NPR files

FIRE MANAGEMENT PLAN

LAKE MEREDITH NATIONAL RECREATION AREA

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RECREATION AREA

FIRE MANAGEMENT PLAN

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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 Tascosa 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 buckweat (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
Fire Data Collector	2	Squad Boss	Batzer Blackman

Support over and above this level will be requested from CRO and will be obtained from Regional resources and/or BIFC. See Appendix H. Personnel will be offered training and experience, as practical, to obtain red card ratings for outside-the-park fire fighting. The ultimate goal is to obtain 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 gatherd 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.

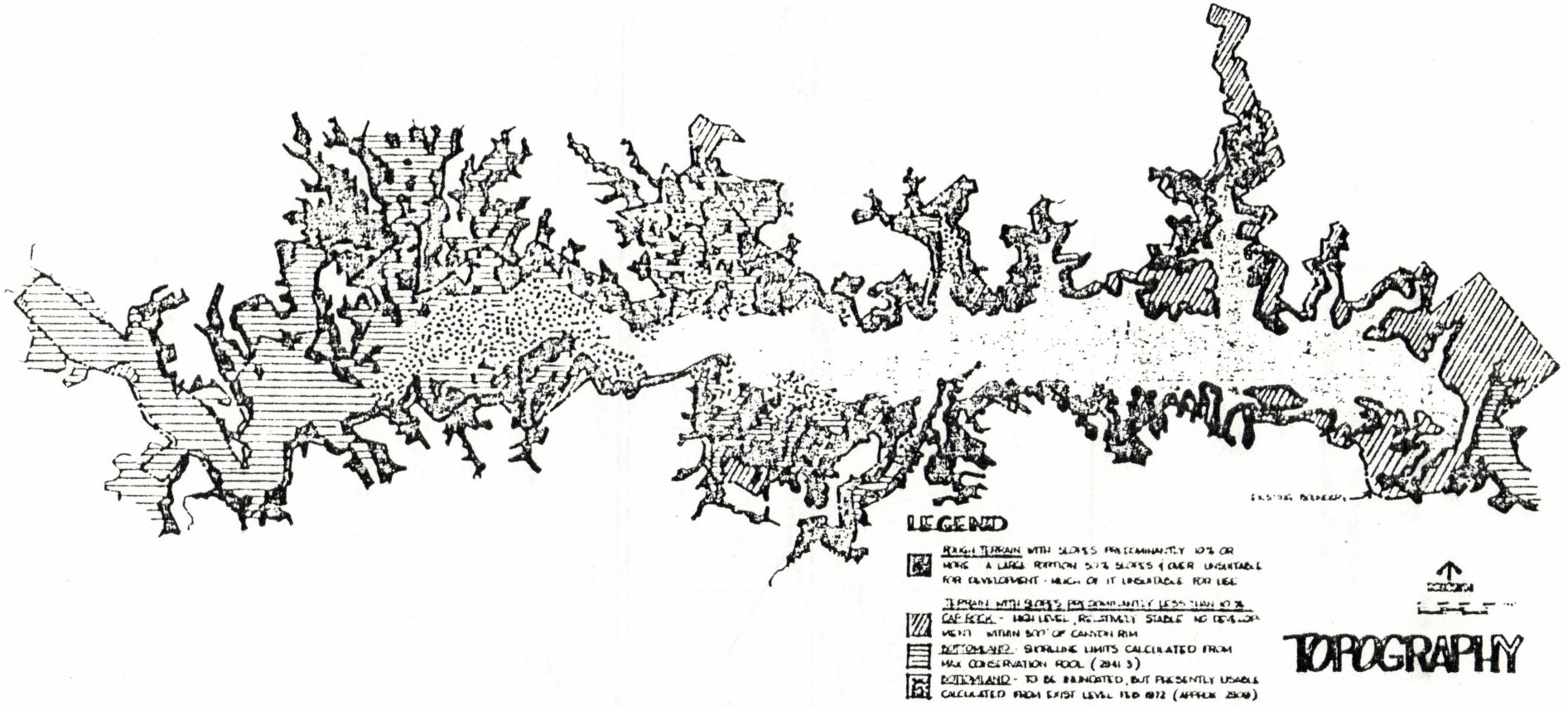
A survey of each fire area will be made to evaluate damage caused to natural and archeological resources, by fire and suppression methods. Rehabilitation action will be taken, if necessary. Action could involve obliteration of the fireline and contour restoration. In some rare cases, salvage archeology and reseeding with native grasses may be required.

VI. SUMMARY OF FIRE MANAGEMENT PLAN

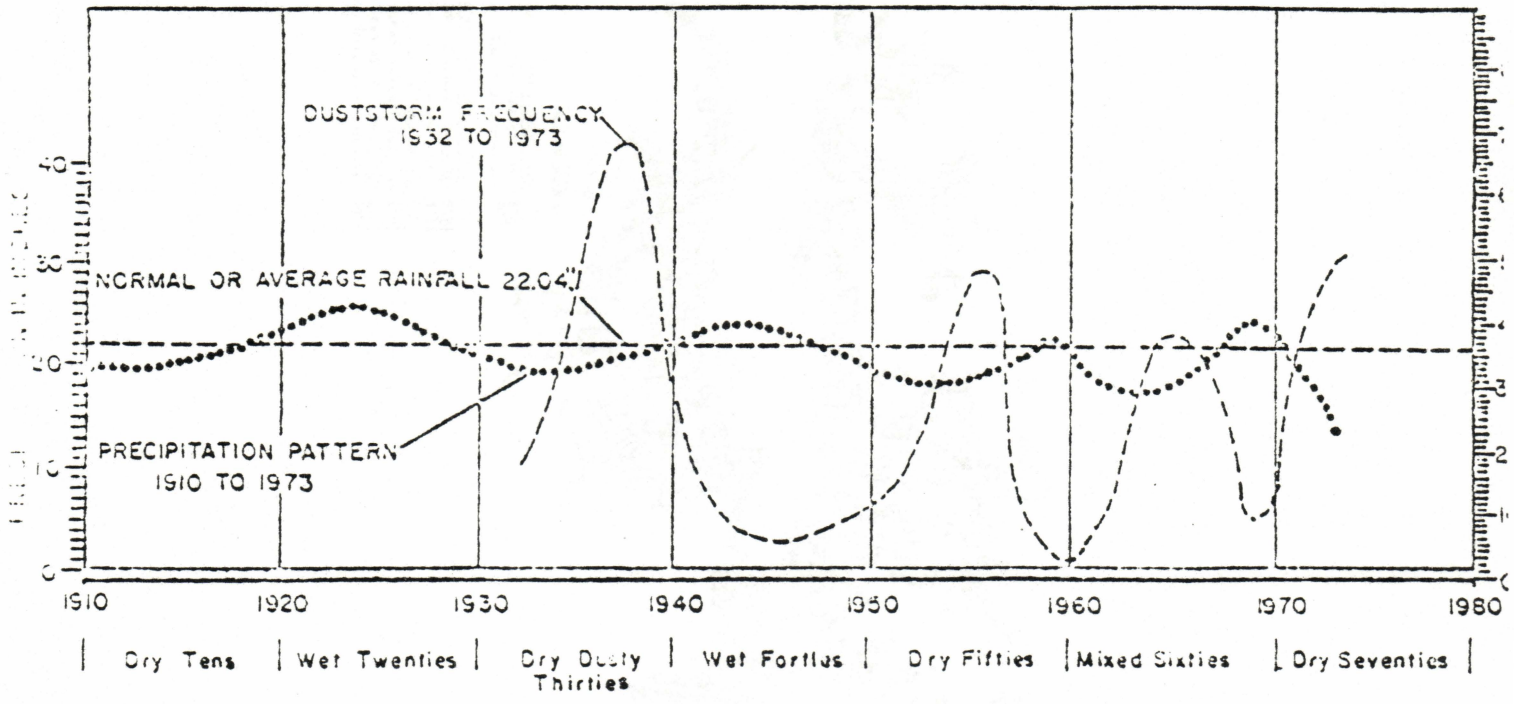
Fire Management Actions	Unit I	Unit II	Unit III	Unit IV
PRESCRIBED FIRE				
1) Research into Fire as a management tool		X	X	X
2) Boundary Burning	1/	1/	1/	1/
3) Fuel Reduction	X	X	X	X
4) Exotic Plant Control	X	X	X	
SUPPRESSION OF WILDFIRES				
1) Natural Origin Fires	(To be determined following research)			
2) Man-caused Fires	X	X	X	X

X = permissable action
(not mandatory)

1/= not necessary


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 FLD 1972 (APPROX 2800)
TOPOGRAPHY

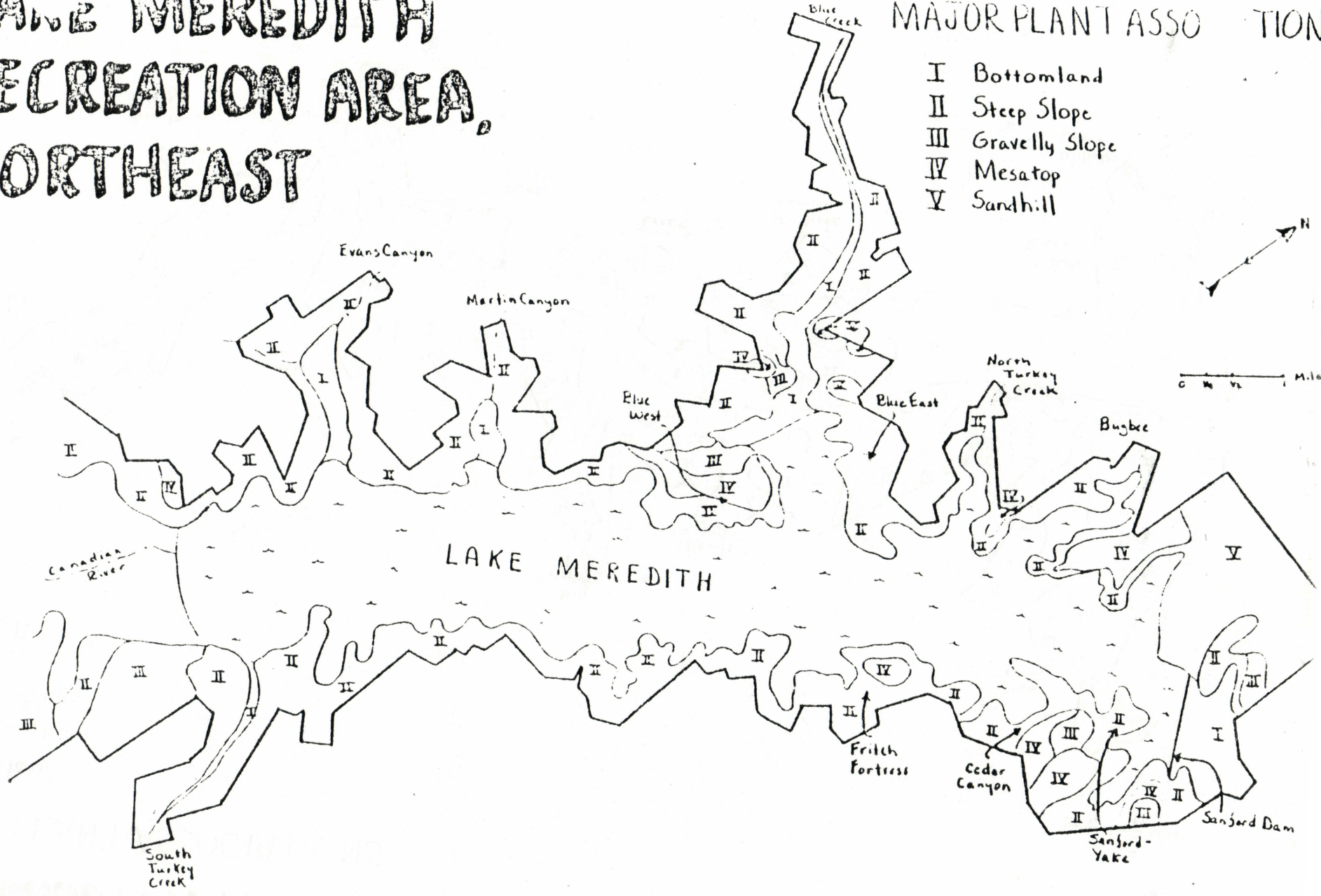
Frequency of Dust Storms in Region of
Lake Meredith Recreation Area, Texas



Sources: U.S. Soil Conservation Service, Temple, Texas.

Southwest Great Plains Research Station, Bushland, Texas.

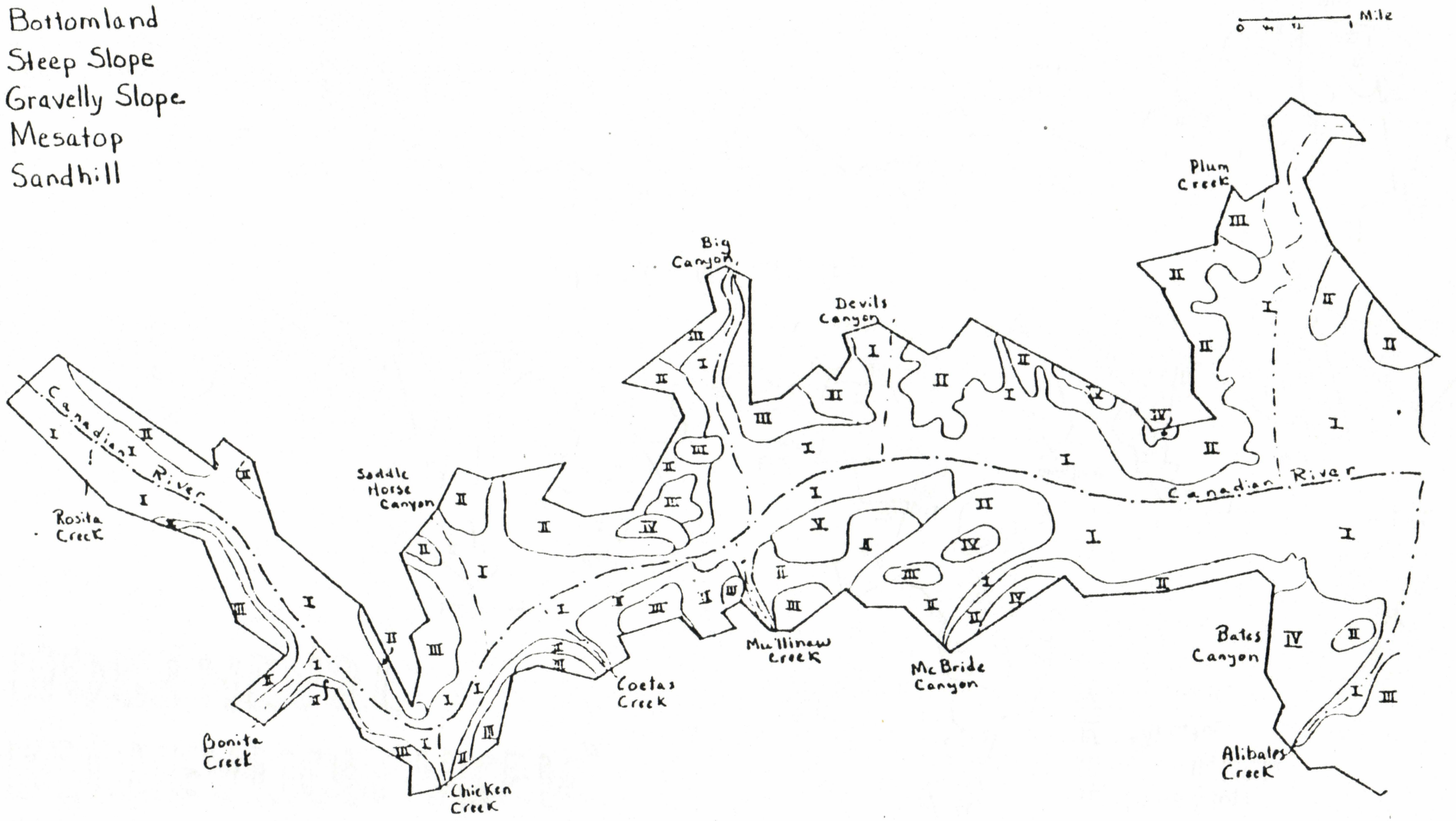
LAKE MEREDITH RECREATION AREA, NORTHEAST



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

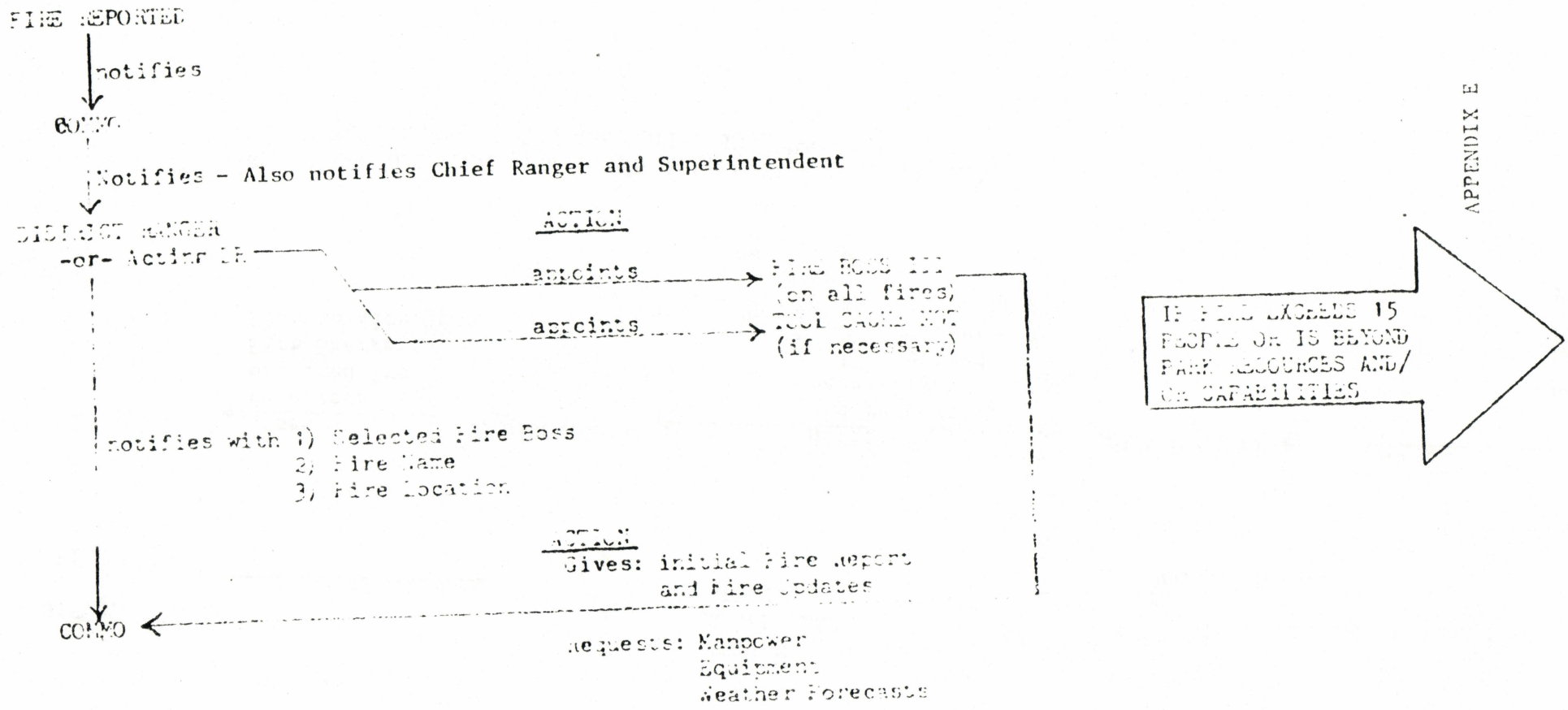
Scaler for Acreage Measurements

Plastic Protractor

Pencil/Pen

APPENDIX E

GUIDELINES FOR LAMR RANGE FIRE EMERGENCIES

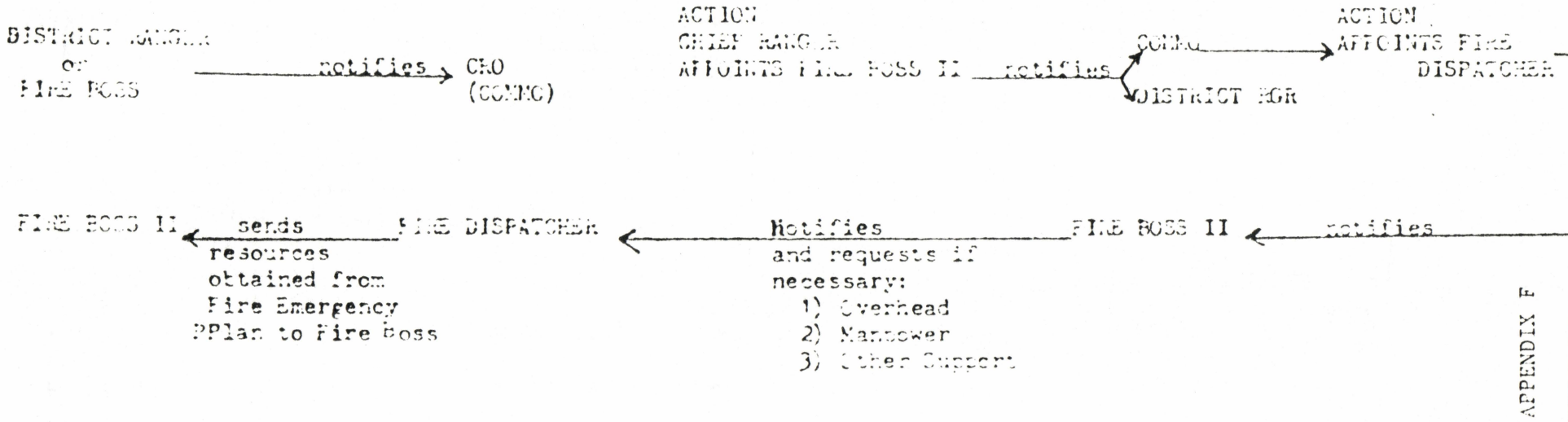


GUIDELINES FOR LAMR WILDFIRE EMERGENCIES

FIRE EXCEEDS 15 PEOPLE

OR

IS BEYOND DISTRICT RESOURCES AND/OR CAPABILITIES



APPENDIX F

CRO DETERMINES, WITH INPUT FROM FIRE BOSS II WHEN OUTSIDE RESOURCES ARE CALLED IN.

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 (Ch		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			ACTION TAKEN
			DATE	TIME	TO	

12. APPROXIMATE COST OF ITEMS AND TRANSPORTATION	13. PAYING OFFICE	14. ORDER COMPLETED		
		TIME	DATE	INITIAL

259-101

STANDARD FORM 259 (2-78) 8)
Prescribed -USDI
NWCG Ha o 2

APPENDIX H

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 entities 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 Terms:

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 officer. 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

	YES	NO
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.....		

A GUIDE FOR ASSESSING FIRE COMPLEXITY (Cont'd)

B. PERSONNEL COMMITTED	YES	NO
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)

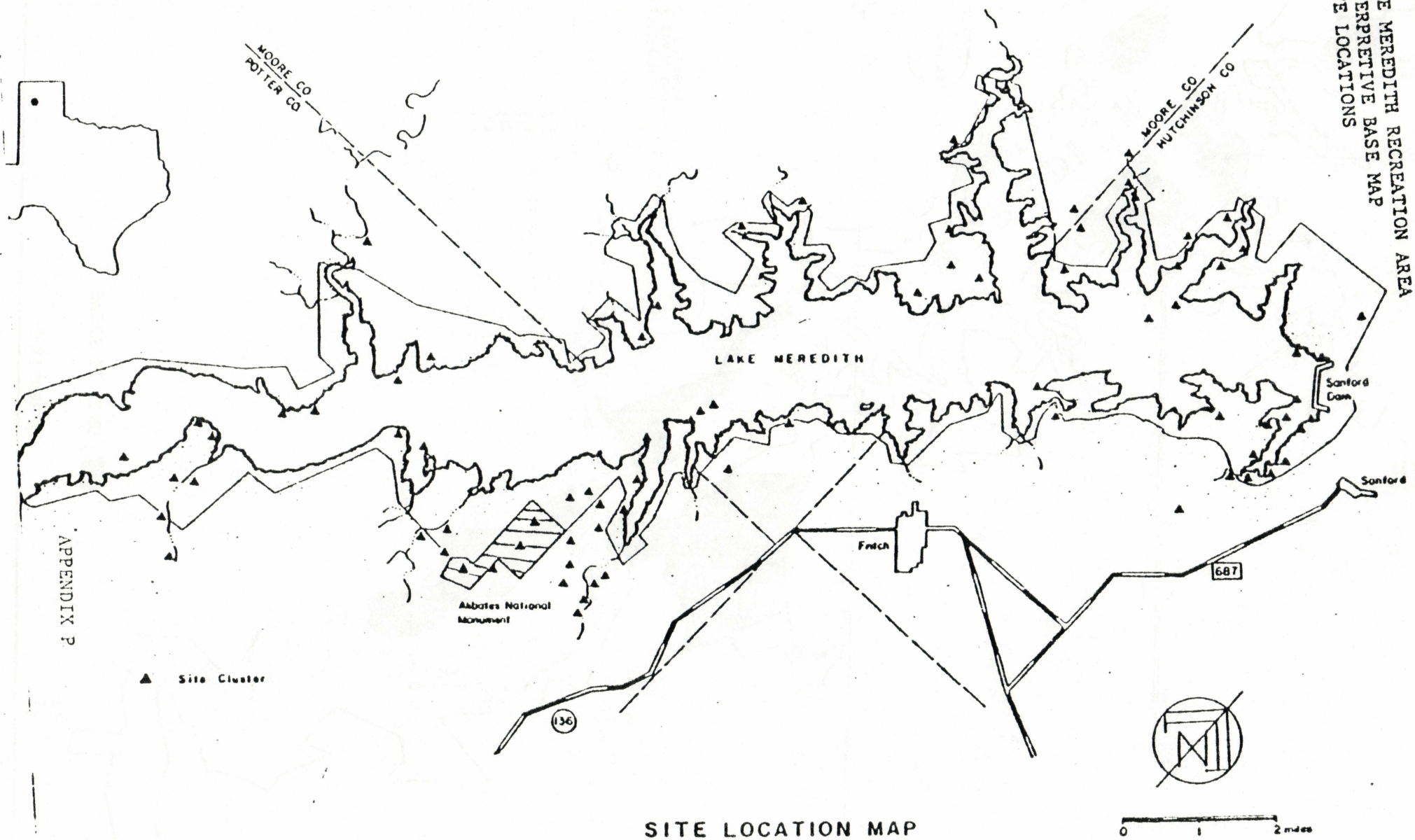
6. _____
   (Number of wildfires by cause, fire name(s), class size, total acreage)

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)

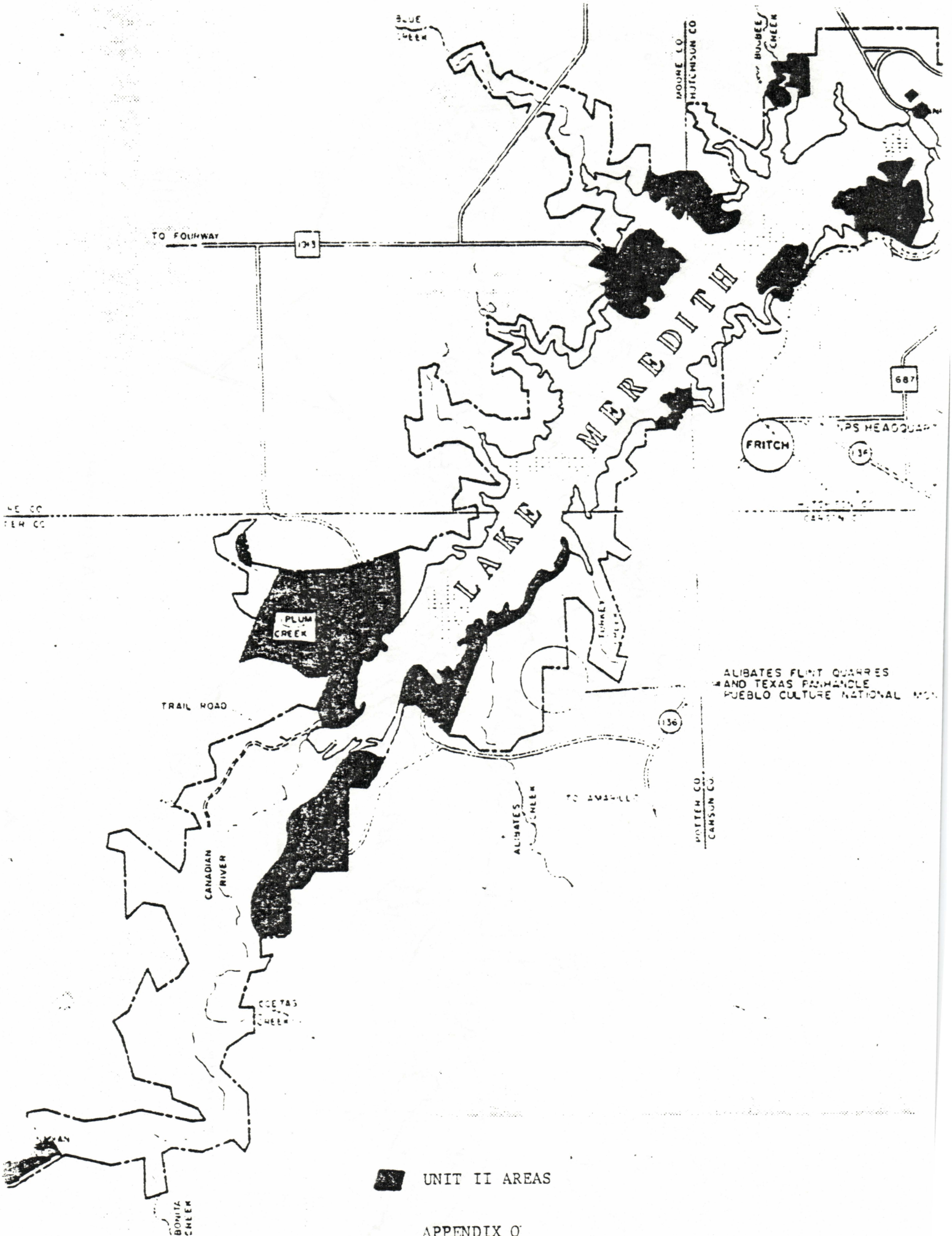
10. _____
    (Remarks regarding name, size and status of going management fires)



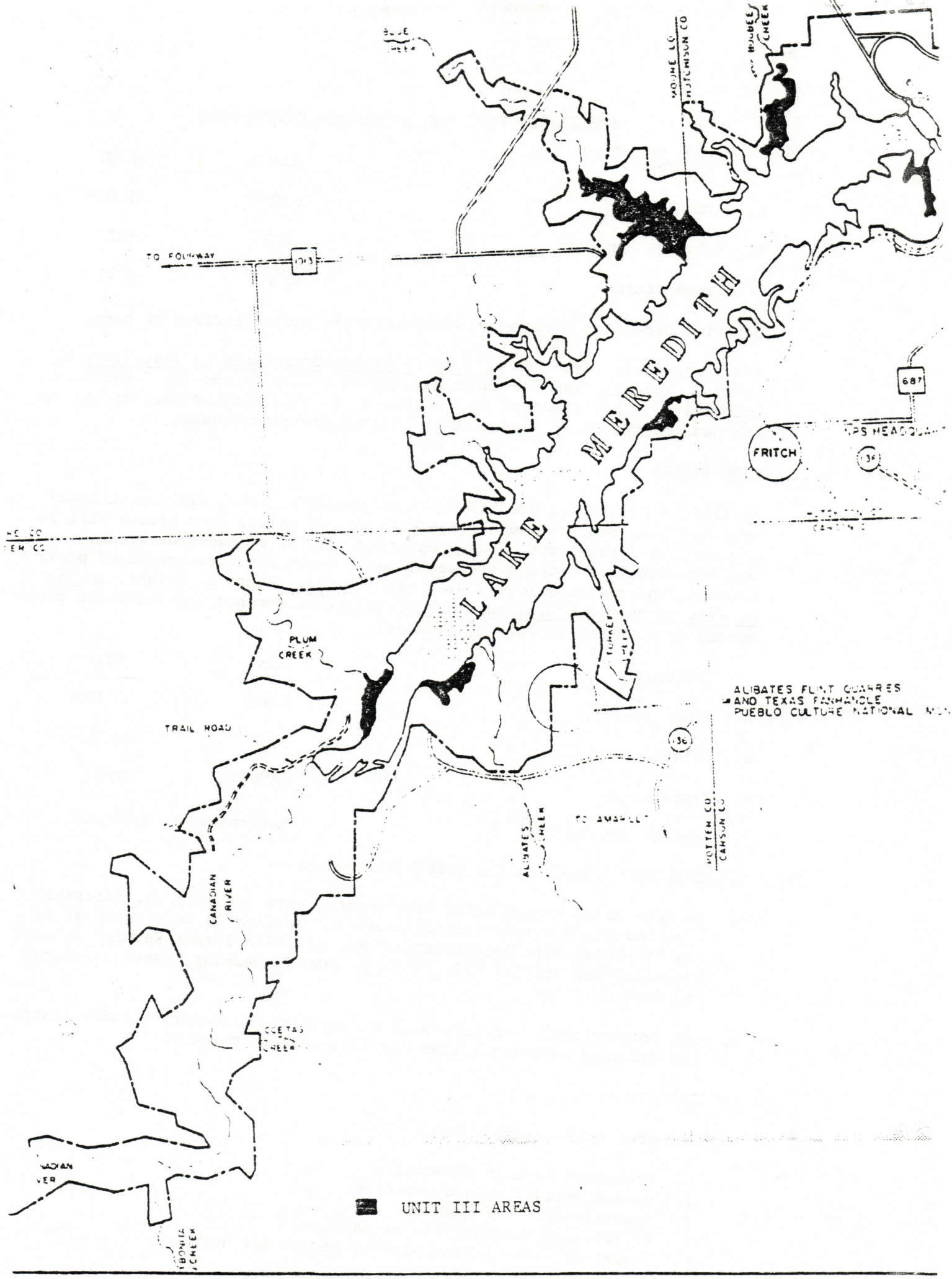
SITE LOCATION MAP
Fig. 1.

APPENDIX P

▲ UNIT I AREAS


LAKE MEREDITH
PLUM CREEK
TRAIL ROAD
CANADIAN RIVER
FRITCH
TO FOLLETT
136
687
ALIBATES FLINT QUARRIES
AND TEXAS PANHANDLE
PUEBLO CULTURE NATIONAL
MOORE CO
HUTCHINSON CO
POTTER CO
CARSON CO
UNIT II AREAS

APPENDIX Q


LAKE MEREDITH
FRITCH
687
PLUM CREEK
TRAIL ROAD
CANADIAN RIVER
ALIBATES FLINT QUARRIES
AND TEXAS PANHANDLE
PUEBLO CULTURE NATIONAL
TO AMARILLO
UNIT III AREAS

APPENDIX R

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)

WIND SPEED (MPH)	> 65%	51-65%	41-50%	31-40%	20-30%	< 20%
16+	4.4 ?	5.6 ?	5.8 ?	6.8 X	X	X
11-15	3.2 OK	4.2 ?	4.4 ?	5.2 ?	6.2 X	X
8-10	2.4 OK	3.4 OK	3.6 OK	4.2 ?	4.8 ?	6.0 X
5-7	1.8 OK	2.5 OK	2.7 OK	3.2 OK	3.8 OK	4.4 ?

RELATIVE HUMIDITY

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: _____

_____

_____

_____

_____

_____

_____

_____

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_____

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_____

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_____.

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

5-4-81

April 23, 1981

Mr. Edward R. Wagoner, 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. Wagoner:

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 synthetic 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 F. Miles, Director, Texas Forest Service, College Station