws of the United States, and to the delegated authority in each instance.

8. Nothing in this agreement shall be construed as obligating either party hereto in the expenditure of funds or for the future payment of money in excess of appropriations authorized by law.

9. Nothing contained herein shall be construed as limiting or affecting in any way the proper authority of the Service in connection with the administration and protection of the lands under the administration of the National Park Service in accordance with the purpose for which the recreation area was acquired, reserved, or resulting from agreements with another Federal agency.

10. That no member of or delegate to Congress, or resident, commissioner, shall be admitted to any share or part of this agreement, or to any benefit that may aries therefrom; but this provision shall not be construed to extend to this agreement if made for a corporation for its general benefit.

11. This agreement shall become effective when signed by the parties hereto and shall continue in force until terminated by mutual agreement or by either party upon thirty (30) days notice in writing to the other of his intention to do so. Amendments to this Memorandum of Understanding may be proposed by either party and shall become effective upon approval by both parties.

IN WITNESS WHEREOF, The parties hereto cause this Memorandum or Understanding to be executed as of the date when last signed below.

Texas Parks and Wildlife Department

Date July 16, 1968

By _____
Deputy Executive Director

National Park Service
U.S. Department of the Interior

Date AUG 1 1968

By _____
Assistant Director

CANADIAN RIVER MUNICIPAL WATER AUTHORITY
OFFICE OF SECRETARY
CITY HALL
BORGER, TEXAS

SEP 23 1965

September 22, 1965

DEC 1965
RETURNED
CENTRAL FILES
NATIONAL PARK SERVICE
REGION SEVEN

U.S. GOVT.
OCT 7 - 1965

EXECUTIVE COMMITTEE
GEORGE W. FINGER, PRESIDENT
RAY RENNER, VICE PRESIDENT
DORIS ALEXANDER, SECRETARY

MEMBER CITIES AND DIRECTORS

AMARILLO, TEXAS
A. E. BANASIK
J. F. MADISON

BORGER, TEXAS
GEORGE W. FINGER
HUDSON DAVIS

CAMPA, TEXAS
FRED THOMPSON
CLINTON EVANS

PLAINVIEW, TEXAS
C. V. PAYNE
H. R. SNYDER

LUBBOCK, TEXAS
J. RAY DICKEY
IRVING L. JONES

PLAINS, TEXAS
H. HOWARD HOFFMAN

SAMOKA, TEXAS
J. R. EDWARDS

SEMINOLE, TEXAS
IRVIN R. MOORE

SLATON, TEXAS
JIM R. CHARDSON
RAY RENNER

BROWNFIELD, TEXAS
C. BROWNFIELD
M. MULDROW

PERRYTON, TEXAS
F. LEA
SPENCER ELLIS

Mr. Michael J. Becker, Superintendent
Canadian River Project Recreation
National Park Service
P. O. Box 325
Sanford, Texas

1-Lucas WEST 12/2
2-Jones WEST

Dear Mr. Becker:

In action taken by the Board of Directors, Canadian River Municipal Water Authority in regular session Monday, September 13, 1965, several resolutions with regard to the National Park Service were passed.

For your information and file, we are attaching herewith these resolutions:

1. Resolution granting permission for the National Park Service to use not to exceed 350 acre-feet of water per annum from Lake Meredith for domestic and irrigation requirements in recreation and public use development at Lake Meredith including requirement of the concessions proposed to be established in the area.

2. Resolution recommending emphasis on recreation facilities on that segment of project land known and identified as the Fritch Fortress.

3. Resolution whereby plans be prepared and an office be constructed to serve as headquarters for the Canadian River Municipal Water Authority near the dam without including facilities for administration of the National Park Service.

Yours truly,

Doris Alexander, Secretary

cc: C. O. Crane, Project Construction Engineer
Amarillo, Texas

(FST091565)

R E S O L U T I O N

A RESOLUTION by the Board of Directors of the Canadian River Municipal Water Authority for recommending emphasis on recreation facilities on that segment of project land known and identified as the Fritch Fortress.

WHEREAS, limited funds have been approved for use by the National Park Service in developing recreation and public use facilities at Lake Meredith; and

WHEREAS, a full discussion was had and a report submitted by officials of the National Park Service outlining their advance planning on recreation development in several areas; and

WHEREAS, after considering all recreation plans it is the opinion of this Board that the best interests of the public will be served by concentrating on development of the Fritch Fortress area to encourage major concession development at that point including the completion of facilities for serving a marina before 1966;

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the Canadian River Municipal Water Authority that the National Park Service be requested to concentrate on development of recreation facilities on the Fritch Fortress within the limit of available funds, the purpose being to provide sufficient basic facilities to permit early issuance of a prospectus covering private concessionaire features proposed for this area including the location of a marina before 1966.

The foregoing resolution having been read in full, A. F. Madison made a motion that same be passed. Upon such motion being seconded by Irvin L. Jones, the question was called for with the following result:

All directors present voted "AYE."

The President announced that the motion had carried, was passed, and had been duly adopted.

PASSED, ADOPTED AND MINUTES APPROVED this the 13th day of September, 1965.

George Finger, President
Board of Directors, Canadian River Municipal Water Authority

(SEAL)

ATTEST:

Secretary

United States Department of the Interior
NATIONAL PARK SERVICE
SOUTHWEST REGION
P.O. Box 728
Santa Fe, New Mexico 87501

IN REPLY REFER TO:

K1817(SWR)OIV

MAY 30 1980

Memorandum

To: Superintendent, Lake Meredith

From: Acting Regional Director, Southwest Region

Subject: Statement for Interpretation, 1980, for Lake Meredith Recreation Area

Enclosed is your final Statement for Interpretation signed by me as approved. Please extend my thanks to all who worked on this document. It is an excellent job.

Enclosure

cc:
Dave Dame, WASO
Alan Kent, HFC
Field Assistant to Regional Director

ANNUAL

STATEMENT FOR INTERPRETATION

AND

VISITOR SERVICES

LAKE MEREDITH RECREATION AREA
PARK

Prepared By: Robert L. Nielson s/ John W. Phillips — Chief Interpreter — 4-24-80 Date

Recommended By: [signature] — Acting Regional Chief, Interpretation and Visitor Services — 29 April 1980 Date

Concured By: John C. Pflaum — Superintendent — May 8, 1980 Date

Approved By: Acting Howard D. Cone — Regional Director — 5-29-80 Date

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BIBLIOGRAPHY

OF

BASIC INFORMATION DOCUMENTS

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1. CURRENT PLANNING DOCUMENTS FOR AREA

   a. Master Plan 1973 (Neither approved nor disapproved)

   b. Archeological Assessment 1974

   c. Recreation Planning Report 1965

   d. Resources Management Plan 1974

   e. Statement for Management 1976

   f. Management Objectives 1969

   g. Interim Interpretive Prospectus - Lake Meredith Recreation Area, Texas, 4th Draft, March 1977

2. CURRENT NATURAL HISTORY, HUMAN HISTORY AND RECREATIONAL INFORMATION RELEVANT TO AREA RESOURCES AND THEMES

   a. Allen, Durward L.

      1967 --- "The Life of the Prairies and Plains" McGraw-Hill

   b. Baker, Ele M. and Jewel A.

      1939 --- "Final Report Archeological Survey O. P. 665-66-3-404"

   c. Baker, Ele M. and Jewel A.

      1939 --- "Final Report WPA West Texas State Archeological Project 9249"

   d. Cooper, William A., Jr.

      1966-1971 --- "Water Quality and Limnology of Lake Meredith"

      West Texas State University (Annual Reports)

e. Duffield, Lathel Flay

1964 --- "Three Panhandle Aspect Sites at Sanford Reservoir, Hutchinson County, Texas"

f. Etchieson, Gerald Meeks

1979 --- "Archeological Testing at the South Ridge Site, Lake Meredith Recreation Area, Hutchinson County, Texas"

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1944 --- "Quaternary of the Texas High Plains"

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i. Green, F. E.

1967 --- "Archeological Salvage in the Sanford Reservoir Area"

j. Kenner, Charles L.

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n. Newcomb, W. W., Jr.

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o. Panhandle Geological Society

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p. Patton, Leroy T.

1923 --- "The Geology of Potter County, Texas"

q. Phillips Petroleum Company

1963 --- "Pasture and Range Plants"

r. West Texas State University Geological Society

1965 --- "Guidebook - Palo Duro Field Trip"

s. Wright, Robert A. and Keith Meador

1979 --- "The Vegetation of the Lake Meredith Recreation Area, Texas"

t. Miscellaneous Recreation Informations

"Lake Meredith" Park Brochure - Reprint 1977

"Lake Meredith Recreation Area - Texas - Visit Planner - 1978

"Hunting - Lake Meredith Recreation Area - Texas" 1977

"Fishing in Lake Meredith" 1978

"A Birder's Checklist - Lake Meredith Recreation Area" 1976

ANALYSIS

of

CURRENT MANAGEMENT INFLUENCES AND CONCERNS

A. SPECIAL EMPHASIS/MANAGEMENT CONCERNS - 1979 FY

1. Lake Meredith Recreation Area experiences a problem associated with many recreation areas --- traditional forms of interpretation are poorly received by area visitors.

   We need to experiment and develop forms of interpretation that will work.

   In 1979, an effort was made by the Interpretive Specialist to experiment as a roving interpreter.

LONG RANGE CONCERNS - More than Current FY

1. Once the proper interpretive methods are identified, we need to obtain funding to hire seasonal interpreters to provide the necessary interpretation.

B. SAFETY CONCERNS

1. Visitor Concerns

   a. General - Lake Meredith is approximately 10 miles long, has about 90 miles of shoreline and is surrounded by the "breaks" of the Canadian River. The Canyon seems to funnel sudden and often violent winds. Annual visitation to Lake Meredith Recreation Area is approaching 2 million visits. A varied selection of recreation activities has been made available and all are pursued with enthusiasm and at times with recklessness.

      Combining high visitation with water oriented recreation, rugged terrain and varied climate, creates numerous accident potential situations.

   b. An average of 20 annual visitor injuries requiring ambulance service or hospitalization occur.

      Lake Meredith experiences 3.5 visitor fatalities a year, for a total of 50 from 1965 to 1979. Over 90% of the accidental visitor deaths have been water-oriented. The most commonly occurring contributing factors are:

      1. Life preservers not worn.
      2. Alcohol and boating.
      3. Wind or severe weather and vessel too small for wind conditions.
      4. Suddenly immersed in cold water.
      5. Swimming beyond ability.

6. Moving in boat, sitting on gunwales, etc., while underway, and other important factors.

2. Employee Safety Concerns

a. Interpretive employees are concerned with vehicle safety. All interpretive employees are required to hold a valid state operators permit, must pass a federal driving test and must attend the National Safety Council's Defensive Driving Course prior to operating NPS vehicles. Special instructions are given on procedures for driving on numerous dirt roads in the area.

b. All interpretive employees participate in flint chipping demonstrations and are shown the correct way to protect eyes and hands from the sharp edges of the flint.

c. Field duties are a usual part of the interpreter's duties and natural hazards including steep hillsides, rough and broken terrain, hot weather and sunshine, cold windy weather, poison ivy, rattlesnakes, etc., are encountered.

d. Some interpretive employees often participate in boating and other water related work and are instructed in water safety procedures.

e. One interpretive employee holds a full NPS enforcement commission and receives necessary law enforcement training.

f. Emergency Preparedness - Tornadoes are sometimes a threat, and instructions are given to seasonal employees about avoiding tornadoes by finding a low spot if one should approach. Severe weather evacuation plans exist for all buildings.

C. RESOURCE MANAGEMENT CONCERNS

1. Visitor Caused

a. Visitor Concentration - The receding lake levels over the past five years have tended to concentrate visitors in the areas nearest the dam. (Spring Canyon, Sanford-Yake, Cedar Canyon, Bugbee). This has caused severe impact to the resources in these areas.

b. Off-Road Vehicle Use - Off road vehicle use is permitted in two areas, Rosita and the creek bed of Blue Creek. The Rosita area is within 20 miles of Amarillo, so it is heavily used. The off-road use had created deep, probably permanent erosion scars.

c. Depletion of Flint and Petrified Wood - Regulations state that it is permissible to collect small quantities of rock (flint) for personal use. This is a problem since Alibates flint occurs in the recreation area and is highly desired by rockhounds. Flint is a non-renewable resource which must be protected to the extent of

present regulations.

d. Decimation of Wildlife - Hunting and trapping of both game and "varmint" species is permitted in some portions of the recreation area. Research is needed to determine the impact, especially on the slower reproducing large animals. Hunting will probably need to be more strictly controlled or eliminated for some animals.

e. Related to this is firearm use - which is year round for "Plinking" and target shooting. This is a problem, because so few target shooters are willing to clean up the areas they use, and their targets, including broken bottles, beer cans, clay pigeons, and general trash remain to litter the environment. In addition to target shooting, another problem even more severe is the shooting of government property or occasionally other individuals' cars, etc.

f. Archeological Attrition - Due to the number of visitors using the area, the over 300 sites of archeological importance, have been heavily impacted. Pothunters have dug in many sites. The attrition is not wholly visitor caused as sites have been destroyed by natural erosion and the lake, along with the gas and oil well activities. Every effort should be made to protect all these sites and those in the most danger should be excavated as soon as possible to prevent further loss of data.

g. Boating, Fishing and Water Quality - These must be considered together, since the management of one affects the condition of the other. The amount of pollution from an individual boat on the waters of the lake is insignificant, but from thousands which use the lake in the course of a year, this increases in proportion to the amount of use. The lake water is used as a city water supply for eleven cities in the Texas Panhandle, including Lubbock and Amarillo, so any pollution must be cleaned up before the water is consumed in the cities. Fishing also affects the water quality, since unwanted fish are thrown up on the bank to decay, and this refuse will eventually wash back into the lake to add to the pollution problem. Water quality is also affected by the non-visitor impact of neighboring real estate developments.

2. Visitor Related

a. Effects of Grazing - Three grazing permits are issued to nearby ranchers who graze hundreds of cattle on recreation area lands during winter through April. Due to lack of adequate boundary fence, trespass grazing is a problem in some areas. The cattle cause trails which lead to erosion and cattle grazing alters plant species composition and affects plant vigor and range trend.

This activity has a limited affect on visitor activities in some areas.

b. Oil and Gas Leases - We have approximately 150 gas wells, 22 oil wells and 100+ miles of pipeline in the recreation area. The

activities associated with these facilities often damage the resources of the recreation area. The oil and gas companies are also carrying on exploration and recovery activities in the area which necessitate the addition of new units and facilities. New mineral management guidelines have just come into effect which will make our present management of these units obsolete. The oil and gas company activities create random rut roads which are often used and enlarged by park visitors to the detriment of the area. Oil and gas activities do somewhat limit what the park visitor can do in some areas.

3. Other

a. Exotic Plants - In the river bottom, salt cedar has taken over to such an extent that many areas are impassable to foot or vehicle traffic. These trees are also water hogs, and where they grow, other native species have been crowded out. A similar problem, though less severe, occurs in disturbed areas and along the road sides, and this is the Russian Thistle, or tumbleweed. If the area is left to itself, the tumbleweeds will be crowded out by native species, in time. In some cases, control measures may be necessary.

D. MAINTENANCE CONCERNS

1. Interpretive Sites and Facilities - Interpretive sites and facilities in the recreation area are few in number. One area of concern has developed over the past few years concerning the role of NPS maintenance at the Lake Meredith Aquarium and Wildlife Museum. This facility was a joint effort between the City of Fritch and NPS. The facility now requires considerable maintenance and clarification is required on who does what. If NPS is to provide maintenance, additional manpower and funds will be necessary.

2. Other Areas in the Park -

a. General - The recreation area is large, and such activities as trash pickup and chemical toilets require a considerable amount of driving to accomplish the job.

b. Roads and Trails -

1. Road Grading - Many of the roads throughout the recreation area are unsurfaced dirt, and must be graded on a regular basis. One man is assigned full time to road grading and another man part time to keep them from becoming rough or washing away.

2. Paved Roads - A few roads in the area are paved, and must be sealed every 5 years, due to normal deterioration. Roadside litter pickup, along with shoreline clean-up, is a huge recurring problem. Assistance from YACC work crews has helped alleviate this and some other maintenance concerns.

3. Parking Areas - Each boat launching area has a parking area associated with it. These must be maintained on about the same schedule as the paved roads.

4. Trails - A few trails are provided to give visitors access to some areas. These are usually on steep slopes, and often need major maintenance, ie. erosion control.

5. Boat Launching Facilities - Boat launching ramps and courtesy docks are provided at major points around the lake for visitor convenience. These need constant attention as the lake level fluctuates, to keep them open and free from silt. During periods of icy weather, these are frequently closed.

6. Navigational Aids - Hazards to navigation are charted and aids placed at critical locations, and then maintained, in order to enhance boating safety.

7. Keeping NPS boats and vehicles maintained and in good working order is a concern.

c. Buildings and Utilities - There is probably no greater concern in maintenance or any other operation at LAMR than the overall lack of office, work and storage space. Many of the buildings we are utilizing now are sub-standard and unattractive. Some plans, including proposals to construct a new maintenance facility and to occupy surplus YACC structures, if realized, will alleviate this problem.

1. Building Maintenance - Ranger Station, Headquarters, Museum, Alibates, Ramps.

   a. Cleaning - except for park headquarters in Fritch, which is under contract cleaning, the maintenance division is responsible for building, cleaning and maintenance.

   b. Restrooms - the maintenance division is responsible for cleaning and servicing chemical toilets at locations around the lake. This requires checking the facilities regularly, and pumping waste materials as needed.

   c. Trash Pickup - this is the most time consuming job that maintenance has to do. Due to lack of help, and mileage restrictions, much usually remains to do in this area.

   d. Repair - minor and major repairs are regularly performed to buildings. Emergency repairs are also performed as needed.

2. Utilities

   a. Water Transmission Lines and Building Plumbing - Water transmission lines around the lake are of four kinds -

muncipal, petroleum company, park service and Canadian River Muncipal Water Authority lines, to various points in the Texas Panhandle. Water is bought from the city of Fritch for the park headquarters building and Fritch Fortress. Phillips Petroleum water lines furnish water for the Sanford-Yake area and the Ranger Station/Maintenance Yard. National Park Service lines carry Phillips Petroleum Company water to our own distribution system.

b. Electricity - Electricity is furnished by the Southwestern Public Service Company and Rita Blanca Co-op. All electrical repairs are done by maintenance.

c. Telephone Service - Continental Telephone Company of Texas provides both connections and maintenance of all facilities.

d. Natural Gas - Pioneer Natural Gas Company provides gas for all buildings needing gas connections. Appliances are serviced by the NPS maintenance division as needed.

e. Cooperation from other divisions is received on such items as litter pickup, inspection of facilities, notification of maintenance needs, etc.

E. PROTECTION AND LAW ENFORCEMENT

1. What Should Visitors Be Aware Of?

a. Types and Kinds of Law Enforcement Activity Involving Area Visitors.

1.	Motor Vehicle and Boat Accidents	20+ Annually
2.	Class I Offenses (Mostly Larceny/Theft)	20± Annually
3.	Class II Offenses	75± Annually
4.	Arrests	15± Annually
5.	Magistrate Tickets	125± Annually
6.	Courtesy Tags	200± Annually

b. Specific Resource Related Violations of Concern to Visitors.

1. Off-Road Use - Many off-road vehicles frequent the Lake Meredith area, and especially during hunting season, and the temptation is great to drive off the established roadways and create new trails. This necessitates the signing of areas so used, and the repair of road scars already present. In addition to these off-road users, the oil and gas field employees are constantly driving on the graded roads, and if they want to make a new road, they occasionally do so without consulting the National Park Service. This concern exists, despite the presence of two approved ORV areas at Lake Meredith.

2. Hunting - Large portions of the recreation area are open to

hunting and trapping in conjunction with rules and regulations of the State of Texas. Many regulations are violated, including bag and possession limits, seasons, licensing requirements, hunting in restricted areas, etc. The National Park Service has developed a hunting map and handout. There are no endangered species here.

3. Vandalism - Especially during hunting season, chemical toilets and trash cans, as well as signs, are often shot or otherwise damaged, purposely, by park visitors. Violators are seldom caught, and replacement is often necessary.

4. Pot Hunting - Lake Meredith Recreation Area abounds with Indian sites and these range in age from Paleo-sites, over 11,000 years old, to Comanche sites just over 100 years of age. Many of these are merely campsites, but around 15% of the 300+ sites around the lake have structures associated with them. Pot hunting and arrowhead hunting in these sites is almost an area tradition, and is difficult, at best, to control. Extensive vandalism (read digging) has occurred during the last year, and the amount of surface hunting is unknown and unlimited.

5. Rock Hunting - A small amount of rock can be gathered by hand, and, as a result, this is a lesser problem than pot hunting. Still, many areas are extensively used by rockhounds, and the "one handful" regulations is commonly ignored.

6. Fishing - The fishery resource is primarily managed by the Texas Parks and Wildlife Department. Many fishing related violations occur but the National Park Service's role is basically to act in a "notification" capacity.

7. Water Quality - Water quality is monitored by the state to ensure both safe drinking water for the panhandle residents, and safe recreation for recreation users.

c. Specific Visitor Related Enforcement Concerns

1. Traffic Control Devices - At dangerous points on the park roads, traffic control devices have been installed to prevent collisions and to aid traffic flow.

2. Swimming Beach Supervision - One area of high visitor concentration is the Spring Canyon Swimming Beach. Lifeguards are on duty during the summer months, and regular patrols are made by protection personnel to ensure compliance with the rules. The rule most often broken is the consumption of alcoholic beverages in the area. It is felt that the closing of the area to consumption of alcohol has reduced the number of lifeguard assists, and the number of confrontations between drinkers and swimmers.

3. Boating Regulations - The National Park Service, State of Texas and Coast Guard regulations are enforced on the lake for the protection of the visitor. It is felt that the greatest potential for accidental death to a park visitor is on the water, and enforcement of these regulations is one way to cut down on the number of accidental deaths at Lake Meredith.

4. Picnic Areas - Picnic areas, and other visitor use sites, are closed to hunting to keep the casual visitor and the hunter apart. It is felt that this keeps down the number of hunting accidents around the area.

5. Off-Road Use - Four-wheel drive vehicles, dune buggies, and motorcycles are allowed free use of the creek bottom in Blue Creek and Rosita Areas. This is a particularly dangerous sport, and more regulations would prevent accidents and deaths in these areas.

6. Visitors - Visitors are often their own worst enemy in a recreation area. Injuries, theft, intoxication, disorderly conduct and assault are but a few examples of visitor related enforcement incidents that can occur.
A more intensive interpretive effort might prevent some of these incidents.

F. RECREATIONAL ACTIVITIES AND CONCERNS

A full range of recreation pursuits is available to the LAMR visitor, including but not limited to:

Boating, water skiing, fishing, sailing, swimming, SCUBA diving, hunting, camping, picnicking, hiking, backpacking, trapping, hang-gliding, horseback riding, ORV use, sightseeing, and a variety of spectator sports and special events.

The only special regulation, outside of Parts 2, 3, and 4 of 36 CFR, relate to ORV use.

At the present time, on some Sunday afternoons, the Spring Canyon guarded beach is saturated with swimmers and potential users must be turned back. In the future, it may be necessary to limit, zone or disperse hunting use, ORV use at Rosita, and boating use (especially fishermen vs water skiers).

G. RESEARCH ACTIVITIES AND CONCERNS

1. Research Pertaining to Lake Meredith Recreation Area - (See Bibliography)

2. Research Completed This Year -

   a. A Survey and Population Analysis of Mammals by Habitat at Lake Meredith Recreation Area and Alibates National Monument, by

Flavius C. Killebrew, PHD. This report is a complete and rather exhaustive study of the small mammal ecology of our area.

b. The Vegetation of the Lake Meredith Recreation Area, Texas, by Robert A. Wright and Keith Meador. This report shows plant zones around the lake by habitat, and provides a good list of the more common species of plants in our area.

3. Research Currently Underway -

a. National Uranium Resource Evaluation of the Amarillo Area - Dr. William McGowan. This project is two-thirds complete. It will culminate in recommendations for storage of radioactive wastes in the Texas Panhandle.

b. Sedimentation Survey of Lake Meredith Area - Dr. Thomas C. Gustavson. This project is being studied in conjunction with the one under way by Dr. McGowan. It will determine the rate of erosion on the surrounding area, and the rate of sedimentation into Lake Meredith.

4. Research Needed -

a. Use of Fire as a Management Tool.

b. Extent, Impact and Management of Oil and Gas Resources.

c. Complete the Basic Inventory of Natural Resources.

d. Faunal Factors, including Decimation of Wildlife.

e. Water Resources Analysis.

f. Ecosystem Analysis.

g. Adverse Effects of Chemical Pollutants from Adjacent Lands.

h. Protection of Harbor Facilities from Wave Action.

i. Archeological Survey and Mapping.

The above research needs, with the exception of oil and gas concerns, are fully outlined in the Resource Management Plan.

H. CONCESSION AND OTHER PUBLIC FACILITIES AND SERVICES

1. Facilities and Services Available Within the Area -

a. Concessions - The only major year round concessioner at Lake Meredith is the Fortress Cove Marina, which provides docking facilities for pleasure craft, recreation and games on a limited scale, and limited food, groceries, fishing and boating supplies. There is also a "Goody Truck" which operates at the Spring Canyon

Swimming Area and provides a limited food and beverage selection for swimmers.

b. Public Facilities -

Spring Canyon - (Sanford Dam) picnic and overnight campsites, supervised swim beach (June - August), chemical toilets, parking, no drinking water.

Sanford-Yake - Marina, launch ramp, picnic and campsites, flush toilets, drinking water, trailer dump station, parking, Sanford-Yake Information Station (intermittent June-August).

Cedar Canyon - Launch ramp, picnic and campsites, restrooms, drinking water, parking, trailer dump station.

Fritch Fortress - Launch ramp, picnic and campsites, restrooms, drinking water, parking, trailer dump station.

Bates Canyon - Launch ramp (out of service due to low lake level), parking, primitive camping and picnic sites, chemical toilets, interim trailer dump station, no drinking water, Bates Canyon Information Station (June - August).

McBride Canyon & Mullinaw Creek - Semi-developed camping and picnic sites, chemical toilets, no drinking water.

Rosita - Semi-developed camping and picnic sites, chemical toilets, ORV area, no drinking water, interim trailer dump station.

Plum Creek - Semi-developed camping and picnic sites, chemical toilets, no drinking water, interim trailer dump station, launch ramp (out of service due to low lake level).

Blue West - Picnic and campsites, launch ramp, chemical toilets, no drinking water.

Blue Creek Bridge - Semi-developed picnic and campsites, chemical toilets, no drinking water, ORV area.

Bugbee - Primitive picnic and campsites, chemical toilets, no drinking water.

Harbor Bay - Primitive picnic and campsites, chemical toilets, no drinking water, launch ramp (out of service due to low lake level), interim trailer dump station.

District Ranger Station - (near south end of Sanford Dam), information intermittent year around.

Roving protection and interpretive services are provided at the above sites.

2. Facilities and Services Available Adjacent to the Area

a. Park Headquarters - The park offices are located in Fritch, TX. There are restrooms and information facilities at this point.

b. Lake Meredith Aquarium and Wildlife Museum - Aquariums containing area fish species, wildlife dioramas, other exhibits and information available, area information.

c. Motels, Hotels and Restaurants - are located in nearby towns and along some approach roads.

I. SERVICEWIDE GOALS, PRIORITIES AND SPECIAL THRUSTS

The most important thrust during 1980 FY, along with safety messages, will be energy conservation.

ANALYSIS OF

PARK USERS AND USE PATTERNS

A. VISITATION ANALYSIS BY SELECTED CATEGORIES OF USERS

1. Breakdown by Age.

   a. Children 0 to 12 years ---------- 20%

   b. Teenagers 13 to 17 years ---------- 25%

   c. Adults 18 to 61 years ---------- 40%

   d. Senior Citizens 62+(Golden Age Passport Age) --- 15%

2. Breakdown by Group Affiliation

   a. Alone (Non-associated individuals) ---------- <04%

   b. Peer Groups (Visitors of Approximately the Same-Age) 20%

   c. Organized Tours (Persons Traveling Together for an Experience-ie.Schoolgroups,) >01%

   d. Nuclear Family (Two Parents and their Children)- 30%

   e. Extended Family (Nuclear Family + others related by blood) 20%

   f. Multiple Family (More than One Nuclear Family - Not Necessarily related by blood) 15%

   g. Partial Family (Families with one parent absent) 10%

   h. Other (Unknown Composition) 00%

3. Breakdown by Special Population Membership

   a. Handicapped, Physical Sensory, Mental ---------- 01%

   b. Non-English Speaking ---------- 01%

   c. Minority ---------- 05%

B. VISITATION ANALYSIS BY ORIGIN - DESTINATION PATTERN

1. Breakdown by Point of Origin

   a. Local Residents (Visitors who live in the immediate vicinity of the park) 20%

   b. Regional (Visitors who reside within a 2-3 hour-drive) 78%

c. National (U. S. Citizens residing outside the Local or Regional Area) - <01%

d. International (Visitors from other Countries) - >01%

2. Breakdown by Destination/Duration of Stay

a. Homebased Day Users ---------- 82%
(Visitors who left their home that day, visited the park, and returned home the same day)

b. Through Visitors ---------- 06%
(Visitors on an extended trip who pass through the park as one stop on their itinerary, and spend a portion of a day or a single night-50% day and 50% overnight use)

c. Extended Users ---------- 12%
(Visitors in the park as a main or only destination and who remain two or more nights)

C. VISITATION ANALYSIS BY SITE AND ACTIVITY SELECTION

1. Breakdown by Area and Facilities Used

a. Incidental to Park's Primary Resource ---------- 90%
(ie. desire a high degree of developed facilities. Seek modern designed environment with wide selection of facilities for comfort and convenience. Require safe, secure, gregarious environment).

b. Based on Park's Primary Resource ---------- 09%
(ie. desire moderate degree of developed facilities. Prefer basic natural environment).

c. Dependent on Park's Primary Resource ---------- 01%
(ie. desire no human developed facilities. Prefer unaltered natural environment. Human developed facilities unimportant).

2. Breakdown by Interpretation and Visitor Service Program Use

a. Use Information, Orientation and/or Non-Personal Services Only ------ 04%

b. Attend Personally Conducted or Presented Activities ------ 01%

c. Non-Program Users ---------- 95%

D. AREA'S USE PATTERNS

1. Total Park Visitation - Annual and Monthly - 1979

January, 1979	36,627	July, 1979	294,727
February, 1979	72,811	August, 1979	184,176
March, 1979	133,288	September, 1979	139,027
April, 1979	175,648	October, 1979	82,684
May, 1979	228,099	November, 1979	78,827
June, 1979	358,874	December, 1979	64,637

Annual Total for 1979 ---------- 1,849,425

2. Seasonal Use Variations

Summer - 837,777 - 45%

These figures show a seasonal variation dependent on weather. In the winter, cold temperatures keep all but the hardiest visitors at home.

Fall - 300,538 - 16%

As it starts to warm up, in March and April, visitor use jumps to nearly double previous months totals.

Winter - 174,075 - 09%

May, June and July are our highest months, with the hot temperatures of August and September slowing visits down. Thus, the visitation in April is nearly equal to that of August.

Spring - 537,035 - 29%

A pronounced week-end visitation occurs on good weather week-ends during March, April and May.

ANALYSIS OF

"SPECIAL " PROGRAM CONTENT AND CONSIDERATIONS

A. ENVIRONMENTAL

1. Oil and Gas Companies - Numerous oil, gas and pipeline companies have operations within Lake Meredith Recreation Area. Future interpretive programs will contain information on subsurface geology, manner of oil and gas production and extraction and history of the gas and oil industry within the Texas Panhandle.

2. Cattle Ranching - The recreation area is surrounded by large cattle ranches and project lands, at one time, were part of the ranches. Future interpretive programs will contain messages on the early cattle ranches.

   The historic McBride House will be part of this message.

B. SPECIAL PROGRAMS UNIQUE TO THIS AREA

1. YCC Program - The Lake Meredith Area has an active YCC program, which has two programs in which the interpretive division is concerned. Environmental Education is a part of the curriculum for the participants, and interpretive aid could be used in formulating or carrying out the environmental part of the program.

   The YCC program also conducts an archeological dig each summer, in conjunction with West Texas State University. This program has proven very helpful in the past, both in recovering sites which are about to disappear, and in furnishing new data for interpretive programs.

2. Lake Meredith Aquatic and Wildlife Museum - The bicentennial program provided funds for the construction of an Aquarium and associated exhibits on the fish and wildlife around Lake Meredith. The Aquariums and exhibits are the property of the National Park Service, but the building is kept open by the City of Fritch, and the Fritch Chamber of Commerce. During the summer months, an interpreter, on roving assignment, spends parts of the week-end on duty in the museum, helping the museum hostesses, and interpreting Lake Meredith for the public.

INVENTORY OF INTERPRETATION AND VISITOR SERVICES

FACILITIES, MEDIA AND SITES

WITH BASE MAP SHOWING LOCATIONS

A. STRUCTURES, FACILITIES AND MEDIA

1. Visitor Centers - None.

2. Information Stations - Two.

   [1] Lake Meredith Recreation Area Headquarters Information Station, Fritch, Texas. Open and manned week-days 8:30 AM to 5:00 PM year round.

   Contains: Information, maps, handouts, displays.

   [2] Lake Meredith Recreation Area District Ranger Station. Located near the south end of Sanford Dam. Open and manned year around on an intermittent basis.

   Contains: Information, maps, handouts.

   [3] The Bates Canyon Information Station - Is in Lake Meredith Recreation Area, however, it is the primary contact point for visitors to Alibates Flint Quarries National Monument. It is open from 9:30 AM to 6:00 PM daily from Memorial Day thru Labor Day.

3. Museums - One.

   
   Lake Meredith Aquatic and Wildlife Museum - A cooperative venture between the National Park Service and City of Fritch. It is located in, and manned by, the City of Fritch and the Fritch Chamber of Commerce, with some assistance by Lake Meredith Recreation Area staff.

   Contains: Aquariums and exhibits associated with the fish and wildlife around Lake Meredith. It also contains a display of Alibates Flint. Information and handouts are available.

4. Amphitheatres - One.

   (1) One - Still under construction. Fritch Fortress Area.

5. Historic/Archeological Structures and/or Sites - One.

   
   McBride House - Restored early ranch house. Fenced due to remote location. Descriptive interpretive sign.
   See site map PART I - 5, Page 5, for location of archeological sites.

6. Self-guiding Trails.

   
   Grasses self-guiding trail - Plum Creek Area. Operated in conjunction with Soil Conservation Service. Seldom used due to lack of funds to coordinate use with area schools.

7. Cooperating Association Outlets.

   [1] One outlet at Lake Meredith Headquarters complex (See information station for location and hours of operation).

8. Libraries - One.

[2] District Ranger Station. The present library contains materials relating to both Lake Meredith Recreation Area and Alibates Flint Quarries National Monument. Collections consist of 600 books, 25 magazine and periodical titles, 35 movies, 2500 color slides, 250 photographs, mostly black and white, and the Studer Collection of over 1000 papers relating to Alibates Flint Quarries and the history of the Texas Panhandle. The main topics covered by the library include Archeology, Indians, History, National Park Service, Conservation, Safety, Boating, and recreation pursuits, including hunting, fishing and recreational boating.

9. Archives and Study Collection.

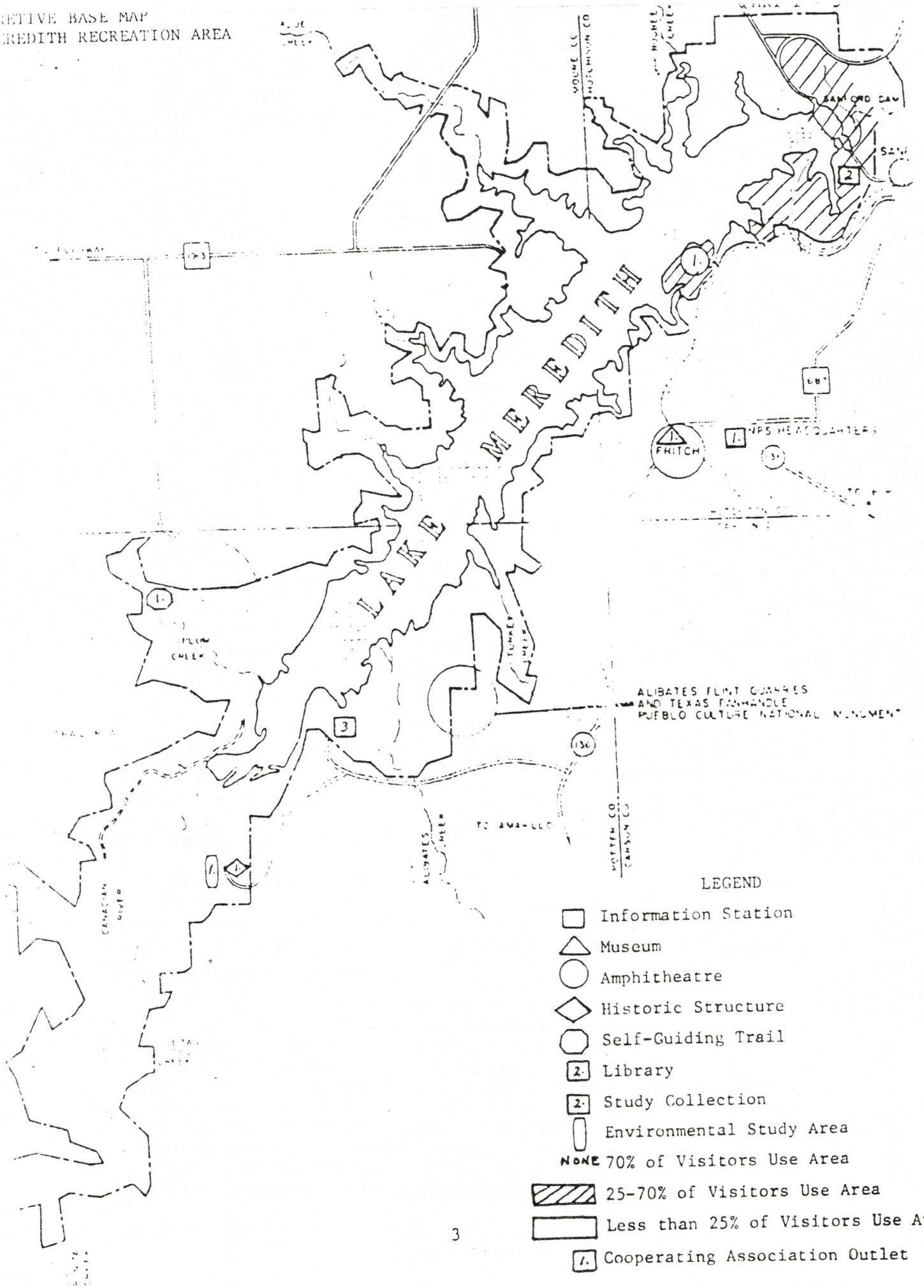
[2] Study Collections - Limited natural history study collections at Lake Meredith Recreation Area. Sizeable artifact collection at Lake Meredith Recreation Area District Ranger Station. (See Information Station for location).

B. SPECIAL PROGRAM SITES

1. Environmental Study Area.

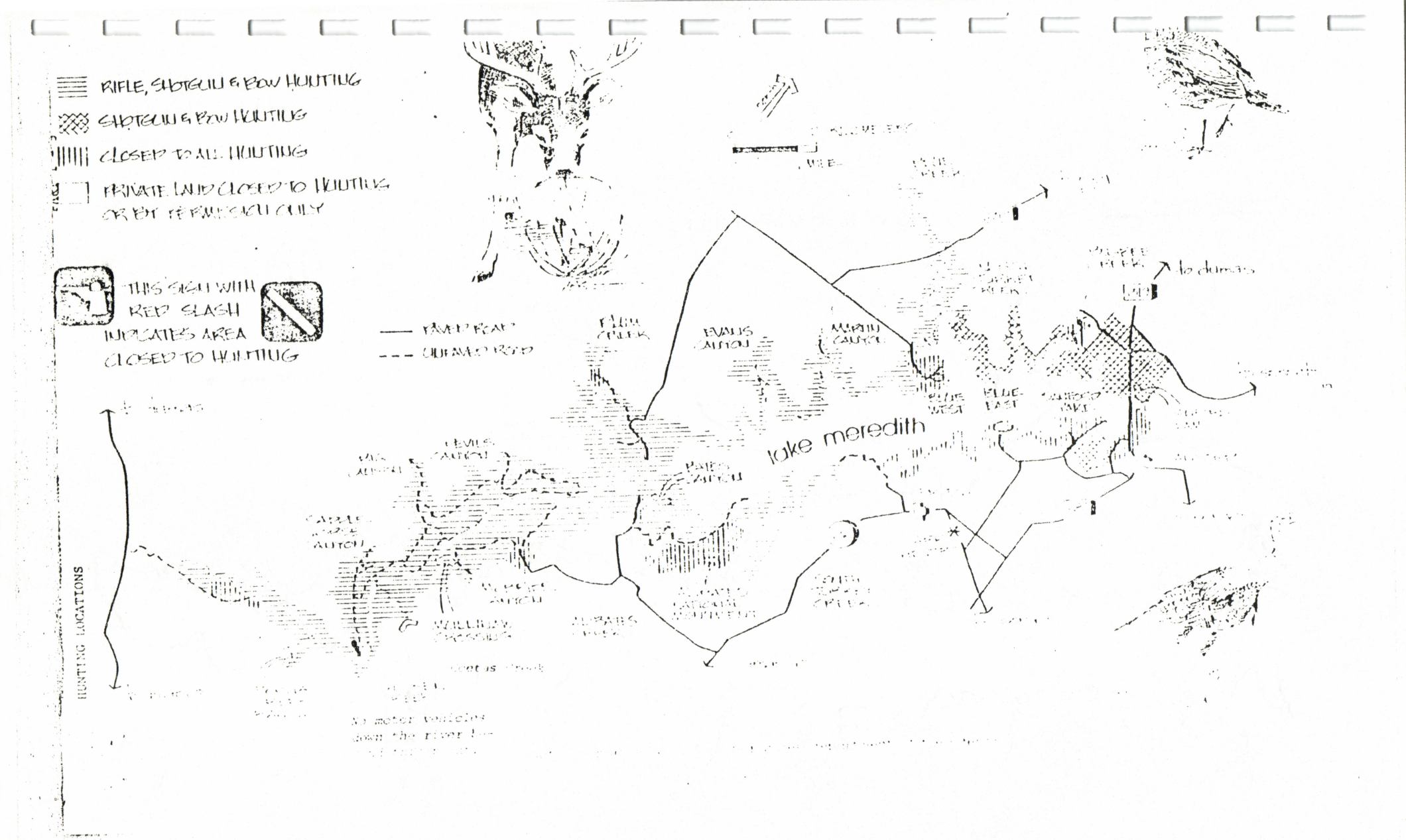
(1) McBride Canyon Environmental Study Area - Available year around. Seldom used due to lack of personnel to coordinate with area schools.

RETIVE BASE MAP
MEREDITH RECREATION AREA





SITE LOCATION MAP
Fig. 1.


RIFLE, SHOTGUN & BOW HUNTING
SHOTGUN & BOW HUNTING
CLOSED TO ALL HUNTING
PRIVATE LAND CLOSED TO HUNTING OR BY PERMISSION ONLY
THIS SIGN WITH RED SLASH INDICATES AREA CLOSED TO HUNTING
PAVED ROAD
DIRT ROAD
lake meredith
HUNTING LOCATIONS

ANALYSIS OF PERSONNEL FUNDING BASE 79 FY

A. NPS - INTERPRETATION EMPLOYEES AND BUDGET

Work Years Permanent - 1 Number of Positions - 1 - J7545-07
Work Years Temporary - .25 Number of Positions - 1

Total Work Years Available - 1¼.

Total Operating Budget - $24,390.

% Devoted to Personnel Compensation and Benefits - 90
% Devoted to Other - 10

B. NON-NPS EMPLOYEES AND PROGRAM FUNDS AVAILABLE

1. VIP Program - intermittent, infrequent assistance - no funds.
2. Cooperating entities - City of Fritch Museum Hostesses. 1 work/year.
3. YCC - Infrequent interpretation assistance.

C. PERMANENT NPS EMPLOYEE

Employee is active in off-site interpretive programs of varied nature. He also serves as roving interpreter during high visitation months. The seasonal interpreter will work 1980 on roving interpretation in the high visitor use areas of the lake, June thru August.

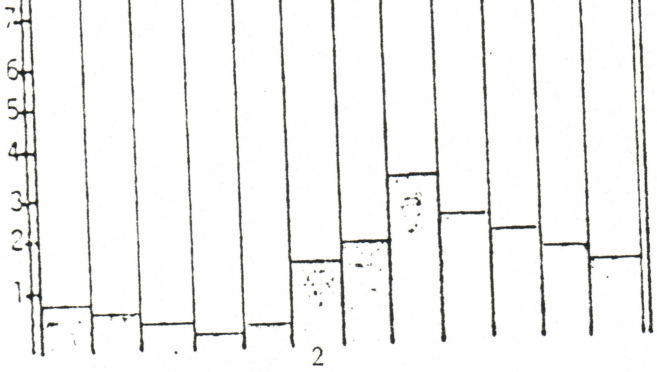
The museum hostesses are paid by the City of Fritch and operate the museum as follows:

MONDAY - CLOSED ALL DAY
SUNDAY & TUESDAY - 2:00 PM to 6:00 PM
WEDNESDAY-SATURDAY- 10:00 AM to 6:00 PM

C. PERSONAL SERVICES PROFILE COMPARED TO VISITATION WORKLOAD

Position	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	Comments
Interpretive Specialist GS 9													A GS 3, Park Aid, is paid by Interpretation, but does no interpretive work

Visitation profile
Hundred
(in Thousands)



SUMMARY OF INTERPRETIVE PROGRAM CONSTRAINTS

THEMES, OBJECTIVES, INTENDED AUDIENCES AND EXPECTED RESULTS

A. AREA'S INTERPRETIVE THEMES

1. Recreation Safety - Recreational use of Lake Meredith can be enjoyed in the fullest, in a safe manner, with little chance of accident or injury.

2. Importance of Water to Man - Water has always been a limiting factor in man's struggle for existence. The Indians could not survive here without this valuable resource, and neither can we.

3. Petroleum Industry - Today, we are independent on oil and gas for the survival of our economy. Past cultures were as dependent on the Alibates Flint as we are on petroleum products. The Lake Meredith Recreation Area is in the center of a great petroleum producing area, and the many wells we see around the lake are signs of our affluent society.

4. Cattle Ranching - Just as the Plains Indians were dependent on the buffalo, modern Americans are dependent on cattle ranching as a major source of food. The Texas Panhandle was one of the early ranching locations in our country, and the history is part of the resources of Lake Meredith.

5. Hunting - In primitive peoples, hunting is a means of survival. In modern society, hunting is a recreational means of relieving the tensions of modern day life, and getting back to nature.

6. Conservation of Natural Resources and the Natural Scene - Though Lake Meredith is an area where people congregate, it is also an area where natural values often take precedence over man-made values. Because of this, certain areas of the lake are restricted in the types of activities which are congruent with good conservation practices. Indian artifacts cannot be removed from the area. A limited amount of rock can be taken. Hunting and fishing are strictly controlled. Oil and gas company activities are monitored. Off-road vehicles are restricted in their areas of use. Each of these controls insures that we will still have both recreation and a recreation area in the future.

B. OBJECTIVES OF INTERPRETIVE PROGRAM

1. Provide information on recreational pursuits to encourage participation, to facilitate greater enjoyment and to develop a better understanding of the resource and its value.

2. Emphasize the recreation potential of the area, and the fundamental natural and historical values, where appropriate. Consideration should be given to interpreting the ranching and petroleum industries.

3. Establish suitable interpretive facilities at each major access point frequented by the greater number of visitors.

4. One or more environmental study areas should be established and maintained for year round use. The feasability of a permanent camp for Environmental Education should be investigated.

C. INTENDED AUDIENCES

1. Day use groups and individuals - many individuals use Lake Meredith on a one-day-at-a-time basis. These are users of the areas recreation facilities.

2. Overnight and week-end users - Coming in smaller numbers than day users, this is still an important group. They have more "down" time and may be more receptive to special programs than day users.

3. Special Groups - Many groups request a SPECIAL USE PERMIT, and, thereby, identify themselves as potential targets for special programs.

4. Off-Site Groups - These are people in the surrounding area who visit the lake occasionally or even regularly, but have no time for programs when at the lake.

D. EXPECTED RESULTS

1. A knowledge of the National Park Service and its mission, and how Lake Meredith relates to the other units of the system.

2. Knowledge of SAFE RECREATIONAL PRACTICES and how they may be carried out at Lake Meredith.

3. Knowledge of conservation of Land and Water resources both at home and abroad.

4. Knowledge of the history of the Texas Panhandle, and particularly, that of Indians, Cattle Ranching and the Petroleum Industry.

E. SUMMARY OF INTERPRETIVE PROGRAM CONSTRAINTS

1. A built-in constraint to interpretation at Lake Meredith Recreation Area is the resistance many visitors exhibit toward traditional forms of interpretation. Several traditional interpretive methods have been tried and abandoned, because most visitors wish to come to the area, do their thing and do not have the time or desire to attend interpretive programs. Other than traditional forms of interpretation should be tried.

2. Lack of developed campgrounds, visitor centers and other centralized visitor contact points makes interpretation difficult.

3. Insufficient funds for seasonal interpretive personnel is a constraint.

OVERVIEW OF PROPOSED INTERPRETATION AND VISITOR SERVICES PROGRAM

1. Attended Stations (Fixed Stations)

   A. Lake Meredith Recreation Area Headquarters Information Station - This is a primary contact point for Lake Meredith Recreation Area. Park brochures are disseminated from this point, and all requests for information, by mail, are routed to this point.

   Objective - To disseminate information on recreational activities around Lake Meredith Recreation Area.

   Target Audiences - Family groups and individual visitors.

   Period of Operation - 8:30 AM to 5:00 PM Monday thru Friday, year round.

   B. Lake Meredith Recreation Area District Ranger Station Information Station -

   Purpose - The primary purpose is to serve Lake Meredith Recreation Area. A secondary purpose is to serve as a point to disseminate information on Lake Meredith Recreation Area.

   Objective - To disseminate information on all aspects of recreation at Lake Meredith Recreation Area.

   Target Audiences - Family groups and individual visitors.

   Period of Operation - On an intermittent basis, only when Rangers on duty are conducting routine business at the Ranger Station.

2. Conducted Tours

   A. Nature Walks

   Purpose - To provide special interest groups including school children with a program of their choice on Plants, Animals, Indians and early history and geology.

   Objective - To instill a sense of belonging to nature to individuals who are usually city/man oriented.

   Target Audiences - School groups, garden clubs, study clubs, Boy Scouts, Girl Scouts and other interested groups.

   Period of Operation - Year round as needed. Nature walks vary in length from 45 minutes to four hours, and may occasionally include demonstrations.

   B. Alibates Tours

   (As an aid to Alibates Flint Quarries National Monument, the Interpretive Specialist leads occasional, off-season tours into the monument).

3. Presentations (Demonstrations) - None.

4. Non-Personal Services

A. Library

Purpose - To provide a storehouse of knowledge and information on Lake Meredith Recreation Area and the surrounding area. Primary subjects include Indians, Ranching, Nature Study, Recreation Use, Environmental Education and Conservation.

Objective - To enable employees to better interpret the recreation area, and carry on their jobs in a professional manner.

Target Audiences - Employees and "Special" need visitors.

Period of Operation - Year round and by special request. Open 8:30 AM thru 5:00 PM on request with park service personnel in the area.

B. Study Collections

The information given for libraries would be identical for study collections.

C. Audio-Visuals

Purpose - To provide information for off-site talks, and to house movies dealing with the National Park Service and Conservation.

Objective - To enhance the interpretive program by providing quality programs.

Target Audiences - Mainly off-site program users, but also occasionally on-site groups as requested.

Period of Operation - Year around as requested.

5. Outreach

A. Off-Site Programs

Purpose - To enhance the visitor use of Lake Meredith Recreation Area, provide interpretation and give water safety information.

Objectives - To provide safety information and other special programs for visitors who may not otherwise have this data available to them.

Target Audiences - Off-site groups, pre-arrival groups and special interest groups.

Period of Operation - Year around by special request.

6. Administration and Support

A. Financial mangement, material management, program management, personnel management

Purpose - To provide operation of the area within guidelines.

Objective - To carry out the objectives listed in PART I - 7B.

Period of Operation - Year around as needed.

7. General Overview

As in most recreation areas, conventional interpretive programs have not worked. Our primary contacts have been made by off-site programs in the surrounding area. We get many requests each year for boat safety programs, natural history programs, and programs on the National Park Areas, around the country. Another popular program has been nature walks, both off-site and in areas around the recreation area. This year, we have constituted a limited roving contact program, which may prove to be a success, if fully developed, in future years.

The Lake Meredith Aquarium and Wildlife Museum is also a good potential contact site. This facility was made possible through National Park Service funds, and in a sense, we are responsible for seeing that good interpretation is carried out at this site.

PART II - 2

Relationships of Activities to Themes, Objectives, Audiences and Expected Results

ACTIVITIES	THEMES				OBJECTIVES				AUDIENCES				EXPECTED RESULTS			
	Recreation Safety	Water and Conservation	History	Hunting	Recreational Pursuits	Natural & Historic	Interpretive Facilities	Environmental Study Areas	Day Use	Overnight & Week-ends	Special Groups	Off-Site Groups	National Park Service	Safe Recreational Practices	Conservation	History
. Attended Stations																
a. LAMR HDQTRS.	x			x	x		x		x	x			x	x		
b. LAMR DIST. RGR.STA	x			x	x		x		x	x			x	x		
. Conducted Tours																
a. Nature Walks		x				x		x	x	x	x	x			x	x
b. Alibates Tours			x						x		x					x
. Presentations																
. Non-Personal Services																
a. Library	x	x	x	x	x	x			x		x		x	x	x	x
b. Study Collections		x		x		x			x		x				x	
c. Audio-Visuals	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x
. Outreach																
a. Off-Site Programs	x	x	x	x	x	x		x			x	x	x	x	x	x
. Administration and Support																

PART III - 1 & 2

ACTIVITY	(A) Work years programmed	(B) Actual work years	Total cost budgeted	Actual total cost	Projected Accomplishment/Comments	Actual Accomplishments/Comments
Attended Stations	79FY					
Bates Canyon Info. Sta.					Bates Canyon Info. Sta. to be manned by personnel funded by ALFL	Same
LAMR HDQTRS Info. Sta.	.28	.28	2706.	2706.	For seasonal Park Aid. To man Info. Sta. Sat.-4PM to 6PM. Sunday 9:30 AM to 6PM, along w/other duties. Station manned week-days by personnel funded from accounts other Interpretation.	Same
LAMR Dist. Ranger Sta. Info. Sta.					Manned intermittently by an aggregate of I & RM employees	Same
Lake Meredith Aquarium and Wildlife Museum Info. Sta.					None Planned in 1979	The Interpretive Specialist experimented as a roving interpreter. Part of the experiment involved assisting the museum hostesses intermittentl
Conducted Tours					None Planned in 1979	The Interpretive Specialist experimented as a roving interpreter. Some conducted tours and presentations were given. This will be enlarged through a Seasonal Interpreter in 1980
Presentations						
Non-Personal Services	.20	.20	4087.	4087.	Live talks, to schools, clubs, organizations, meetings, conventions, fairs and radio and TV appearance.	60+ off-site programs presente Some given by staff funded by other than Interpretation.
Outreach	.30	.30	6130.	6130.		
Administration & Support	.50	.50	10215.	10215.		
TOTAL	1.28	1.28	23138.	23138.		

PART III - 1 & 2

PRODUCTIVITY SCALE FOR PERSONALIZED SERVICES

LAKE MEREDITH RECREATION AREA

ATTENDED STATIONS	CONDUCTED TOURS DEMONSTRATIONS	OUTREACH OFF-SITE PROGRAMS	PRODUCTIVITY RANGE AND DEFINITION
Attended stations are either manned by other agencies (City of Fritch) or are manned as secondary result of other duties ie. LAMR H. Q. and District Ranger Stations. Therefore, a productivity scale is meaningless.	Experimental only in 1979.	80 per program 24 per program *~~24~~ 16 per/program 7 per program 0 per program	Counter Productive Range: Increased potential for resource damage or visitor safety problems; Reduced quality of service; Reduced ability to communicate effectively with entire audience; Reduced potential for achieving program objectives Optimum Level: Single program capacity based on the nature of the resource, type of program, ability to communicate effectively w/entire audience Productive Range: Non-damaging to the resource base. Able to maintain program quality and safety standards. Able to communicate effectively with entire audience. Able to achieve program objectives. Minimum Level - 30% of optimum level Under Productive Range: Ineffective use of capital and manpower when measured against other park and servicewide needs *Designates existing level

FIRE MANAGEMENT PLAN

LAKE MEREDITH NATIONAL RECREATION AREA

Appendix H

LAKE MEREDITH

RECREATION AREA

FIRE MANAGEMENT PLAN

Submitted by: _____ 9-1-81
Superintendent, Lake Meredith Recreation Area — Date

Concurred by: _____ 1-19-82
Chief, ~~Office~~ Branch of Fire Management — Date

Approved by: _____ 2/2/82
Acting Regional Director, Southwest Region — Date

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VII. APPENDICES

I. INTRODUCTION

A. Objectives of Plan

1. To establish organization of Park personnel.
2. To assign responsibilities of personnel.
3. To outline procedures in event of a fire.
4. To provide for use of fire for management purposes.
5. To document to the public what actions are being taken relating to fire at Lake Meredith National Recreation Area.

B. Basis of Plan

1. NPS Management Policies --

"Fire is a powerful phenomenon with the potential to drastically alter the vegetative cover of any park."

"The fire management program of all parks must be designed around park objectives."

"Management fires . . . are those fires which contribute to the attainment of the management objectives of a park through execution of predetermined prescriptions defined in detail in the Fire Management Plan, a portion of the approved Natural Resources Management Plan."

"In natural zones, the objective for prescribed burning is to simulate, to the fullest extent, the influence of natural fire on the ecosystem. In other zones, it may be used to recreate or perpetuate a historic setting or to attain other resource management objectives."

"Clearly defined limits will be established in the prescription of all management fires, beyond which limited or complete control action will be undertaken."

"Management fires in the park will be suppressed if they threaten:

-- Human Life

-- Cultural Resources or Physical Facilities of the Park

-- Threatened or Endangered Species

-- To escape from predetermined zones or from the Park, except where Cooperative Agreements provide for certain fires to cross such boundaries, or

-- To exceed the Prescription."

"All fires not classed as management fires are 'Wildfires' and will be suppressed."

"An active fire prevention program will be conducted in all parks..."

"Human caused fires will be controlled to prevent damage and to eliminate impact to the park ecosystems."

"The fire suppression methods used in the parks should be those causing the least resource damage, commensurate with effective control."

"Cooperative Agreements will be developed to facilitate reciprocal fire management activities for land within and adjacent to the parks."

2. Fire Management Guidelines (NPS-18) --

Provide for the careful application of management fire where appropriate and give guidance on minimizing the impact on the resources from all wildfires through prevention of man-caused wildfires. These guidelines provide much specific information useful in the administration of a fire management program.

3. Resources Management Plan --

"Native vegetation will be fostered whenever possible, to provide a stable ground cover to assist in erosion control."

"Salt cedar (Tamarix sp.) and Russian Thistle (Salsola Kali)

are common exotics in the recreation area. Salt Cedar is a threat to other phreatophytic vegetation and Russian Thistle is a visual intrusion. Removal of Russian Thistle is already a practice at campgrounds and picnic sites of the area."

The Resource Management Plan calls for "continued control of exotics in most frequently used areas through normal maintenance..."

4. Statement for Management --

Management objectives as stated in the Statement for Management include:

a. "To preserve and maintain the natural and cultural features of the recreation area."

b. "To provide visitors interesting, enjoyable and enlightening experiences so they gain environmental awareness and insight into the natural, cultural and recreational features of the recreation area."

c. "To encourage a continuing research program, which will provide management with guidance needed for accurate and informative interpretation of the natural and cultural aspects of the area in long and short term operation."

d. "To provide...maintenance of facilities...for the best possible visitor experience in the enjoyment of the...recreation area."

C. Description of the Area

1. Topography -- See Appendix A.

Lake Meredith National Recreation Area, a nearly 45,000 acre area, lies on the dry, windswept High Plains of the Texas Panhandle, and is part of a larger geographic region known as the Llano Estacado. The topography of the land varies from rough, broken land which

ranges from moderately steep to gentle sloping stony or gravelly bluffs, gullies and canyon walls, to the almost level sandy loam of the flood plain of the Canadian River bottom.

2. Geology --

Lake Meredith Recreation Area is on the High Plains in the Great Plains geographical province. It is situated on the Llano uplift, on the northern boundary of the Llano Estacado -- or Staked Plains. A 25,000 square mile plain, the surface of the Llano has been called as flat as any land surface to be found in nature. It was built by streams headed on the east slope of the southern Rocky Mountains and flowing southerly toward the Gulf of Mexico. Over thousands of years, each stream built its own alluvial fan at the foot of the mountains, and, eventually, this depositional blanket merged into an alluvial slope and a plain.

The Canadian River developed its course across these formations, cutting and recutting -- along with its tributaries -- the canyons or breaks, portions of which are now being filled by Lake Meredith. Erosional patterns of the Canadian have left scenic buttes, pinnacles, and wind-eroded cones, with crowns of caprock clearly visible. Some of these buttes are now islands in rising Lake Meredith.

Slowing in its course as it crosses the Llano, the Canadian carries into Lake Meredith a heavy load of silt, easily visible where the reddish-brown river flows into the lake.

Altitude varies from 2813 ft, at the base of Sanford Dam, to above 3250 ft. on the caprock sites.

For many years, geologists have argued about the strata of the Llano.

There seems to be agreement now that the Cenozoic deposits, including the Ogallala, overlie terrestrial Mesozoic deposits. Permian red beds, capped with a limestone cover, were laid down by a shallow sea during the Cretaceous.

In the vicinity of Sanford Dam and Alibates National Monument, the stratification from youngest to oldest is as follows:

Recent and Pleistocene Eolian deposits and alluvium; the Tertiary Ogallala (sand, silt, clay, gravel, caliche); the Triassic Dockum group (clay shale, sandstone); the Permian Quartermaster (silty shale and sandstone, about 60 feet thick); the Permian Cloud Chief (dolomite with intervening red and gray silty shale). Alibates dolomite forms the caprock which contains the Alibates Flint.

The red beds, as well as the limestone caprock, are vulnerable to erosion. Canyon walls are eroding continuously and slopes are covered with talus. The Alibates flint quarries and ruins are situated on a high bluff overlooking the inner canyon of the Canadian River some 250 feet below. In the vicinity of the quarries, the caprock is 150 feet above the canyon bottoms.

Alibates Flint, of Permian Age, is found in Lake Meredith Recreation Area, especially in the Bates Canyon to Plum Creek areas. The flint occurs within the Alibates dolomite. Presently proposed research, if successful, will answer some of the questions about how the dolomite was formed, how the flint was formed, how the colors and patterns of the flint resulted, etc. It appears that the flint may have been formed by more than one method.

Flint is composed mostly of silica (SiO^2) and possesses physical properties which made it highly desirable to prehistoric man. Its conchoidal fracture, rather than cleavage, made it possible

for prehistoric people to work it into tools and weapons. Alibates Flint, in addition to being fine-textured, is very colorful.

3. Soils --

The northeast portion of the recreation area is situated in Hutchinson County (Fritch Canyon and mouth of Blue Creek, northeast to Sanford Dam). This area is characterized by mixed land, mixed land slopes, loamy bottomland, sandy loam, gravelly, and rough breaks sites. A large borrow pit is present just northwest of the dam where fill material for dam was obtained.

Moore County (Evans Canyon, Martin Canyon, Blue Creek, Harbor Bay and Short Creek) is characterized by gravelly, mixed land, loamy bottomland and rough breaks sites.

Potter County (Southwest portion of the recreation area, northeast to the mouth of South Turkey Creek) is characterized by rough breaks, loamy bottomland, gravelly, mixedland slopes, sandy land, mixed land, shallow redland, hardland slopes and sandy sites.

Hardland Slope Sites - have mansker loam soils and are long gentle slopes with deep clay and silt loams.

Sandy Loam Sites - Have Amarillo fine sandy loam soils and are deep sandy loams on gentle to steep slopes.

Shallow Redland Sites - Have Quinland complex soils and are shallow redbed soils on gentle to steep slopes and hills.

Gravelly Sites - Have Pascosa gravelly loam soils and are gentle to steep slopes and rolling hills with a gravelly soil profile.

Mixedland Sites - Have woodward very fine sandy loam soils and are flats or sloping land with very fine sandy loam soils.

Sandyland Sites - Have Likes loamy fine sand soils and are hummocky

with deep loamy sands.

Loamy Bottomland Sites - Have Colorado loam soils and are along streams and draws with deep loamy soils.

Rough Breaks Sites - Have rough broken land loamy soils and are badly gullied and broken escarpment areas with shallow soil materials.

Mixedland Slopes Sites - Have Mobeetie fine sandy loam soils and are long gentle slopes with deep fine sandy loam soils.

4. Hydrology --

There are generally four water sources of note:

a. Lake Meredith Reservoir - This project resulted from an act of December 29, 1950. (44 Stat. 1124). This action authorized Sanford Dam and its associated works by the Bureau of Reclamation primarily to provide municipal water for eleven member cities in the Texas Panhandle.

b. Ogallala Formation - A porous-sand, water bearing strata. This formation has long provided water for nearby farming, ranching, commercial and domestic uses. The Ogallala is being pumped at a rate sufficient to cause the water table to decline at an average rate of 2-3 ft. per year, according to scientists at the Southwest Great Plain Research Center, Bushland, Texas.

c. Canadian River and Side Drainages - These drainages carry water intermittently, depending on weather and climate factors.

d. Red Sand Formation - Small amounts of water, usually "gypy" may be found in the fine red sands at about 400 ft. drilling depths.

5. Climate --

The Panhandle region is subject to rapid and wide changes in

temperature. These changes occur especially during the winter months when masses of cold air generate over the Northern Plains states and prairie provinces of Canada and surge southward. Across the nearly level, unsheltered plains, there is little to impede their flow. During these outbreaks, the cold fronts, or leading edge of the advancing cold air, may move at speeds as high as 40 miles an hour. Temperature drops of 50° to 60° F., within a 12-hour period are common during winter.

According to records of the weather station at Amarillo, January is the coldest month. The average temperature is then 35.3° F. The record minimum temperature of -16° F., occurred in February, 1899. The average years have 2 days when temperatures are below zero. Although very cold temperatures may occur, cold spells are likely to be shorter in the Lake Meredith area than farther north. The weather that follows passage of a cold front is often clear, sunshiny, and rather pleasant. Because of low humidity, low temperatures during winter are less uncomfortable than in some parts of the United States.

Temperatures average highest in July. The highest recorded regional temperature was 108° F. in Carson County. It occurred on June 24, 1953. Because of a nearly constant breeze, low humidity and high evaporation rates, the high temperatures in the daytime are usually not too uncomfortable except in canyon areas. The high elevation and clear skies allow rapid cooling at night and summer nights are always pleasant. Sunshine occurs about 72% of the possible time. Hot, drying winds occasionally do much damage to dryland crops and cause severe fire danger. Average free surface evaporation during the year is 75-80 inches.

The average frost-free season, as recorded by the weather station at Amarillo, extends from April 17 to October 31, a period of 197 days.

The region, as a whole, has a favorable distribution of rainfall, which generally consists of frontal precipitation from the Gulf of Mexico. About three-fourths of the total precipitation falls between April and September. It is derived mostly from thunderstorms. The rains usually cover only a part of the county, but, at times, they may affect all of it. They come as short, hard showers that may be accompanied by strong winds and hail. Much of this rainfall is lost by runoff on the gently sloping to sloping, moderately fine-textured soils. This runoff occurs mainly when the soil is compacted and protective cover is lacking. A yearly average of 10 local hailstorms, some with large hailstones, occur. Tornado warnings occur annually, but tornadoes are infrequent. Summer rainstorms often produce local flooding.

An annual precipitation of about 20 inches places the region within the Koppen semi-arid climatic zone. Variations from the average are wide and have ranged from a low of about 10 inches in 1956 to a high of 42 inches in 1923.

In the Lake Meredith region, the average annual snowfall is about 12 inches. This figure varies, however, from less than 1 inch to over 30 inches. High winds cause snowfall to collect in drifts on bare cropland and heavily grazed grassland.

The prevailing strong winds are caused by the absence of sheltering mountain ranges and the fact that the area is in the path of major areas of high and low pressure. March and April are the two windiest months. All months, however, have a mean wind velocity

of more than 10 miles per hour. Sudden windstorms with velocities upward of 60 miles per hour, even as high as 80 miles per hour, can be expected periodically. Strong winds, scarcity of vegetative cover, and light winter precipitation, are the causes of dust storms. During the prolonged dry period of the Fifties, the drought was more intense than during the time of the Dust Bowl or dusty Thirties. Appendix B shows the frequency of dust storms limiting visibility to less than one mile and the precipitation patterns for the region of the recreation area. This pattern continued through the Sixties. Now, (1974-1981) the Panhandle region is again experiencing drought, accompanied by wind and dust. Grass fires are possible during all months of the year, but are most likely to occur during the dormant part of the growing season (Sept. thru April).

6. Flora --

The early roads of the Panhandle were marked by furrows plowed in the prairie sod from one town to another. So scarce were landmarks that a lone tree would be known to every range rider within hundreds of miles. Today, gallery forests, easily identifiable from the air when a traveler flies into Amarillo, exist along watercourses and reservoirs. Gallery forests such as these form some of the most desirable areas for public use in the canyons of the recreation area.

Biologically, the Lake Meredith Recreation Area lies in the Kansas biotic province in the heart of the great midcontinental grassland biome. The area is ecotonal.

Where small tributaries of the Canadian flow in the recreation area,

shade trees provide picnic spots and shelter for wildlife. These trees are mostly Eastern cottonwood, although chinaberry, Western soapberry, netleaf hackberry, tamarisk, seep willow, wild plum, and sandbar willow also occur.

North-facing canyon slopes support sparse one-seeded juniper and fragrant sumac. South-facing slopes have more growth, including honey mesquite, pricklypear and yucca.

Broad river terraces throughout are largely grasslands with sparse mesquite and sand sagebrush. Some of the flats and lower slopes support pure stands of Gordon bladderpod, covering acres in the winter and spring. Roadsides and flats have been invaded by Russian thistle and buffalo gourd.

Canyon slopes throughout the area are usually not more than 80 percent vegetated by grasses. Annual and perennial forbs and bunch-grasses, such as blue grama, predominate. Creek beds contain marshy species, such as common cattail, sedges, cardinal-flower, seep willow and grasses -- rice cutgrass, yellow Indiangrass or green bristlegrass.

In the spring, wildflowers provide color throughout the area.

In a study, The Vegetation of the Lake Meredith Recreation Area, Texas, Robert A. Wright and Keith Meador identified five major vegetative associations.

Descriptions of Vegetative Associations -- See Appendix C

a) Bottomland. Present on nearly all level areas along the Canadian River and side drainages. This vegetative type is extensive and complex. It is dominated by trees in some areas, by shrubs in others and by grass or grasslike plants in still others.

Characteristic trees and shrubs include tamarisco (Tamarix gallica), Chickasaw plum (Prunus angustifolia), hackberry (Celtis reticulata) and cottonwood (Populus Sargentii). Herbaceous plants include sedge (Carex spp.), saltgrass (Distichlis spicata), alkali sacaton (Sporobolus airoides), vine mesquite (Panicum obtusum), common reed (Phragmites communis), belvedere (Kochia scoparia), and persicaria (Persicaria coccineum).

The Soil Conservation Service suggests the loamy bottomland sites without disturbance would contain ---------- bluestem, Indiangrass, switchgrass, sideoats gramma and western wheatgrass.

Many bottomland sites have been disturbed by high visitor traffic or are below the high water mark. It is noteworthy that in these areas, the vegetation is dominated by exotics, such as Russian thistle (Salsola kali), by tamarisco (Tamarix gallica) or by various forb species.

b) Steep Slope. Steeply sloping areas along the Canadian River and in side canyons. This is the second most extensive vegetative type in the recreation area. The vegetation is represented by grass dominated stands with an admixture of shrubs and forbs. Predominant shrubs include broomweed (Xanthocephalum spp.), polecat bush (Rhus pilossima), feather plum (Dalea formosa), cat's claw (Mimosa biuncifera), and wafer ash (Ptelea trifoliata). Herbaceous plants are sideoats grama (Bouteloua curtipendula), little bluestem (Schizachyrium scoparium), Canada wildrye (Elymus canadensis), western wheatgrass (Agropyron smithii), western fleabane (Erigeron spp.), ragweed (Ambrosia psilostachya), bladder pod

(Lesquerella spp.), and white aster (Leucelene ericoides).

The Soil Conservation Service subdivides slope sites into hardland slopes, sandy loam, shallow redland, mixedland, sandyland, rough breaks and mixedland slopes sites. They list the climax potential of these sites as tall and short grasses, including sideoats, vine mesquite, blue grama, buffalograss, silver bluestem, hairy grama and others.

c) Gravelly Slope. This type occupies the ridges, knolls and undulating areas of the uplands with gentle to moderately steep slopes. Vegetation is represented by an admixture of grasses, small shrubs and, on some sites in the western portions of the recreation area, larger shrubs, including one seeded juniper, are present. Shrub species include broomweed (Xanthium spp.), bear grass (Yucca augustifolia), bitterweed (Hymenoxys scaposa), cats claw (Mimosa biuncifera), and one seeded juniper (Juniperus monosperma).

Herbacious plants include blue grama (Bouteloua gracilis), hairy grama (Bouteloua hirsuta), Texas grama (Bouteloua rigidiseta), sideoats grama (Bouteloua curtipendula), white aster (Leucelene ericoides), bladder pod (Lesquerella spp.), Indian blanket (Gaillardia pulchella), Russian thistle (Salsola kali), and plantain (Plantago spp.).

The Soil Conservation Service lists the areas gravelly sites as having a potential for little blue stem, sideoats grama, hairy grama and bristlegrass.

In the Rosita and Blue Creek areas, gravelly sites have experienced severe disturbance from trail bikes.

d) Mesatop. Although this association is the main one on nearly all level areas of the high plains, it is relatively limited within the recreation area.

This type is short grass dominated. The dominant species are blue grama (Bouteloua gracilis), buffalo grass (Buchloe dactyloides) and sand dropseed (Sporobolus cryptandrus). In disturbed sites, plains prickly pear (Opuntia macrohiza) and beargrass (Yucca augustifolia) are locally abundant. Honey mesquite (Prosopis glandulosa) and broomweed (Xanthium) occur in most areas.

Forbs include Indian blanket (Gaillardia pulchella), bladder pod (Lesquerella Gordoni), plantain (Plantago insularis) and Tahoka daisy (Machaeranthera spp.).

The Soil Conservation Service lists mixedland sites as having a climax potential of sideoats grama, blue grama and little bluestem.

e) Sandhill Association. This vegetative type is found in areas of sand dunes and hummocks.

Common woody plants include broomweed (Xanthocephalum spp.) and sand sage (Artemesia filifolia), with fewer individuals of beargrass (Yucca augustifolia) and Chickasaw plum (Prunus augustifolia).

Dominant among the grasses are scratchgrass muhly (Muhlenbergia asperifolia) and sand dropseed (Sporobolus cryptandrus) with quite a few individuals of six weeks fescue (Vulpia octoflora) and buffalo grass (Buchloe dactyloides).

Common forbs include lazy daisy (Aphanostephus ramosissimum), Indian blanket (Gaillardia pulchella), stick leaf (Mentzelia strictissima) and wild buckwheat (Eriogonum annum).

Russian thistle (Salsola kali) is present in this type, especially

where disturbed by livestock grazing.

The Soil Conservation Service lists the sandyland site as containing bluestem, Indiangrass, switchgrass, sand lovegrass and sideoats grama as climax cover.

The inner and side canyons shelter stands of cottonwood, hackberry and chinaberry trees, but the most predominant vegetation is comprised of tall and midgrasses including the blue, littleblue stem and buffalo grasses.

It is noteworthy that in areas below the high water mark, all of the grass species have been heavily damaged and are sparse or nonexistent. Consequently, these grasses have given way to the more prosperous exotics of Salsola kali (Russian thistle) and Tamarix sp. (salt cedar). Some areas in the recreation area that occur below the high water mark are high visitation areas, commonly used for picnicking and camping.

Currently, no plants in the recreation area are officially listed by the Department of the Interior as either endangered or threatened, however, the number of plants listed is growing continuously. In a study conducted by West Texas State University, three plant species in the recreation area were identified as rare or endangered, but are not officially listed by the Department of the Interior. These three plants should be of interest to management. They are Plains prickly pear (Opuntia polycantha), Sedge (Carex lanuginosa) and Muhly (Muhlenbergia racemosa), i.e The Vegetation of the Lake Meredith Recreation Area, by Wright and Meador.

7. Fauna --

Birds are a major resource of the area with sightings of 174 species

on file at headquarters. Recorded sightings were made in both the recreation area and monument. Species such as the osprey, golden eagle and Northern bald eagle, a subspecies of the endangered Southern bald eagle, have been observed. Hawks have been associated historically with prairies and red-tailed hawks and Swainson's hawks are not an unusual sight. There is a resident population of great blue herons at Lake Meredith. Ducks appear seasonally during migration in great numbers. Marshy areas provide wintering space for birds uncommon in the the Panhandle, including the American bittern, Virginia rail, long-billed marsh wren and swamp sparrow. Cattails of one marsh are utilized as nighttime roosts for thousands of blackbirds of four species.

An inventory of reptiles, amphibians and all invertebrate groups within the area has not been assembled. Present observation records for the area list the presence of the green racer, diamondback rattlesnake, prairie rattler, bull snake, Texas horned lizard, collared lizard and box turtle, among others.

Tributary streams contain aquatic life, even though the creeks may be dry part of the time. Fish species presently include: gizzard shad, catfish, crappie, bass, walleye, sand bass, channel cat and mudcat, along with others.

Vertebrate animal populations of the larger species are relatively small. Mule deer, whitetail deer, coyote, bobcat and wild turkey use the monument as part of their range. There are small resident populations of raccoon, porcupine, striped skunk, cottontail rabbit, scaled quail, bobwhite, badger and swift fox.

Pronghorn antelope roam nearby ranches and have been sighted in

the area. Mountain lion have been reported but have not been verified by park personnel. Very small mammals, such as the white-footed mouse, Merriams' pocket mouse, Ord's Kangaroo rat and the larger rats and ground squirrels are present also. The foregoing list is representative but not complete.

Dr. Favius C. Killebrew of West Texas State University conducted a study "A Survey and Population Analysis of Mammals by Habitat at Lake Meredith Recreation Area and Alibates National Monument." This report contains distribution tables for the mammals of the area.

A statement in this report, of interest to management, concerns observations of the hispid cotton rat (Sigmodon hispidus).

"Sigmodon hispidus (hispid cotton rat) is abundant in tall grass and weed areas which allow freedom of movement and an adequate food supply. Significantly large populations were sampled in heavily disturbed areas. Because the hispid cotton rat is a potential carrier of plague and, consequently, a potential serious threat to the public, it is highly recommended that there be control of weed growth."

Norway rats have been reported but not confirmed in the heavy weed growth areas at Harbor Bay and Bugbee.

D. Historic Role of Fire

1. Natural Fires --

A study of the fire history for the past 7 years (the only records available) shows that only one fire was caused by lightning and, due to suppression efforts, this fire was less than one acre in size. Due to the lack of natural origin fires in the recreation

area, it is felt that overall natural fire does not have a great impact on the area's resources. However, man's presence and influence have undoubtedly altered the historic fire frequency.

2. Man-caused Fires --

Ninety-seven percent of all fires in the park, in the past 7 years, have either been man-caused or man-related. Out of a total of 32 fires, 23, or 72%, were directly caused by man's activities. Nine, or 28%, were caused by campfires, with only 5, or 16% of the 28%, being incendiary in nature. Only 16% of the fires were greater than 20 acres in size, however, the potential for an intense, resource damaging fire does exist, depending on conditions and extent of the fire.

SUMMARY OF FIRE HISTORY

1974-1980

Total Fires - 32

Cause of Fire	Number of Fires	Percent of Total
Incendiary	5	16%
Camper	9	28%
Smoker	5	16%
Fireworks	3	9%
Children(Playing w/Matches)	1	3%
Lightning	1	3%
Miscellaneous	8	25%

3. Define the Fire Season --

Fires can occur during all months of the year. The predominant fire season is during the dormant part of the growing season (fall through early spring). The greatest potential for fire is during early spring windy season.

The high number of July fires are attributed to illegal and careless use of fireworks by area visitors.

SUMMARY OF FIRE HISTORY

BY MONTH

1974-1980

Total Fires - 32

Month	Number	Percent
January	1	3%
February	2	6%
March	8	25%
April	7	23%
May	2	6%
June	1	3%
July	6	19%
August	0	0%
September	1	3%
October	3	9%
November	1	3%
December	0	0%

II. FIRE MANAGEMENT CONSIDERATIONS

A. Fire Management Education - Prevention/Public Education

A major effort of this plan is to educate the public concerning the role of fire. Education of the public to the role of fire and to wildfire prevention will be accomplished by the following means:

1. News Releases
2. Interpretive Exhibits/Demonstrations/Talks
3. Conferences
4. Exchange of Written Information
5. Media Coverage of Park Programs
6. Youth Activity Programs (environmental education, YACC,YCC)
7. Personal Communications
8. On-site Interpretation during Wildfire/Prescribed Fire
9. The Groups to be Contacted would be:
   a) Park Visitors
   b) Employees
   c) Landowners

d) Local Residents
e) Civic Groups
f) Conservation Organizations
g) Land Management Agencies
h) Conservation/Law Enforcement Agencies

B. Preseason preparations (preparedness) shall include the following:

1. Inventories of equipment and supplies - See Appendix D - 1, 2, 3, 4.
2. Training of Personnel
3. Equipment maintenance
4. Updating the Fire Management Plan - Chief Ranger
5. Revision of Cooperative Agreements

III. FIRE ORGANIZATION, PREVENTION, PRESUPPRESSION AND SUPPRESSION ACTION PLAN

A. OBJECTIVES

All wildfire will be suppressed with the minimum impact to the environment possible and with the safety of personnel and equipment as top priority. Research on the role of natural fires is required before a decision can be made to let natural fires burn.

1. All fireline will be stabilized before leaving the fire.
2. All park employees and organized crews in line positions on a fire will be trained and will have a current step test score of 45 or greater.

B. PARK FIRE ORGANIZATION RESPONSIBILITIES

1. Superintendent - Responsible for overall management of all fires in the park.

2. Chief Ranger - Responsible for overall coordination and supervision of the fire management program.

a) Approves any requests for all outside resources. When a fire exceeds park capabilities and an overhead team is requested, responsibility to request additional outside resources is transferred to the overhead team.

b) Approves all purchases made on a fire, except when an overhead team is requested. Purchases are then approved by the overhead team.

c) Maintains fire qualifications records on all fire fighters in the Park.

d) Updates Red Card qualification on all firefighters annually.

e) Conducts training to maintain minimum roster of qualified overhead and firefighters.

3. District Ranger - Responsible for all phases of fire management in District.

a) Appoints initial LAMR Initial Attack Fire Boss from roster immediately upon fire detection.

b) Notifies dispatcher immediately after fire is detected, giving location of fire and name of LAMR Initial Attach Fire Boss assigned to fire.

c) Notifies Chief Ranger when fire exceeds District resources.

d) Maintains fire caches adequate for all fires in District, not requiring outside assistance - (25 man cache).

e) Administers step test to all fire fighters.

f) Provides a list of qualified personnel to Chief Ranger.

4. All Area Supervisors -

a) Make manpower available for step tests and training to maintain minimum Park fire roster.

b) Adjust schedules during fire season so that qualified fire overhead and fire fighters are readily available for duty.

5. All Employees on Fire Roster -

a) Qualify on step test for particular job assignment.

b) Maintain a current fire experience and training record at CRO and update at least annually.

6. Communication Center (Dispatcher) -

a) Notifies individuals from Fire Roster, as directed by CRO, to fill minimum staffing at the LAMR Fire Boss II level.

b) Maintains a list of in-Park fire equipment, location and status.

c) Maintains current Fire Manpower Roster by fire position with telephone numbers and addresses.

d) Notifies a Fire Dispatcher from roster when requested and maintains a log of events, requests and status of fire until Fire Dispatcher arrives.

e) Maintains a current list of fire resources outside the park.

C. MANNING CLASS PLAN - MOBILIZATION

The 1978 National Fire Danger Rating System Burning Index will be used to determine manning class days.

CLASS A DAY: Burning Index 0-7

- Nromal Operations

CLASS B DAY: Burning Index 8-14

- Normal Operations

CLASS C DAY: Burning Index 15-28

- District Ranger should know whereabouts of all fire fighters in District.

CLASS D DAY: Burning Index 29-39

- All I & RM personnel keep dispatcher informed of whereabouts.

- Special patrols may be initiated for increased detection.

- Presuppression funds may be expended with approval of Chief Ranger, following notification and approval of SWRO Office of Natural Resources.

CLASS E DAY: Burning Index 40 and above

- Advise SWRO, Office of Natural Resources.

- Ground detection will be put in service.

- Assign emergency fire fighters to supplement park staff.

- Keep in communication with adjacent fire control agencies.

D. FIRE SUPPRESSION PROCEDURES - See Appendix E and F

1. Fire Detected - notify communications center of location, size and any other information available.

2. Dispatcher - follow Dispatch Emergency Fire Procedure Plan (see section F.)

3. District Ranger - appoint LAMR Initial Attack Fire Boss, verify location and name fire.

4. Fire Boss (2 levels) - LAMR Initial Attack Fire Boss handles fires requiring up to 15 persons in manpower, and is responsible to the District Ranger. LAMR Fire Boss II handles all fires in park until Chief Ranger requests an overhead Fire Boss

from outside the park. Fire overhead personnel will assure that suppression personnel are not assigned beyond their BIFC red card level in a second burning period situation.

E. TRAINING

The following number of trained overhead personnel will be maintained at the minimum levels listed below. The Chief Ranger is responsible for training of personnel to maintain these levels.

1. LINE - See Appendix G

Job Title	Total	LAMR Red Card Requirement
LAMR Fire Boss II	1	Crew Boss
LAMR Line Boss	2	Squad Boss
LAMR Crew Boss	4	Fire Fighter
LAMR Initial Attack Boss	4	Fire Fighter
LAMR Squad Boss	6	Fire Fighter

LAMR will provide the following support personnel from park staff.

CRO is responsible for training of personnel to attain and maintain this level.

2. SUPPORT - See Appendix G

Job Title	Total	LAMR Red Card Requirement	Name
Timekeeper	2	None -S110 Recommended	Phillips Gravestock
Fire Dispatcher (Radio Dispatcher)	2	None-S110 Recommended	Wofford Phillips
Safety Officer	1	Crew Boss-S380 Recommend	Turner
Public Information Officer	2	None-S110 Recommended	Cain Nielson
Supply Officer	3	None-S110 and S190 Recommended	Brooks Perry Ratzer Wilkman

[illegible] this level will be requested from CRO and will [illegible] Regional resources [illegible] BIFC. See Appendix H. [illegible] will be offered training and experience, as practical, to [illegible] for outside-the-park fire fighting. The [illegible] to maintain red card ratings for all LAMR line positions.

3. Qualifications for fire positions at LAMR will be based on the Interagency Fire Qualifications System - (Southwest Regional Office information memorandum dated February 13, 1976 and memorandum from the Director dated July 20, 1981. See Appendix L).

F. EMERGENCY OPERATIONS

1. FIRE DISPATCH EMERGENCY FIRE PROCEDURE PLAN

a) Upon notification of a wildfire sighting, this plan will be put into effect. (See Appendix I).

1) When initial sighting is made, initiate a fire log and record the following:

a. Observer, location, time and date, and size estimate.

2) Notify the District Ranger or his Acting and relay the above information. District Ranger will then appoint a LAMR Initial Attack Fire Boss and name the fire. Record the following: LAMR Initial Attack Fire Boss, Fire Name, and Location of Fire.

3) Dispatcher then notifies the Chief Ranger and Superintendent.

4) Maintain a log and Fire Order Form Record (Appendix H) of all items ordered and all communications.

5) Upon notification by District Ranger that fire has progressed beyond park capabilities: a) call in a fire dispatcher from roster, and b) call and dispatch all resources requested and inform them of where, when and to whom they should report. (See Appendix M for a list of available outside resources).

6) If a fire escapes initial attack, the Fire Boss will begin assessing the need for the use of a Class I or Class II overhead team, using the "Guide for Assessing Fire Complexity" as contained in Chapter 11, Exhibit 1, of NPS - 18, to base a decision on the need for an overhead team. The Superintendent is responsible for requesting the overhead team. A copy of the "Guide for Assessing Fire Complexity" will be contained in each Fire Boss kit. (See Appendix N).

b) Initial Fire Report and Fire Update

1) Upon arrival at the scene of the fire, the Fire Boss will obtain and relay to dispatcher the information for the initial fire report (See Appendix J).

At 10:00 AM and 2:00 PM daily, the Fire Boss will relay to the dispatcher the information on the Fire Update Report (See Appendix K).

c) A situation report will be made to the Regional Office whenever a fire occurs or when the Burn Index is 29 or above (Class D or E Days). CRO will be responsible for making the situation report, as above, and:

1) On all fires that do not extend into a second burn period, the situation report will be made after the fire is under control or no later than 10:00 AM, MST, on the day following the start of the fire.

2) On all ongoing fires, the situation report will be made by 10:00 AM, MST, daily.

3) All situation reports will contain the information as required by NPS - 18, Chapter 19, pp 1 and 2. (See Appendix O).

8. Fire Behavior Worksheet.

IV. FIRE REPORTING

Fire reports will be submitted within 5 working days after the fire has been declared out. A fire report will be made on all fires on LAMR lands or those that start outside the park and burn into the park.

A fire report will include the following completed items:

1. Fire Report - DI-1201 (fire name limited to 10 spaces).
2. Incident Report - 10-343 - narrative with all NPS personnel and their functional assignments.
3. Supervisor's Rating Form - if fire supervisors were used (i.e. Squad Bosses, Crew Bosses, etc.).
4. DI-1 - with fire losses.
5. A map with a red "X", indicating point of origin and a red line around extent of fire.
6. NPS Time Sheet (Premium Pay Authorization and Cost Record - Emergency Activities). Submit to CRO no later than payroll reporting deadline (do not wait until fire declared out).
7. Emergency time sheets including this information as a minimum:
   a) Name (printed)
   b) Complete mailing address, including zip code
   c) Fire Number
   d) Fire Name

e) Grade and Rate: AD-1 - No Training at all
AD-2 - Some training
AD-3 - Supervisors of above
AD-4 - Specialized skills - fallers, cat operators, etc.

(Rates are for the current season, as issued by other agencies).

f) Social Security Number and age
g) Date and hours worked
h) Timekeeper's signature
i) Employee's signature

8. Fire Behavior Records - The following should be appended to each fire report and will be collected by the Fire Data Collector:

Fire Behavior Input Data - Fuel models, shade, dry bulb temperature, relative humidity, 1 HTLFM, 10 HTLFM, 100 HTLFM, live fuel moisture, midflame, windspeed, slope, projection time, map scale. This data will be used to obtain projected fire behavior data by use of the TI-59 calculator, and will include the following: rate of spread, heat per unit area, fireline intensity, flame length, spread distance, map distance, perimeter, area, ignition component and reaction intensity.

On all lightning strike fires, a person will be designated to collect fire weather and fire behavior data, to acquire information to learn about the role of natural fire at Lake Meredith Recreation Area. On all man caused fires, this data will be gathered also, if personnel are available.

V. USE OF FIRE AND REHABILITATION

A. Description of Fire Management Zones

The Fire Management Units for Lake Meredith Recreation Area are as follows:

Unit I -- All areas classified as historic/archeological sites, including Alibates Flint Quarries National Monument, McBride Ranch House and site and archeological sites, as delineated on the archeological site map (See Appendix P).

Unit II - All areas in the development/special use zones that lie below the high water line. (See Appendix Q).

Unit III- All areas in the development/special use zones that lie below the high water line. (See Appendix R).

Unit IV - All other areas.

These are the predetermined units of the park for Fire Management purposes.

B. Management Fires

Prescribed fire will be used for the following purposes:

1. Research into fire as a management tool - research prescribed fires on natural origin fires will be used to determine how to use fire as a management tool in Units II, III and IV, under the prescription in Appendix S & T. Emphasis will be on developing cost-effective techniques that will reduce energy utilization, reduce costs and to study the effects of fire for exotic plant control. All evidence of research will be removed after the termination of the research project. The appropriate state air management agency will be contacted and a permit secured, whenever a lightning-caused fire is permitted to continue to burn.

2. Exotic Plant Control - prescribed fire will be used as a tool of control of populations of non-native plants in all units, where research shows fire to be a useful tool. Prescribed fire will be used for removal of weeds, Russian thistle and Tamarisk in Units I, II and III, including Alibates Flint Quarries National Monument, under the prescription in Appendix S, T, and U, and in areas of high visitor use, to assure visitor health and safety considerations.

3. Prior to each management fire, the Management Assistant, Alibates Flint Quarries National Monument, will be contacted so that he may inspect the area to determine the presence of any archeological sites in the proposed burn area.

4. The Texas Air Control Board, in a letter to the Texas Forestry Association, dated April 23, 1981, recognizes the need for prescribed burning for management purposes.

   This same letter lists the conditions under which prescribed burns may be carried out in the State of Texas. These 7 conditions will be adhered to during management burns at Lake Meredith Recreation Area. (See Appendix V).

   The Texas Forest Service advised us that it is not necessary to notify them in advance, of management burns of 20 acres or less in size.

C. Wildfire

All fires that do not meet the criteria of prescribed fires will be considered wildfires and will be actively suppressed. Suppression methods shall be those which produce the least damage to the resources and environment, consistent with suppression goals. When irreplaceable natural or cultural resources are at risk, more acreage may be allowed to burn, in order to perpetuate these irreplaceable resources, whenever possible. Fire suppression methods will be aimed at utilizing drainages, existing roads and all natural fire barriers.

Techniques of fire suppression will take no risks with human life to achieve control of the fire. When suppression techniques involve risks to human life, they will be abandoned.

After control of a wildfire is achieved, suppression crews will immediately begin raking debris back into firelines to reduce erosion and minimize the visual effects of the suppression action on the site.

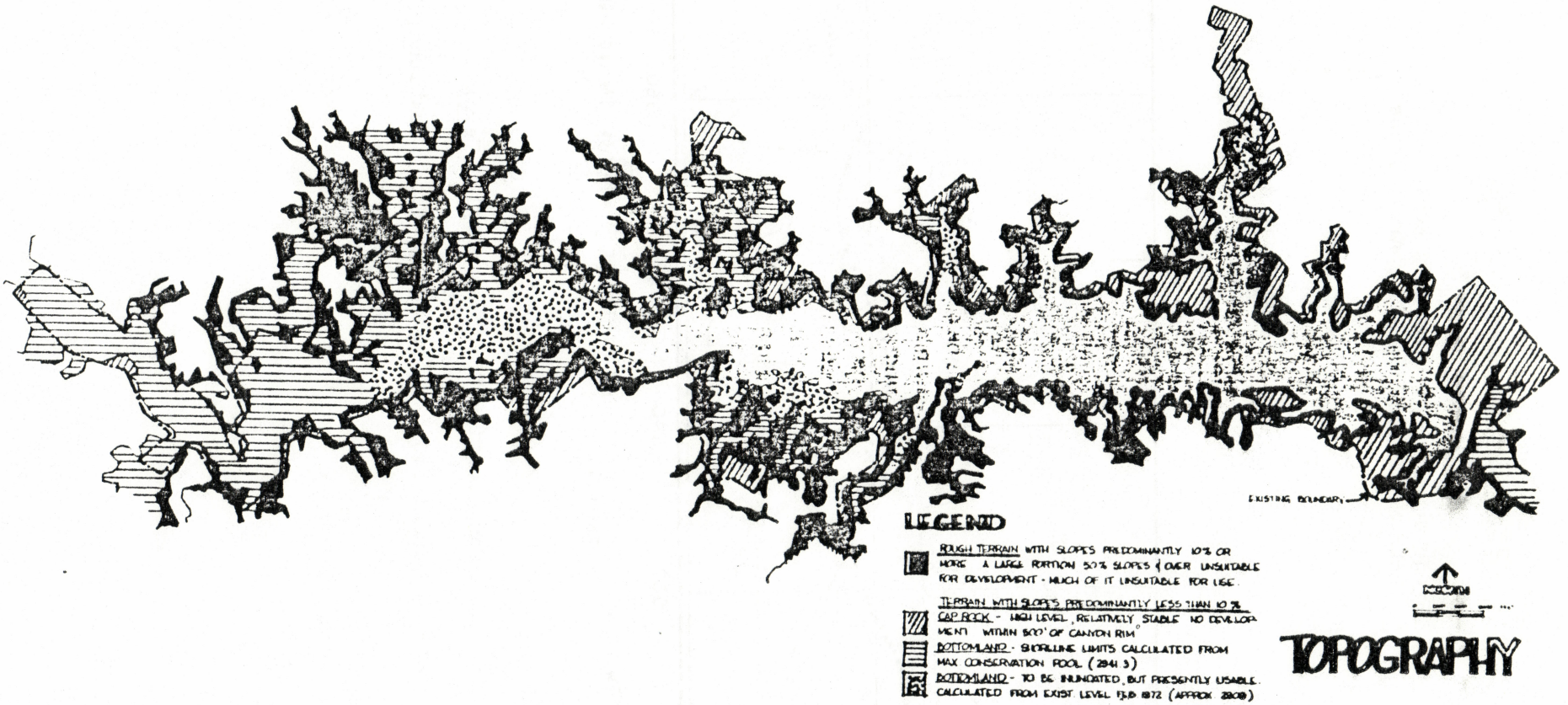
A survey of each fire area will be made to evaluate damage caused to natural and archeological resources, by fire and suppression methods. Rehabilitation action will be taken, if necessary. Action could involve obliteration of the fireline and contour restoration. In some rare cases, salvage archeology and reseeding with native grasses may be required.

VI. SUMMARY OF FIRE MANAGEMENT PLAN

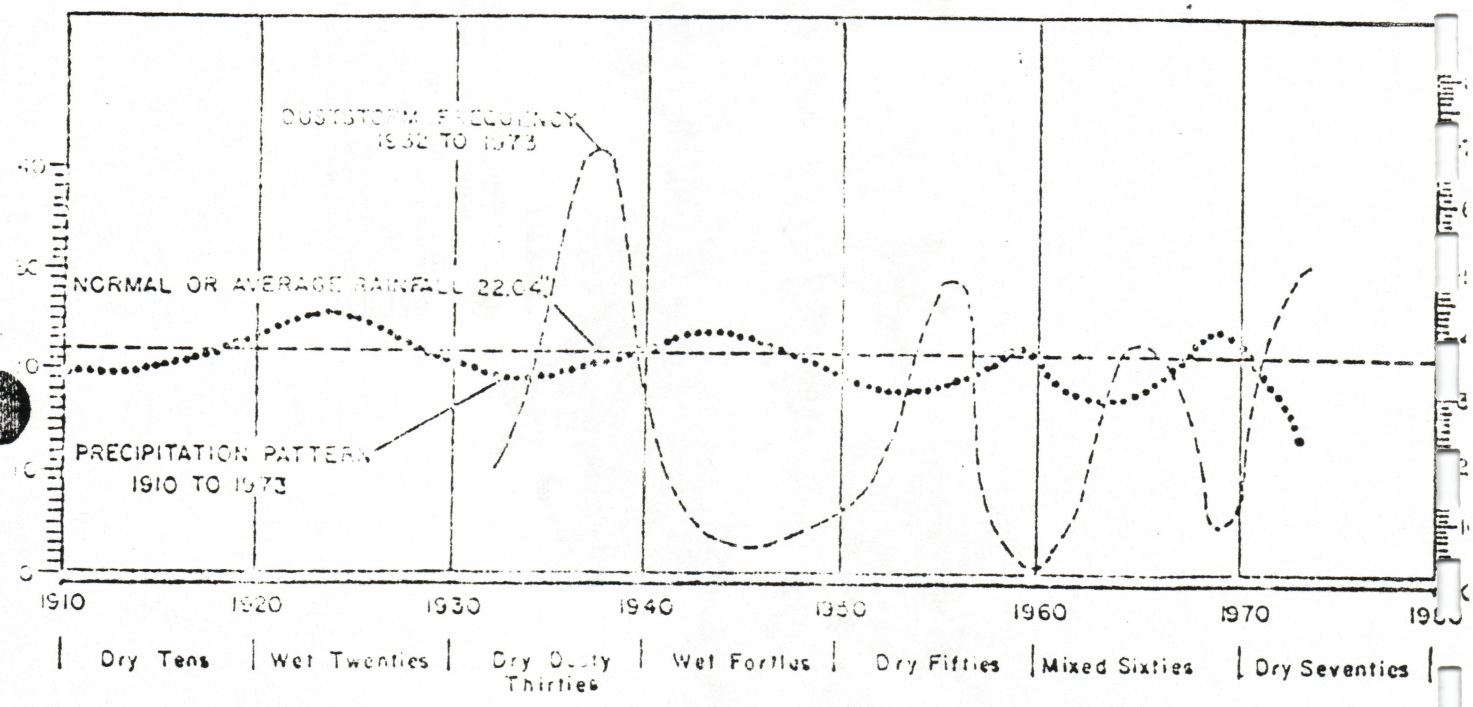
Fire Management Actions	Unit I	Unit II	Unit III	Unit IV
PRESCRIBED FIRE				
1) Research into Fire as a management tool		X	X	X
2) Boundary Burning	1/	1/	1/	1/
3) Fuel Reduction	X	X	X	X
4) Exotic Plant Control	X	X	X	
SUPPRESSION OF WILDFIRES				
1) Natural Origin Fires	(To be determined following research)			
2) Man-caused Fires	X	X	X	X

X = permissable action
(not mandatory)

1/= not necessary


EXISTING BOUNDARY
LEGEND
ROUGH TERRAIN WITH SLOPES PREDOMINANTLY 10% OR MORE A LARGE PORTION 50% SLOPES & OVER UNSUITABLE FOR DEVELOPMENT - MUCH OF IT UNSUITABLE FOR USE.
TERRAIN WITH SLOPES PREDOMINANTLY LESS THAN 10%
CAP ROCK - HIGH LEVEL, RELATIVELY STABLE NO DEVELOPMENT WITHIN 500' OF CANYON RIM
BOTTOMLAND - SHORELINE LIMITS CALCULATED FROM MAX CONSERVATION POOL (2941')
BOTTOMLAND - TO BE INUNDATED, BUT PRESENTLY USABLE. CALCULATED FROM EXIST. LEVEL FEB 1972 (APPROX 2808')
DESCHUTES
TOPOGRAPHY

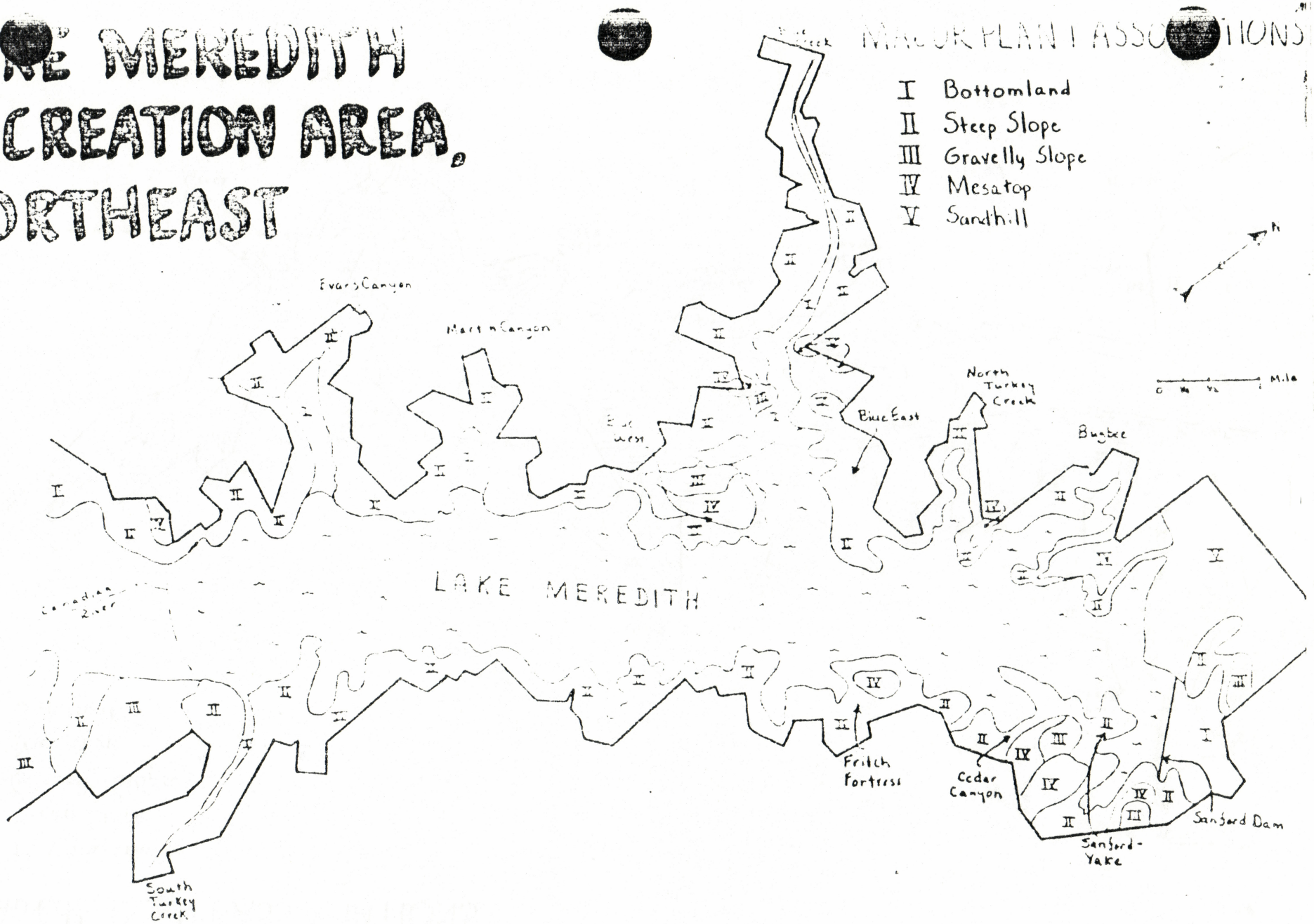
Frequency of Dust Storms in Region of
Lake Meredith Recreation Area, Texas



Sources: U.S. Soil Conservation Service, Temple, Texas.

Southwest Great Plains Research Station, Bushland, Texas.

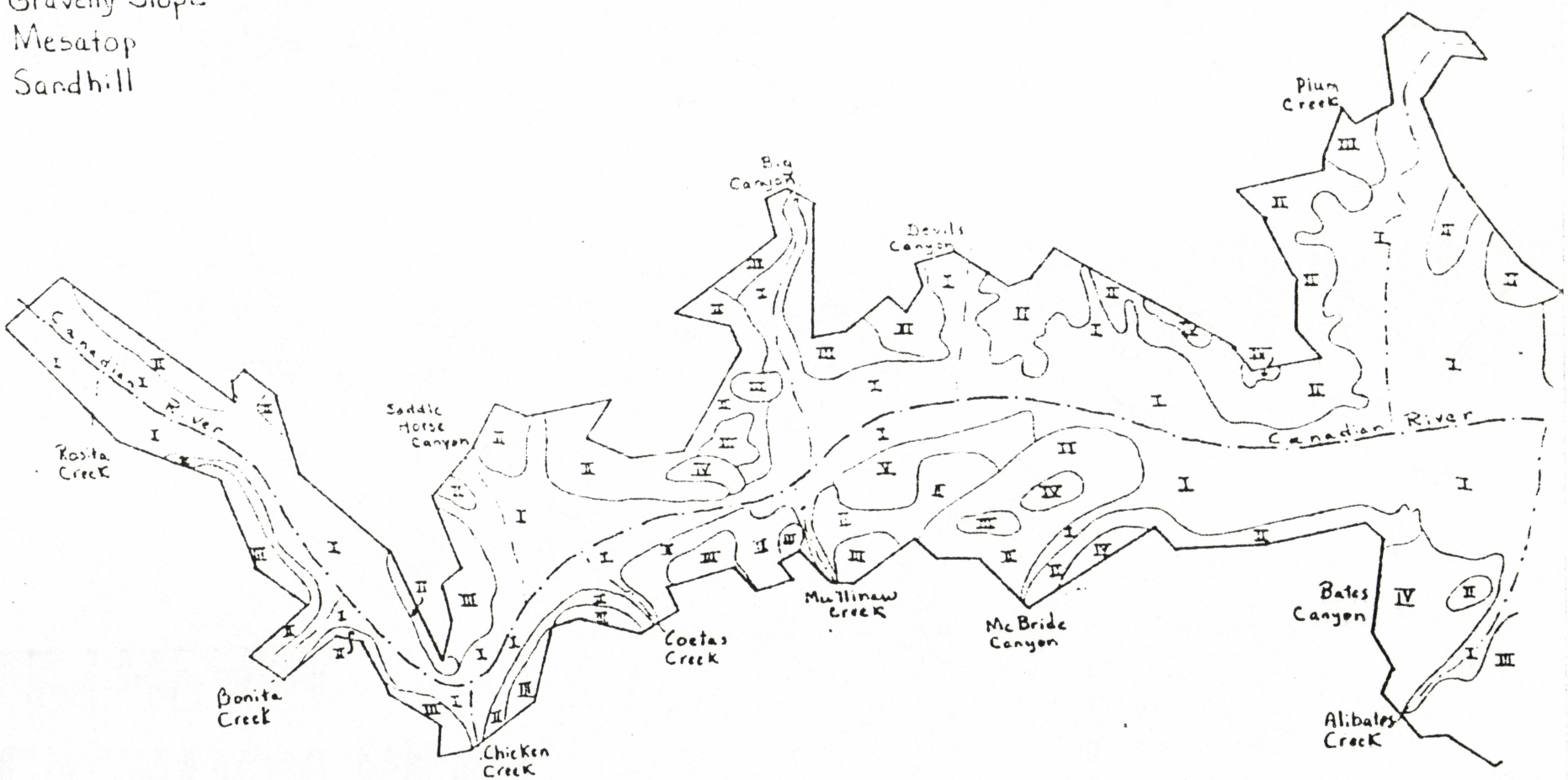
LAKE MEREDITH RECREATION AREA, NORTHEAST



LAKE MEREDITH RECREATION AREA, SOUTHWEST

MAJOR PLANT ASSOCIATIONS

I Bottomland
II Steep Slope
III Gravelly Slope
IV Mesatop
V Sandhill



APPENDIX C

6-MAN CACHE - (Includes equipment for six-man squad and squad boss)

EQUIPMENT	NUMBER
Fire Rake	4
Pulaski	2
Flapper	2
LHRP Shovel	2
Fusees	12
Leg Guard (optional)	3
Canteens (individual)	7
First-Aid Kit (individual)	6
First-Aid (belt kit)	1
Hard Hats w/Light and Batteries	7
Gloves	7
Fire Shirt	7
File, medium	3
Flagging, roll	1
Goggles	7
Backpacks	7
Rations	21
Backpack Pumps	7
Extra D-cell Batteries	28

25-MAN CACHE - Minimum Inventory (Equipment will outfit three six man caches)

EQUIPMENT	NUMBER
6-man caches	3
Headlights for hard hats (above what is contained in six man caches)	8
Maps of area	As needed
D-size Batteries (above what is contained in six man caches)	100
Kit, belt, weather	1
1 or 2 quart canteens	8
Backpack pumps (above what is contained in six man caches)	4
Chain saw kit containing:	2
chain saw oil	
extra chain	
3 gallon can fuel (premixed)	
round file	
screwdriver	
sparkplug wrench	
extra sparkplug	
chaps	
ear protectors	
goggles	
wrench	
Backpacks (above what is contained in six man caches)	4
Rations	5 cases
Igloo portable coolers	2
Cups, disposable	250
Flagging, rolls	12
5 gallon cans, fuel	2
Files, tool sharpening	25

EQUIPMENT - PUMPERS

LOCATION	TANKER SIZE	MOUNTING
Fire Cache	375 gallon	Trailer
Fire Cache	75 gallon	Trailer
Fire Cache	75 gallon	Trailer
Fire Cache	75 gallon	Trailer

FIRE BOSS KIT INVENTORY

Fire Control Notebook

UTM Coordinate Overlay

Initial Fire Report Form (pad)

Fire Update Form

Fire Order Form

Emergency Employment and Time Sheet Form

Premium Pay Authorization and Cost Record

Fire Overhead Experience and Rating Record

Case Incident Record (10-343)

Form DI-134

Receipt for Property (DI-105)

Form 10-51 (pad)

Individual Fire Report (DI-1201)

Triangle

Ruler

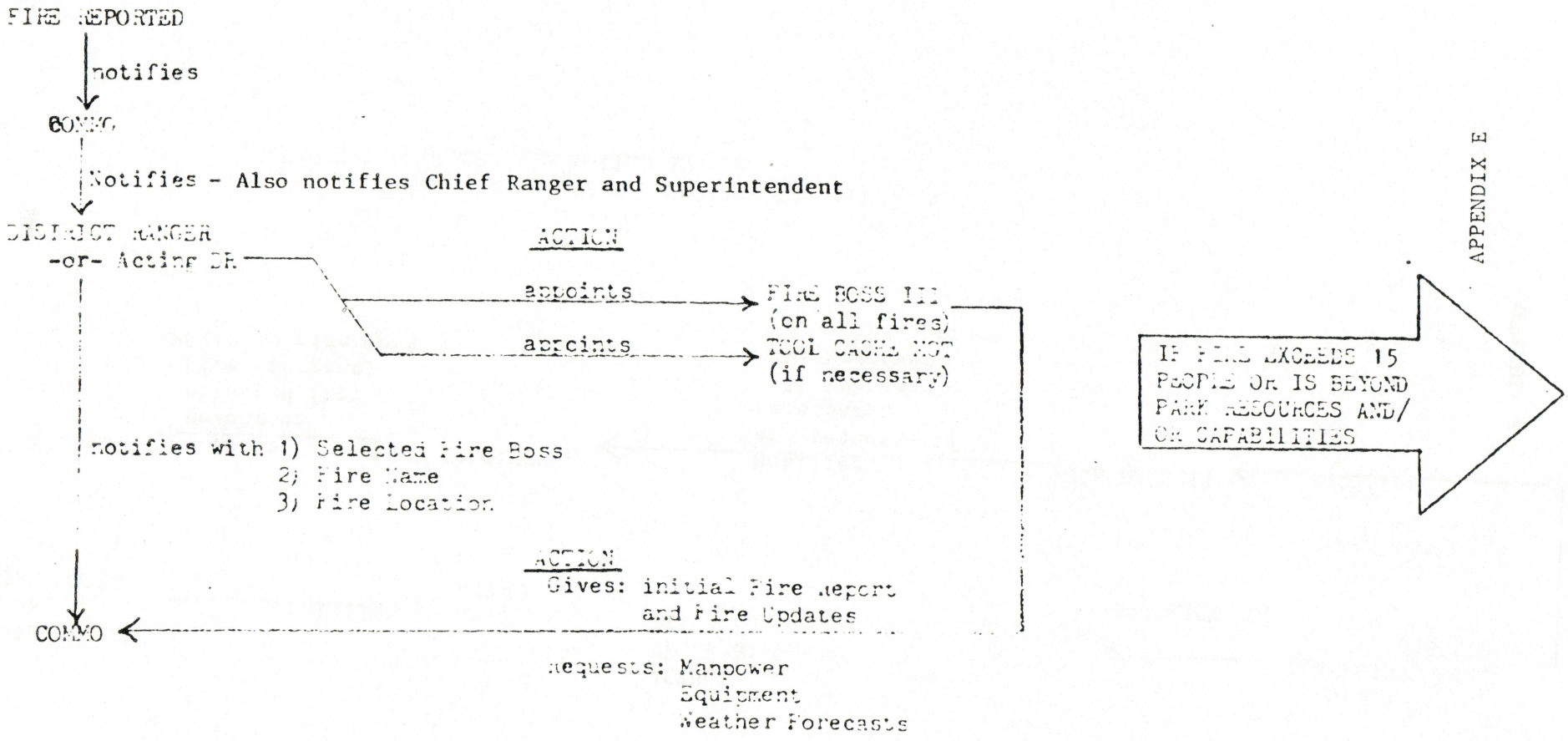
Scaler for Acreage Measurements

Plastic Protractor

Pencil/Pen

APPENDIX E

GUIDELINES FOR LAMR RANGE FIRE EMERGENCIES

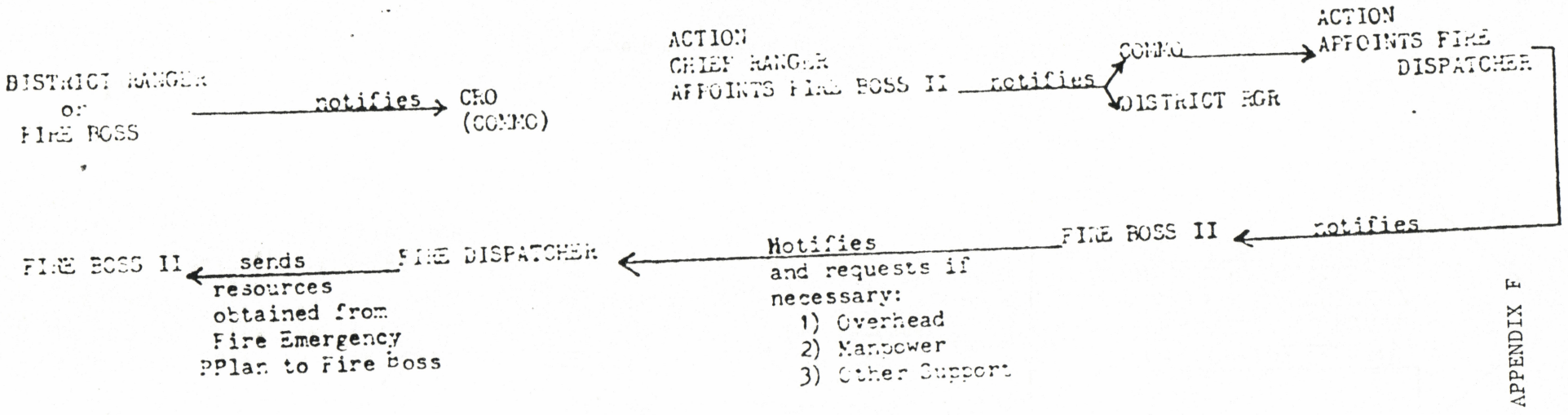


GUIDELINES FOR LAMR WILDFIRE EMERGENCIES

FIRE EXCEEDS 15 PEOPLE

OR

IS BEYOND DISTRICT RESOURCES AND/OR CAPABILITIES



CRO DETERMINES, WITH INPUT FROM FIRE BOSS II WHEN OUTSIDE RESOURCES ARE CALLED IN.

APPENDIX F

FIRE OVERHEAD POSITIONS

LAMR Fire Boss and LAMR Initial Attack Boss

a. Organizes and directs the fire organization for efficient management of fire and has full authority to do so.

b. Requests all manpower and equipment and supplies through the fire Dispatcher, using Fire Order Form (See Appendix

c. Assigns a Safety Officer if more than one crew is on the fire. On a one-crew fire, the Fire Boss assumes the responsibilities of Safety Officer.

d. Makes initial and updated fire reports immediately upon arrival at fire and at 1000 hours and 1400 hours (see page 25).

e. Responsible for providing the District Ranger and Chief Ranger with information concerning the fire's progress.

f. Relieves the Fire Dispatcher and other fire overhead when services are no longer needed.

g. Responsible for submitting fire reports as specified in Section IV.

h. Responsible for all manpower on fire (casual or otherwise), their safety, fitness, training and payroll.

i. Requests overhead as needed using job descriptions in Appendix as a guide to duties.

Line Boss - Works for Fire Boss

a. Directs field action to control the fire.

b. Assures work is accomplished safely.

c. Keeps current on fire conditions and progress of work; personally inspects the more important areas.

d. Makes out performance ratings of immediate subordinates (Crew Bosses).

e. Assigns specific functions to Crew Bosses:

   1) Location of work.

   2) Standard of performance

   3) Completion time required

f. Arranges relief and service needs for crews.

g. Supervises Crew Bosses.

h. Keeps Fire Boss informed of progress and fire conditions.

Crew Bosses - Works for Line Boss or Fire Boss II

a. Maintains time sheet on each crew member and turns crew time into timekeeper daily.

b. Responsible for the safety of his crew at all times.

c. Organizes crew to efficiently accomplish tasks.

d. Keeps crew supplied with the proper tools, supplies, water and rations.

Squad Boss - Works for Crew Boss or LAMR Initial Attack Boss.

a. Responsible for the safety of his squad at all times.

b. Organizes, trains, supervises and works with squad to efficiently accomplish tasks assigned by Crew Boss.

c. Maintains time sheet on each squad member and turns in daily to Crew Boss, LAMR Initial Attack Boss, or timekeeper, depending on fire organization.

d. Keeps squad supplied with tools, supplies, water and rations.

Fire Data Collector - Works for Fire Boss

a. Documents all fire data necessary for research and resource management.

Supply/Transportation Officer - Works for Fire Boss

a. Places all orders, checks for completeness, or procures supplies locally thru established procedures.

b. Responsible for personnel pick-up and/or delivery of items such as food, tools and personnel to base fire camp.

c. Keeps current summary of location of all items assigned to the fire.

Timekeeper - Works for Fire Boss

a. Maintains timesheet on each employee on fire.

b. Maintains a file of crew boss time reports.

c. Fills out 10-432, overtime authorization for overtime and hazardous duty. Also, completes DI-530 for emergency firefighters, when applicable.

d. Prepares memo to Finance on any environmental differential pay.

e. Provides copies of timesheets to individuals' timekeepers in the park and assures their correct recording.

f. Maintains a running cost summary of manpower.

Tool Manager - Works for Fire Boss

a. Establishes and maintains a system of accountability for tools and other items assigned.

b. Sets up tool storage area.

c. Sees that tools are sharpened and reconditioned after each shift.

Safety Officer - Works for Fire Boss

a. Surveys hazards on the fireline, fire camp, and transportation and recommends how to solve them.

b. Reports on fitness of men, sanitation of camp, food.

c. Investigates all accidents on fire.

d. Assures that proper first aid and medical facilities are available and known to fire personnel.

Fire Information Officer - Works for Fire Boss

a. Sets up an information center and handles all requests for news and information.

b. Prepares and releases news stories as appropriate to news media.

Arson Investigator - Works for Fire Boss

a. Responsible for all phases of arson investigation or criminal investigation

pertaining to the fire.

Fire Dispatcher - Works for Fire Boss

a. Notifies Region of all fires and obtains an account number for fire after coordinating with Resource Management Specialist, Assistant Chief Ranger or Chief Ranger.

b. Assumes control of all radio communications regarding the fire and maintains communication with the Fire Boss until relieved by the Fire Boss.

c. Maintains a Fire Dispatcher's Log on wildfires. This log will be used to record all times for manpower and equipment, all requests and status reports from the fireline, weather conditions and forecasts, and all other pertinent information regarding the fire.

d. Documents and follows through on all requests for equipment and supplies, and manpower as requested by Fire Boss, using standard Fire Order Form.

e. Dispatches all items requested above.

f. Coordinates fire communications with park communications at Dispatch level.

FIRE ORDER

1. FIRE NAME AND NUMBER (Cr		2. ORDER NUMBER
3. OFFICE REFERENCE NUMBER	4. ADMINISTRATIVE LOCATION OF FIRE	5. WHEN ORDERED DATE / TIME
6. NAME OF PERSON ORDERING	7. ORDERING OFFICE	8. NAME OF PERSON RECEIVING ORDER
9. DELIVER TO (NAME AND LOCATION)		10. DESIRED DELIVERY DATE / TIME / METHOD

11. ITEM NO	QUANTITY	ITEM	ORDER RELAYED DATE	ORDER RELAYED TIME	ORDER RELAYED TO	ACTION TAKEN

12. APPROXIMATE COST OF ITEMS AND TRANSPORTATION:	13. PAYING OFFICE	14. ORDER COMPLETED TIME / DATE / INITIAL

259-101

STANDARD FORM 259 (2-76) 8)
Prescribed \-USDI
NWCG Ha o. 2

APPENDIX H

DARD FORM 259 BACK (2-78)

ORDER RELAYED			CONTINUATION OF ACTION TAKEN
DATE	TIME	TO	

ROUTING AND SCHEDULING TABLE

15. OWNER OF AGENCY	16. NAME OF PILOT, CO-PILOT OR DRIVER	17. VEHICLE OR AIRCRAFT TYPE	18. UNIT OR FAA NO.

WEIGHT, EQUIPMENT OR PASSENGERS	DATE OF TRAVEL	ESTIMATED TIME			FROM	TO	ACTUAL TIME		
		OF DEPARTURE	OF ARRIVAL	ENROUTE			OF DEPARTURE	OF ARRIVAL	ENROUTE

19. CHARTER NUMBER	20. GTR OF PURCHASE ORDER NUMBER	21. TOTAL TIME ENROUTE

22. LIVE RATE x NO. HOURS = $	23. FERRY RATE x NO HOURS = $	24. OTHER COSTS	25. TOTAL COST

FIRE DISPATCH EMERGENCY FIRE PROCEDURE PLAN

I. Upon notification of a wildfire sighting, this plan will be put into effect.

A. When initial sighting is made, initiate a fire log and record the following:

Observer_____

Location_____

Time and Date_____

Size Estimate_____

B. Notify the District Ranger or his Acting, and relay the above information. He will then appoint a Fire Boss and name the fire. Record the following:

Fire Boss_____

Fire Name_____

Fire Location_____

C. Communications then notifies the Chief Ranger and Superintendent.

D. Maintain a log and Fire Order Form Record of all items ordered and all communications.

E. Upon notification by District Ranger or CRO that fire has progressed to Fire Boss II level:

1. Call in a Fire Dispatcher from roster.
2. Call and dispatch all overhead requested from roster (inform them of where, when and to whom they should report).

Fire Dispatch Copy

INITIAL FIRE REPORT

FIRE NAME_____

TIME OF REPORT_____
(to be completed by Dispatch)

PRESENT SIZE_____
(acres)

RATE OF SPREAD_____
(in chains/hr; for field estimate, measure rate of spread in feet for 1 minute and multiply by 60)

LOCATION OF FIRE_____
(U.T.M. Coordinates)

TERRAIN_____

WIND SPEED_____
(miles per hour)

WIND DIRECTION_____
(compass bearing)

FUEL TYPE_____

FUEL LOADING_____
(heavy, moderate, light)

MANPOWER ON FIRE_____

ESTIMATED MANPOWER NEEDS_____

ESTIMATED TIME OF CONTROL_____

ADDITIONAL REMARKS_____

_____

(note: Dispatcher should give Fire Boss weather forecast at end of report.)

Class Day_____ SI_____ IC_____

Dry Bulb_____ Wet Bulb_____ Relative Humidity_____

FIRE UPDATE

(10 AM - 2 PM Daily)

FIRE NAME _____

TIME/DATE OF REPORT _____
(To be completed by Dispatch)

PRESENT SIZE _____
(Acres)

RATE OF SPREAD _____
(In chains/hours)

MANPOWER ON FIRE _____

ESTIMATED TIME OF CONTROL _____

ESTIMATED MANPOWER NEEDS FOR NEXT SHIFT _____

ADDITIONAL REMARKS _____

_____

_____

_____

SPECIAL CONSIDERATIONS _____

_____

_____

_____

_____

United States Department of the Interior

NATIONAL PARK SERVICE
WASHINGTON, D.C. 20240

IN REPLY REFER TO:
Y14 53 (9880)

JUL 20 1981

Send to Supts. & Div. Chs.
For...Information.....
.....
By. SWR-ONR..Date 7/29/81...

LAKE MEREDITH
RECREATION AREA
AUG 3 1981

Memorandum

To: Directorate and Field Directorate

From: Director

Subject: Fire Qualifications

Recent feedback from several sources indicates that the Service policy regarding employee qualifications for wildfire suppression needs to be clarified. Our policy addresses both the ability of the individual to perform these duties as well as the safety of all individuals involved.

The key issue articulated under fire regulations is that all individuals assigned or directed by supervisory personnel to perform fire suppression activities within or outside the park will be at least certified Firefighters. This requires a minimum of 32 hours of training (S-130/190) with no previous fire experience necessary. Firefighters are also required to pass the Step Test (a test of physical condition) at a rating of 45 or better.

All personnel who meet the minimum Firefighter qualifications (the ability to pass the Step Test and possess the basic training) should apply for and receive a fire certification card which identifies the level of expertise of the individual. These qualification levels range from Firefighter up to the Class I Fire Bosses who handle the major project fires on National Park Service and other agency lands. All permanent and long-term seasonal fire qualification cards will be computer issued. Only short-term seasonal employees may be issued cards by a park.

In response to situations which occur in parks beyond the control of supervisors, the "incidental firefighter" has been identfied. These are park personnel who may see a fire start on the roadside and take initial action to suppress a fire they discover, pending the arrival of assigned firefighters. They are not expected to complete the fire suppression action. A special 8-hour training package has been developed for these individuals. Managers that anticipate the use of these "incidental firefighters" should identify them and insure they receive training. Because there are no fire-related physical standards required of these employees, the manager must assume full responsibility for their safe use in lieu of qualified firefighters.

APPENDIX L

81-547

Another category of individual which has been a source of confusion in regard to qualifications is the emergency firefighter that may be hired when regular firefighting forces are not available. These individuals would generally be hired on a DI-530 form from local populations and should be used only where skilled firefighters are not available and when there is reasonable assurance that they can perform under adequate supervision. Under no circumstances should these individuals be hired and assigned to fires without fully qualified supervision. Emergency firefighters must be required to pass the Step Test at 45 or better, as a condition of employment, before being placed on the fireline. In addition, they must be adequately equipped with fire retardant shirts and pants and have adequate footgear and be provided with hard hats, gloves, and appropriate safety gear. Rounding up personnel off the streets in the nearest community and placing them on the fireline without these provisions is no longer acceptable. Dispatch facilities throughout the United States provide adequate support for field area fire needs without resorting to this highly hazardous approach to firefighting in all but extremely rare cases.

The cooperator is another category for which the applicability of fire qualifications has been questioned. Where volunteer fire departments or other entities which perform fire suppression activities are cooperators to park areas, they may be utilized in their normal capacity without further testing by the National Park Service. Generally speaking, if the volunteer fire departments or similar units are primarily experienced in structural fire their expertise should be limited to that activity. When they are also experienced in wildland fires then it is appropriate to use them in either activity. Individual employees of those other entitiies are accepted at face value based upon their performance within their organizations. Where both experienced wildland firefighters and these groups are operating on the same fires the volunteer departments or other groups are generally assigned to those facets of fire activity which are most comparable to their experience.

We hope that this effort at clarification of fire qualifications will assist managers in communicating their needs for fire training as well as dealing with assistance requested from or offered by adjacent firefighting organizations. If there are any specific questions in regard to these particular activities or needs for qualification and certification of your personnel, please bring them to the attention of the Office of Fire Management.

Russell E. Dickenson

LIST OF AVAILABLE LOCAL RESOURCES

ORGANIZATION	CONTACT	PHONE
Fritch Fire Department		857-3232
Sanford Fire Department	Clark	865-3606
	Hinders	865-3808
Dumas Fire Department		935-5111
Amarillo Fire Department		376-8218
Canadian River Muncipal Water Authority (Lighting System and Caterpillar)		865-3325

A GUIDE FOR ASSESSING FIRE COMPLEXITY

The following questions are presented as a guideline to assist the responsible Line Office in analyzing the complexity or predicted complexity of a fire situation. Because of the time required to assemble and move an overhead team to a fire, this checklist should be completed when a fire escapes initial attack and be kept as a part of the fire records. As the situation becomes more complex, this checklist should be completed to assure adequate lead time in requesting any necessary assistance.

Use of the Guide:

1. Analyze each element and check the response yes or no.
2. If positive responses exceed, or are equal to, negative responses within any primary factor (A through F), the primary factor should be considered as a positive response.
3. If any three of the primary factors (A-F) are positive responses, this indicates the fire situation is, or is predicted to be, Class I.
4. Factor G should be considered after all above steps. If either of these two items are answered yes and three or more of the other primary factors are positive responses, a Class I team should be considered. If either question in G is answered yes and there are less than three positive responses in the primary factors (A-F), a Class II team should be considered. If the answers to both questions in G are negative, it may be advisable to allow the existing overhead to continue action of the fire.

> It must be emphasized that this analysis should, where possible, be based on predictions to allow adequate time for assembling and transporting the ordered resources.

Glossary of Term:

Potential for blow-up conditions - any combinations of fuels, weather, and topography excessively endangered personnel.

Rare or endangered species - threat to habitat of such species, or in the case of flora, threat to the species itself.

Smoke management - any situation which creates a significant public response, such as smoke in a metropolitan area or visual pollution in high use scenic areas.

A GUIDE FOR ASSESSING FIRE COMPLEXITY (Cont'd)

Extended exposure to unusually hazardous line conditions - extended burnout or backfire situations, rock slides, cliffs, extremely steep terrain, abnormal fuel situations such as frost killed foliage, etc.

Disputed suppression responsibility - any fire where responsibility for suppression is not agreed upon due to lack of agreements or different interpretations, etc.

Controversial fire policy - Escaped management fires is one example of this. Another is differing fire policies between suppression agencies when the fire involves multiple ownership.

Pre-existing controversies - these may or may not be fire management related. Any controversy drawing public attention to an area may present unusual problems to the fire overhead and local management.

Have overhead overextended themselves mentally or physically - this is a critical item that requires judgement by the responsible line office. It is difficult to write guidelines for this judgement because of the wide differences between individuals. If, however, the line officer feels the existing overhead cannot continue to function efficiently and take safe and aggressive action, due to either mental or physical reasons, assistance is manditory.

REMARKS:

A. FIRE BEHAVIOR - observed or predicted

1. Burning Index (From on site weather measurements) predicted to be 81 or higher, using the major fuel model in which the fire is burning.

2. Potential for "blowup" conditions (terrain, fuel moistures, winds, unusual fuel conditions, etc.)

3. Crowning, long range spotting, or fire whirls observed, even during "cool periods" (night).

4. No relief forecast.

TOTALS.....

YES	NO

A GUIDE FOR ASSESSING FIRE COMPLEXITY (Cont'd)

	YES	NO
B. PERSONNEL COMMITTED		
1. 200 or more people per shift		
2. Two or more divisions		
3. Wide variety of Special Support personnel or equipment (military, MAFFS, etc.)		
4. Are the majority of the local initial attack resources committed to this fire:		
TOTALS.....		
C. CULTURAL RESOURCES THREATENED	YES	NO
1. Urban interface		
2. Summer homes		
3. Other developed areas (industrial, etc.)		
4. Archeological sites		
5. Rare or endangered species (habitat)		
6. Other special resources		
TOTALS.....		
D. SAFETY	YES	NO
1. Extended exposure to unusually hazardous line conditions.		
2. Serious accident or fatality.		
3. Is there a substantial air operation, that is not properly staffed.		
4. Any other safety problems.		
TOTALS.....		
E. OWNERSHIP	YES	NO
1. Fire burning on more than one land ownership.		
2. Potential for claims (damages).		
3. Different or conflicting management objectives.		
4. Disputes suppression responsibility.		
5. Other		
TOTALS.....		
F. EXTERNAL INFLUENCES	YES	NO
1. Controversial fire policy.		
2. Pre-existing controversies.		

A GUIDE FOR ASSESSING FIRE COMPLEXITY (Cont'd)

	YES	NO
3. Sensitive media relationships		
4. Smoke management problems		
5. Other external influences		
TOTALS.....		

G. EXISTING OVERHEAD	YES	NO
1. Existing overhead worked two shifts without success.		
2. Have overhead overextended themselves (mental or physical).		
TOTALS.....		

FIRE SITUATION REPORT

LAKE MEREDITH RECREATION AREA

1. _____
   (Area Name)

2. _____
   (Year, Month, Day of Report)

3. _____
   (Time of Report)

4. _____
   (Name of Individual Reporting) (Telephone Number)

5. _____
   (Fire Danger, if Very High or Extreme)

6. _____
   (Number of wildfires by cause, fire name(s), class size, total acreage)

7. _____
   (Remarks regarding the manning and stage of suppression and ability of available forces to control the fire, and estimated time of control)

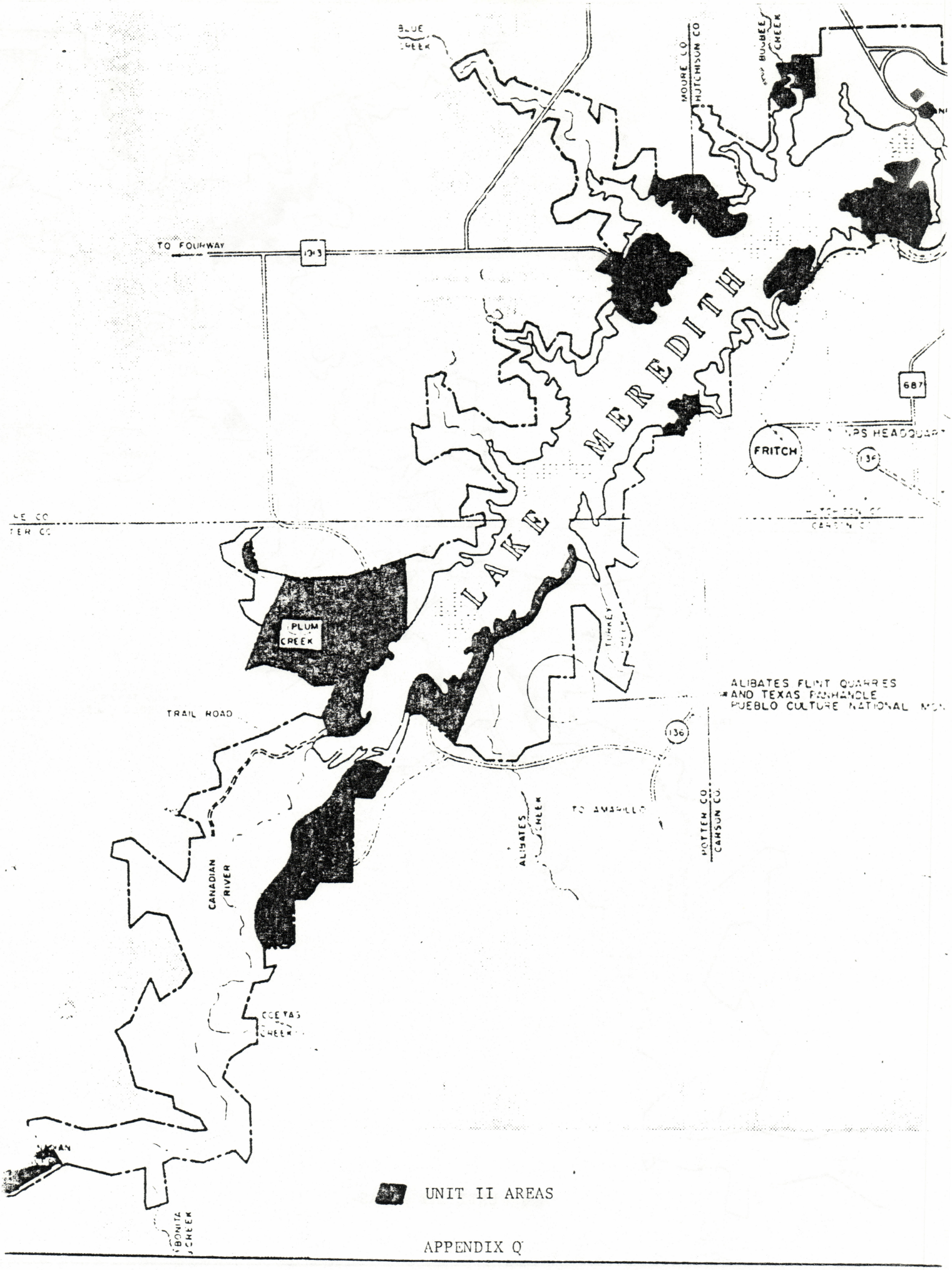
8. _____
   (Number of prescribed fire ignitions in the past 24 hours)

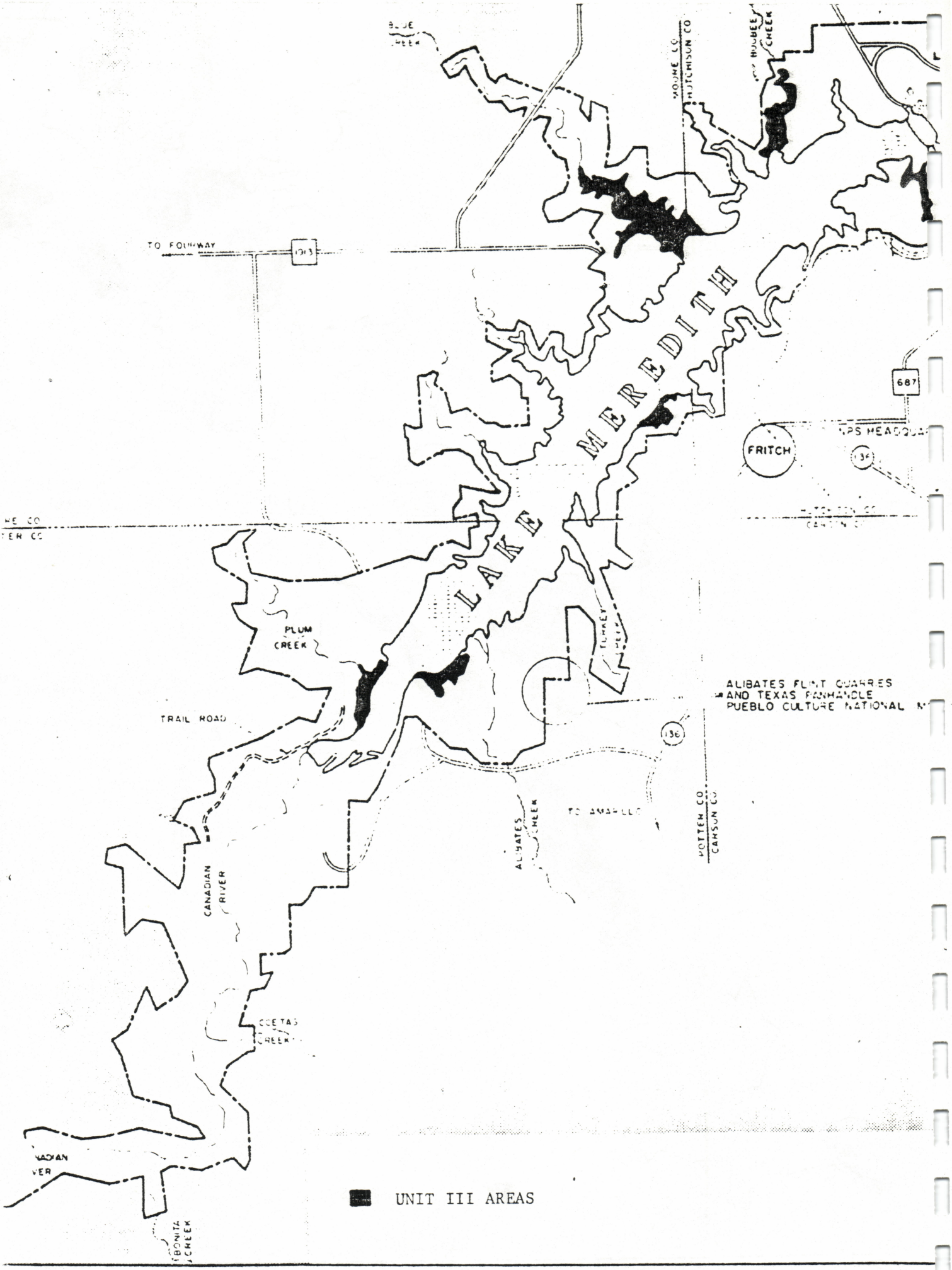
9. _____
   (Number of prescribed natural fire ignitions in the past 24 hours)

10. _____
    (Remarks regarding name, size and status of going management fires)

LAKE MEREDITH RECREATION AREA
INTERPRETIVE BASE MAP
SITE LOCATIONS

SITE LOCATION MAP
Fig. 1.


BLUE CREEK
MOORE CO
HUTCHINSON CO
BUGBEE CREEK
TO FOLLWAY
1913
LAKE MEREDITH
687
FRITCH
136
PLUM CREEK
TURKEY CREEK
ALIBATES FLINT QUARRES
AND TEXAS PANHANDLE
PUEBLO CULTURE NATIONAL
TRAIL ROAD
1136
TO AMARILLO
ALIBATES CREEK
POTTEN CO
CANSON CO
CANADIAN RIVER
COEYAS CREEK
BONITA CREEK
UNIT II AREAS


LAKE MEREDITH
FRITCH
687
136
TO FOLLWAY
PLUM CREEK
TRAIL ROAD
CANADIAN RIVER
ALIBATES FLINT QUARRIES
AND TEXAS PANHANDLE
PUEBLO CULTURE NATIONAL
HUTCHINSON CO
MOORE CO
HOTTEN CO
CAMSON CO
UNIT III AREAS

PRESCRIBED FIRE PARAMETERS AND CONSTRAINTS

I. WEATHER	LOW	HIGH
A. Wind Speed	5 MPH	15 MPH
B. Relative Humidity	20%	50%
C. Temperature	60°F.	80°F.

D. Wind Direction -- Determined by location and objectives of burn.

Above parameters from Use of Fire to Manage Grasslands in West Texas by Henry A. Wright, from "Research Highlights", 1979 Volume 10, Texas Tech University. This research recommends 10 ft. wide fire breaks, except for the head of the fire, where 100 ft. breaks are recommended.

II. FIRE BREAKS --

At LAMR, natural fire breaks, existing roadways, etc., will be utilized whenever possible. If such firebreaks do not exist, fire breaks will be created, by burning out between existing natural or man-made breaks and a wet fire line, or between two wet lines. Bulldozed fire breaks or other methods, which damage soils, will not be used. Henry A. Wright, in Use of Fire to Manage Grasslands in West Texas, recommends the following parameters to burn-out to form a fireline:

Weather	Low	High
A. Wind Speed	5 MPH	10 MPH
B. Relative Humidity	30 %	50 %
C. Temperature	60°F.	70°F.
D. Wind Direction	Determined by location	

III. NATIONAL FIRE DANGER RATING SYSTEM PARAMETERS --

A. As determined by utilizing fire weather data and outputs, obtained with the TI-59 computer/calculator, and applied in accordance with the "National Fire Danger Rating System", USDA Forest Service General Technical Report, Int.-39, 1978, by John E. Deeming, Robert E. Burgan and Jack D. Cohen.

B. Use Temperature, Wind and Relative Humidity parameters already listed. Use relative humidity tables for 27 inches of Mercury.

IV. CONSTRAINTS --

A. Research on Management Burns

1. Prolonged drought expected.
2. Sudden weather change expected.
3. Unavailability of back-up.
4. Politically unacceptable situation.
5. Threat of fire leaving park or management unit.

6. Threat of fire leaving prescription.
7. Threat to human life or property.
8. Violation of State Ambient Air Quality Standards (Clean Air Act).

B. For Exotic Plant Control

1. Prolonged drought expected.
2. Sudden weather change expected.
3. Unavailability of back-up.
4. Threat of fire leaving park or management unit.
5. Threat of fire leaving prescription.

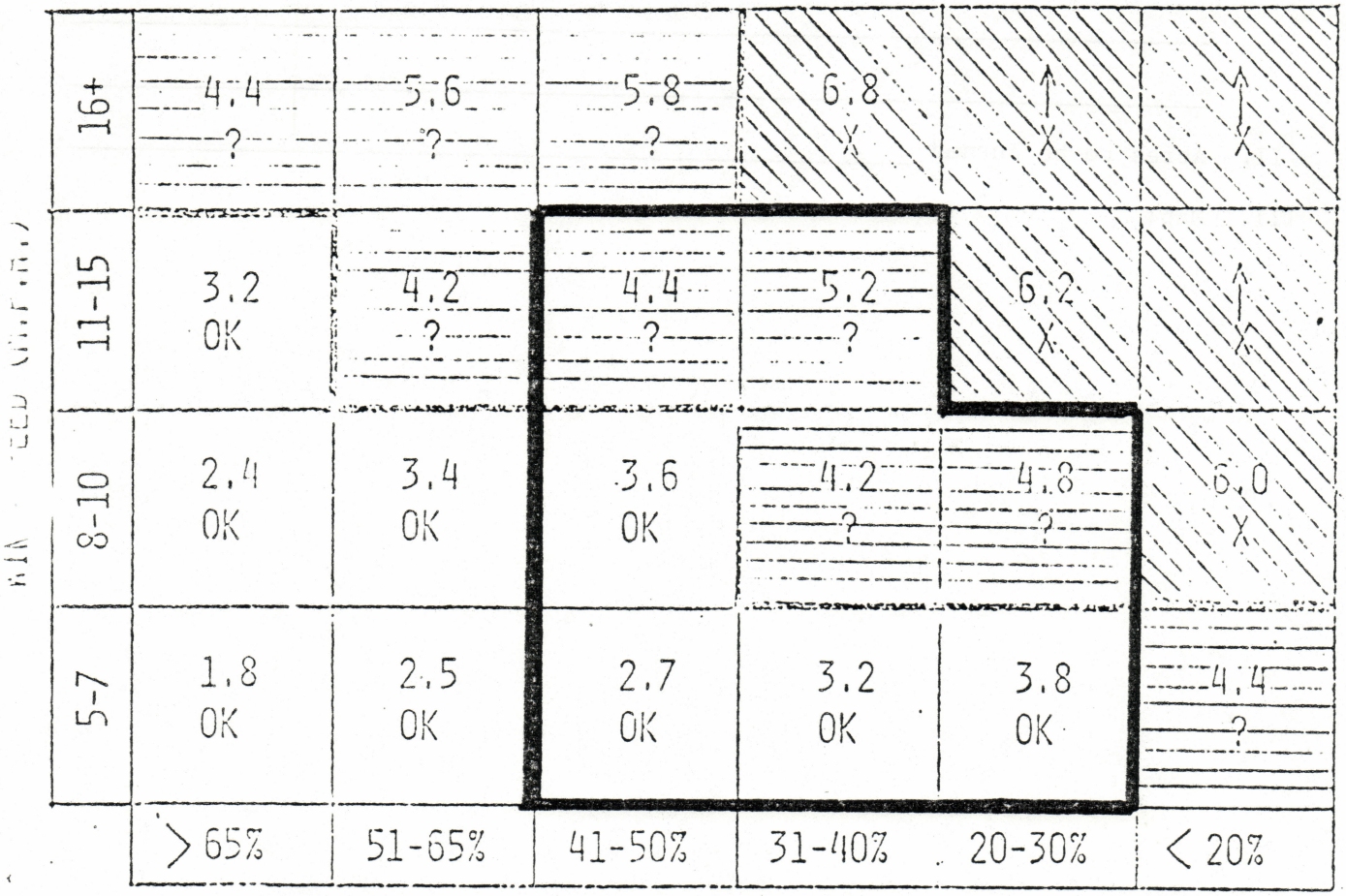
GRASS/BRUSH FUEL TYPE - CURED

ACCEPTABLE PARAMETERS FOR PRESCRIBED FIRES

RELATIVE HUMIDITY 20% TO 50%

WIND SPEED 5 MPH TO 15 MPH

(FOR WINDS 11-15 MPH, RELATIVE HUMIDITY ABOVE 30% RECOMMENDED)



OK = DIRECT ATTACK (AT FLAMING EDGE) USUAL METHOD OF CONTROL

? = CAUTION - USE INDIRECT METHODS

X = EXTREME CAUTION - CONTROL QUESTIONABLE
LOOK FOR BREAK IN FUELS OR CHANGE IN CONDITIONS

PRESCRIPTION FOR PRESCRIBED FIRE

UNITS I AND II

I. Objective (Research/Exotic Plant Contol) _____.

Purposes_____

_____

_____

_____.

II. Acres to be burned _____.

III. Map:

IV. Fire Boss _____.

V. Type and Dimensions of Fire Break: _____

_____

_____

_____.

VI. Plan of Action Should Fire Leave Prescribed Area: _____

_____

_____

_

VII. Equipment	Needed	Acquired
1. Pumpers	_____	_____
2. Hand Tools	_____	_____
a) Rakes	_____	_____
b) Shovels	_____	_____
c) Axes	_____	_____
d) Pulaskis	_____	_____
e) Flappers	_____	_____
f) Back Pack Pumpers	_____	_____
g) _____	_____	_____
h) _____	_____	_____
i) _____	_____	_____
j) _____	_____	_____
3. Fire Weather Kit	_____	_____
4. Tractor/Dozer/Maintainer	_____	_____
5. Drip Torch/Fusees	_____	_____
6. Radios	_____	_____
7. Fuel	_____	_____
8. Other	_____	_____
9. _____	_____	_____
10. _____	_____	_____

VIII. Crew -- Names and Responsibility

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____

IX. Projected Dates

1. Planned From_____To_____.
2. Actual From_____To_____.

X. Weather Conditions

1. Wind
   a) Velocity Needed_____Actual_____.
   b) Direction Needed_____Actual_____.
2. Relative Humidity Needed_____Actual_____.
3. Air Temperature Needed_____Actual_____.
4. Fine Fuel Moisture Needed_____Actual_____.
5. Spread Component Needed_____Actual_____.
6. Burning Index Needed_____Actual_____.

7. _____ Needed_____Actual_____.

8. _____ Needed_____Actual_____.

XI. Notification List

1. Adjoining Landowners

a)_____

b)_____

c)_____

d)_____

e)_____

2. Fire Departments

a)_____

b)_____

c)_____

d)_____

e)_____

3. Sheriff's Departments

a)_____

b)_____

c)_____

4. Department of Public Safety

a)_____

5. Texas Air Quality Board

a)_____

6. Others

a)_____

b)_____

c)_____

TEXAS AIR CONTROL BOARD

April 23, 1981

Mr. Edward R. Magoner, CAE
Executive Vice President
Texas Forestry Association
P. O. Box 1488
Lufkin, Texas 75901

Re: Prescribed Burning
Board Regulation I,
Rule 111.2

Dear Mr. Magoner:

This is a follow-up to our meeting with you and other members of the Texas Forestry Association on April 7, 1981 in Austin. The purpose of the conference was to discuss the condition under which Rule 111.2 of the Board's Regulation I (copy enclosed) authorizes outdoor burning for forest management purposes.

As we advised you at the meeting, we feel that the Texas Air Control Board considers prescribed burning an essential and practical means of forest management and has authorized such burning if the following conditions are met:

- Prior to any prescribed or controlled burning for forest management purposes, the Texas Forest Service is notified;
- The burning is conducted outside the corporate limits of a city or town except when it is necessary to eliminate a naturally occurring fire hazard;
- Burning is commenced only when the wind direction is such as to carry smoke and other pollutants away from any city, town, residential, recreational, commercial or industrial area, navigable water, public road or landing strip which may be affected by the smoke. Burning shall not be conducted when a significant shift

in wind direction is predicted which could produce adverse effects to persons, animals or property during the burning period. If at any time the burning causes or may tend to cause smoke to blow onto or across a road or highway, it is the responsibility of the person initiating the burning to post flag-persons on affected roads in accordance with the requirements of the Department of Public Safety;

- The burning is conducted at least 300 feet from any residential, recreational, commercial or industrial area except those located on the property where the burning takes place, except when it is necessary to eliminate a naturally occurring fire hazard;

- Heavy oils, asphaltic materials, items containing natural or syntnetic rubber, or any material other than dry plant growth which may produce unreasonable amounts of smoke are not burned;

- Burning is not commenced when surface wind speed is predicted to be less than 6 m.p.h. (5 knots) or greater than 23 m.p.h. (20 knots) during the burn period; and

- No nuisance conditions are created.

At the meeting, you inquired as to the hours during which prescribed burning may take place. We have reviewed the Board's Rules and it is our opinion that such burning is authorized at any time of day provided the foregoing conditions are met.

We appreciate your interest and your cooperation in meeting with us to discuss these matters. If you have any questions or need further assistance, please let us know.

Sincerely,

ORIGINAL SIGNED
BY BILL STEWART

Bill Stewart, P.E.
Executive Director

Enclosure

cc: Mr. Michael Peters, Regional Supervisor, Beaumont
Mr. Bruce A. Miles, Director, Texas Forest Service, College Station