Quality Objective (VQO) ranges from retention (R) to maximum modification (MM), because of aesthetic values along the boundary of Upland Island Wilderness. Under the 1987 Forest Plan, land use will stress multiple-use forest management with sensitivity for the visual resource.

2. Do boundary locations conflict with important existing or potential public uses outside the boundary that might result in demands to allow nonconforming structures or activities or both in the wilderness?

Even though development may occur on private land around and near the boundary, demands for nonconforming structures or activities that would conflict with the wilderness concept are not expected to be a serious problem.

3. Is it possible to readily and accurately describe, establish, and recognize boundaries on the ground?

Yes. The current National Forest boundary is marked.

4. Do boundaries, conform with terrain or other features that constitute a barrier to prohibited use?

Most of the boundaries are arbitrarily designated property lines and do not conform with terrain features or geographical barriers. Some portions of the boundary are located in areas that would be difficult to cross or access. A major portion of the boundary is adjacent to Upland Island Wilderness, and thus is accessible only by nonmotorized means. There are other boundaries where the prohibition against use of motorized vehicles would be difficult to administer.

5. Do boundaries, to the extent practicable, shield the wilderness environment inside the boundary from the sights and sounds of civilization?

The Upland Island Wilderness boundary does provide some degree of protection for part of the analysis area. However, private land holdings and roads along the boundaries of the analysis area may interfere with solitude, and result in some sights and sounds of civilization. It is possible that private developments and road construction could take place near these boundaries and that these could give rise to sights and sounds incompatible with wilderness.

6. Do boundaries provide adequate opportunity for access and traveler transfer facilities?

Yes. There are points where visitors could transfer from motorized to nonmotorized transportation. Parking lots in Areas 1, 4, 6, and 8 could accommodate these transfers.

Availability.

1. Describe other (nonwilderness) resource demands and uses. What current uses exist?

a. Recreation: Hunting and camping are currently the dominant uses, while horseback riding, ATV riding, and hiking appear to be second in importance.

b. Information on wildlife species, populations, and management needs:

The analysis area contains one inactive RCW cluster (in Area 6), which is protected under the Endangered Species Act. Management of RCW habitat is governed by a court court. Under these guidelines, 1,200-meter habitat zones have been established to provide protected habitat for the RCW. Management activities include removal of midstory vegetation within 200 feet of each cluster tree and prescribed burning within 1,200 meters of each cluster tree. Currently, this cluster site occupies 4 acres and the replacement stand 10 acres. The area of the 1,200-meter habitat zones totals 157 acres.

The analysis area also supports both game and nongame species commonly found in the Gulf Coastal Plains, including gray squirrel and white-tailed deer. Wildlife management activities on the area outside the RCW habitat zones are generally directed toward improving habitat for white-tailed deer.

c. Water availability and use: The analysis area contains no natural sources of potable water. Potable water is available in developed recreation areas. The Sam Rayburn Reservoir and the Neches River are close to the analysis area. Creeks and low areas provide water for wildlife.

d. Livestock operations: None.

e. Timber: The analysis area is a high-quality site for timber production. Loblolly pine site indices range from 70 to 100. Timber types are loblolly pine (approximately 64 percent), slash pine (4 percent), and various hardwoods (26 percent). Some hardwoods (mostly oaks, hickory, and some Beech-Magnolia timber type) can be found in the creek bottoms, intermixed with pines. Approximately 33 acres, or 3 percent, of the analysis area is in timber less than 10 years old. These regeneration areas are in Area 8. Approximately 53 percent of the standing timber is between 50 and 70 years old. An estimated 24 percent of the timber is more than 70 years old, and 14 percent is between 10 and 30 years old.

f. Minerals: Mineral rights on 685 acres are owned privately (See Table 1) and are not subject to Forest Service jurisdiction. Where mineral rights are outstanding, the Forest Service must allow the construction and maintenance of exploration sites. Mineral rights in the remaining 595 acres are owned by the government. The 595-acre area is considered to have a moderate potential for oil and gas occurrence.

g. Cultural resources: Some of the analysis area may contain archeological sites, which are considered historic properties. A number of Paleo-Indian to Neo-historic prehistoric sites have been recorded on areas associated with the Angelina and Neches Rivers. Future surveys reveal the presence of additional sites.

Some historic sites are found within and near the analysis area. The Aldridge Mill complex is perhaps the best example of a turn-of-the-century sawmill in the National Forests in Texas. There are also old logging trams and numerous cemeteries, most notably the Boykin Cemetery, near the analysis area.

These sites and the objects in them are an important part of our cultural heritage. The National Forests and Grasslands in Texas is charged with the protection and management of these valuable historic properties by laws and regulations. The historic properties are also educational and interpretive landmarks that increase public use and area interest.

h. Authorized and potential land uses: Currently, there are a variety of commercial and noncommercial special uses in the analysis area. The permittees, the special uses, and the mileage along Forest Service roads or boundaries are listed in Table 2.

i. Management considerations including fire, insects and diseases, and presence of non-Federal lands: This analysis area has been burned periodically to reduce fuel build-up since the Forest Service acquired the land in the 1930's. The controlled burns have been conducted approximately every 3 to 5 years. Wildfires do occur, but are infrequent. The analysis area's terrain is gentle with rolling hills. Therefore, it would not be difficult to suppress wildfires unless adverse conditions (high winds and/or very dry fuels) occurred.

Potential for spread of the Southern Pine Beetle (SPB) is moderate because loblolly pine, a preferred host, is the predominant species. Although few infestations have occurred in the analysis area, the majority of the standing timber is at or near maturity and this could increase susceptibility during an epidemic.

The presence of private land is not a major consideration for management of the analysis area as general forest land. However, difficulties related to access and other special use needs must be resolved if the analysis area is to be managed as wilderness.

This analysis area presents complex problems because it consists of eight separate areas which are scattered around and adjacent to Upland Island Wilderness. Many of these areas are quite small and have several conflicting uses.

2. What outputs are currently produced or could be produced in the future?

Dispersed recreation activities, such as hunting and camping, should continue at about the present moderate to high level. Since the analysis area is adjacent to Upland Island Wilderness, there is access by existing FS and county roads. Because the analysis area is visible from Upland Island Wilderness, it is desirable to manage the analysis area for aesthetic and recreational purposes.

3. Is the analysis area located in such a way that the need for increase water production or additional onsite storage or both is so vital that installation or maintenance of improvements is an obvious and inevitable public necessity?

No.

4. Would wilderness designation seriously restrict or prevent the application of wildlife management measures of considerable magnitude and importance?

Yes. The presence of RCW in Area 6 necessitates habitat maintenance activities that are not conducive to wilderness conditions.

5. Is it a highly mineralized area of such strategic or economic importance and extent that restrictions or controls resulting from wilderness designation would not be in the public interest?

This analysis area is not highly mineralized but is considered to have a moderate potential for oil and gas occurrence. Where mineral rights are outstanding, permission to drill would be granted. Permission to construct and maintain access roads and drilling sites would be granted also.

6. Does the analysis area contain natural phenomena of such unique or outstanding nature that general public access and special development to facilitate public enjoyment should be available?

Yes. The analysis area supports an intact example of southern scenic bottomland.

7. Is the land needed to meet clearly documented resource demands such as demands for timber, mineral production, or developed recreation?

Yes. There are demands for dispersed recreation (hunting, camping, horseback riding, and ATV use) and timber.

Timber stands within the 1,200-meter RCW foraging zones are being thinned to comply with the a court order. This thinning contributes to the timber harvest on the Angelina National Forest.

8. Is the land committed through contractual agreements for use, purposes, or activities not in concert with wilderness requirements?

Yes. There are reserved and outstanding rights to minerals on 685 acres within the analysis area. Surface occupation, with mitigation measures implemented, must be allowed in order to accommodate exploration and production equipment. Lion Oil Company also retains an outstanding right-of-way for an oil transport pipeline that was in place prior to Forest Service land acquisitions. There are also several special use permits which are listed in Table 1. The U.S. owns 595 acres of mineral rights that are not leased at present.

Need.

Other wildernesses.

1. What are the locations, sizes, and types of other wildernesses in the general vicinity?

The National Wilderness Preservation System includes 84,012 acres of designated wilderness in Texas. See Table 1 (found in the Introduction to the Evaluation of Roadless Areas) for more information about wilderness in Texas.

2. How far is it to the closest existing wilderness?

Upland Island Wilderness (13,390 acres) is adjacent to all sections of the analysis area. Turkey Hill Wilderness (5,286 acres) is approximately

26 miles to the north. Both of these wildernesses are on the Angelina National Forest.

3. What is the current level of use in nearby wilderness? What are the trends in the use of these areas?

Upland Island Wilderness received approximately 3,000 Recreaton Visitor Days (RVD's), about 11 percent of estimated capacity. Of these, 500 RVD's involved overnight camping. The average size of visiting groups is 2.6 people. More than 56 percent of visitors to Upland Island Wilderness visit there more than twice per year. An estimated 27 percent of visitors to Upland Island go into the wilderness alone. Most visitors are there to hunt or to scout for future hunting trips. A large percentage of visitors are under 16 years of age.

The Turkey Hill Wilderness received an estimated 1,500 RVD's (about 14 percent of capacity), of which 500 involved overnight camping. Most of the use was related to hunter use. Users have not had any significant effects on the areas wilderness qualities or resources. A small increase in use over the next 10 to 20 years is anticipated.

4. Is the population in and around these areas increasing or decreasing? How quickly is it increasing or decreasing?

The population of Texas grew 0.6 percent annually from 1980 to 1987. This slow increase is expected to continue. The large metropolitan areas such as Dallas and Houston grew at much faster rates (27 percent and 17 percent respectively, 1980-87). These population centers are about 100 miles (Houston) to 175 miles (Dallas) from the analysis area. The combined population of Houston and Dallas is more than 5 million.

The Graham Creek analysis area is located in Angelina and Jasper counties. The population of Angelina County grew from 64,172 in 1980 to 69,920 in 1988. The population of Jasper County grew from 30,781 in 1980 to 32,014 in 1988. The population of San Augustine County, located to the north of the analysis area, grew from 8,785 in 1980 to 9,174 in 1988. Generally, the populations of the counties near the analysis area have increased steadily over the past 10 years. The population of Deep East Texas, in which the analysis area is located, is expected to increase about 50 percent over the next 35 years.

Nonwilderness lands.

Are there opportunities for unconfined and primitive recreation on nonwilderness areas in the vicinity? If so, where?

Yes. Many acres of National Forest land within reasonable distance of the Graham Creek analysis area are suitable and available for primitive recreation use.

Habitat needs.

1. Are any biotic species in the analysis area competing directly with increasing public use and development?

Yes. There is one inactive RCW cluster in Area 6. This cluster and the associated replacement stand occupy 14 acres of Forest Service land. There are a 200-foot boundary and a 1200-meter foraging habitat zone around each RCW cluster. The RCW is protected under the Endangered Species Act, and its habitat is managed under direction of a court order.

Area 8 contains sensitive plant coumnunities.

2. Could their needs be provided for through means other than wilderness designation?

Yes. Wilderness designation would limit management options for meeting the needs of the RCW and the sensitive plant communities.

3. Is there a need to provide a sanctuary for biotic species that cannot survive in less than primitive surroundings?

No. Suitable habit can be maintained by means of conscientious vegetation management and mitigation of disturbances.

Landform and ecosystem preservation.

1. What is the analysis area's landform type based on the Region 8 Soil Resource Inventory (R-8 1977)? Does the area represent a unique landform type that is not represented in any existing wilderness areas in the general vicinity?

The Graham Creek analysis area is on the Coastal Plain of eastern Texas. The dominant landforms are floodplain and stream terraces, low ridges, side slopes, and ridge tops.

The same landforms are typical of Upland Island Wilderness Area, which is adjacent to the Graham Creek analysis area.

2. What is the analysis area's ecosystem classification based on the TNHP Report? Does the analysis area represent a unique ecosystem that is not represented in any existing wilderness areas in the general vicinity?

The plant communities most common in the analysis area are the Loblolly Pine-Oak Series, Water Oak-Willow Oak Series, Swamp Chestnut Oak-Willow Oak Series, Longleaf Pine-Little Bluestem Series,

Sphagnum-Beakrush Series, Sweetbay Magnolia Series, and Baldcypress-Water Tupelo Series. These plant communities represent the wide natural diversity found in the National Forests of east Texas.

Table 1. Mineral Interest and Leasing Status of Areas Within Proposed Graham Creek as of April 16, 1992

Area	U.S. Tract	Reserved Interest	Outstanding	In Perpetuity	Issued Leases
1	A-26	--	8.00	--	Not Leasable
2	A-1a-I	--	--	41.00	Not Leasable
3	A-1a-I	--	--	2.00	Not Leasable
4	A-1a-I	--	--	5.00	Not Leasable
5	A-1a-I	--	--	127.00	Not Leasable
6	A-1a-I	--	--	106.00	Not Leasable
7	A-1a-I	--	--	51.00	Not Leasable
8	A-1a-I & A-8a	595.00	--	345.00	The U.S. interest is presently being updated to offer as a part of Parcel #4
Total		595.00	8.00	677.00	

Table 2. Special Uses For Graham Creek

Area 2...Rueda Unit

Telephone Lines
Contel/Continental Telephone: Buried ROW width 10 ft.
0.57 miles along Angelina County Road 383-B

Area 3...Graham Creek Unit

Aerial Powerlines
Texas Power & Light: ROW width 10 ft.
0.08 miles along both sides of Angelina County Road 4-5

Telephone Lines
Contel/Continental Telephone: Buried ROW width 10 ft.
0.08 miles along Angelina County Road 4-5

Area 4...Cypress Creek Unit #2

Aerial Powerlines
Texas Power & Light: ROW width 10 ft.
0.19 miles along Angelina County Road 4-5

Telephone Lines
Contel/Continental Telephone: Buried ROW 10 ft.
0.19 miles along Angelina County Road 4-5

Special Use Road (easement)
Gulley Road: ROW width 30 ft.
0.05 miles south from County Road 4-4 to FS boundary

Area 5...Martin Unit

Telephone Lines
Contel/Continental Telephone: Buried ROW width 10 ft.
0.25 miles south along FS 314
Southwestern Bell: Buried ROW width 10 ft.
0.23 miles between FS boundary and Texas & New Orleans (SP) Railroad ROW

Pipelines
Lion Oil Company: ROW width 30 ft.
(Outstanding Right)
0.03 miles across Forest Service land

Area 6...Marshall Unit

Aerial Powerlines

Jasper-Newton Electric Co-op: ROW width 25 ft.

0.11 miles across Forest Service land (southeast corner)

Telephone Lines

Contel/Continental Telephone: Buried ROW width 10 ft.

0.76 miles along Jasper County Road 8

0.38 miles along FS 314

Area 7...Bouton Unit

Aerial Powerlines

Jasper-Newton Electric Co-op: ROW width 25 ft.

0.26 miles along FS 314

Telephone Lines

Contel/Continental Telephone: Buried ROW width 10 ft.

0.26 miles along FS 314

0.10 miles along FS 314B

Area 8...Green Creek Unit

Aerial Powerlines

Jasper-Newton Electric Co-op: ROW width 25 ft.

0.57 miles along FS 303

0.38 miles along FS 302

0.47 miles along Angelina County Road 4-13

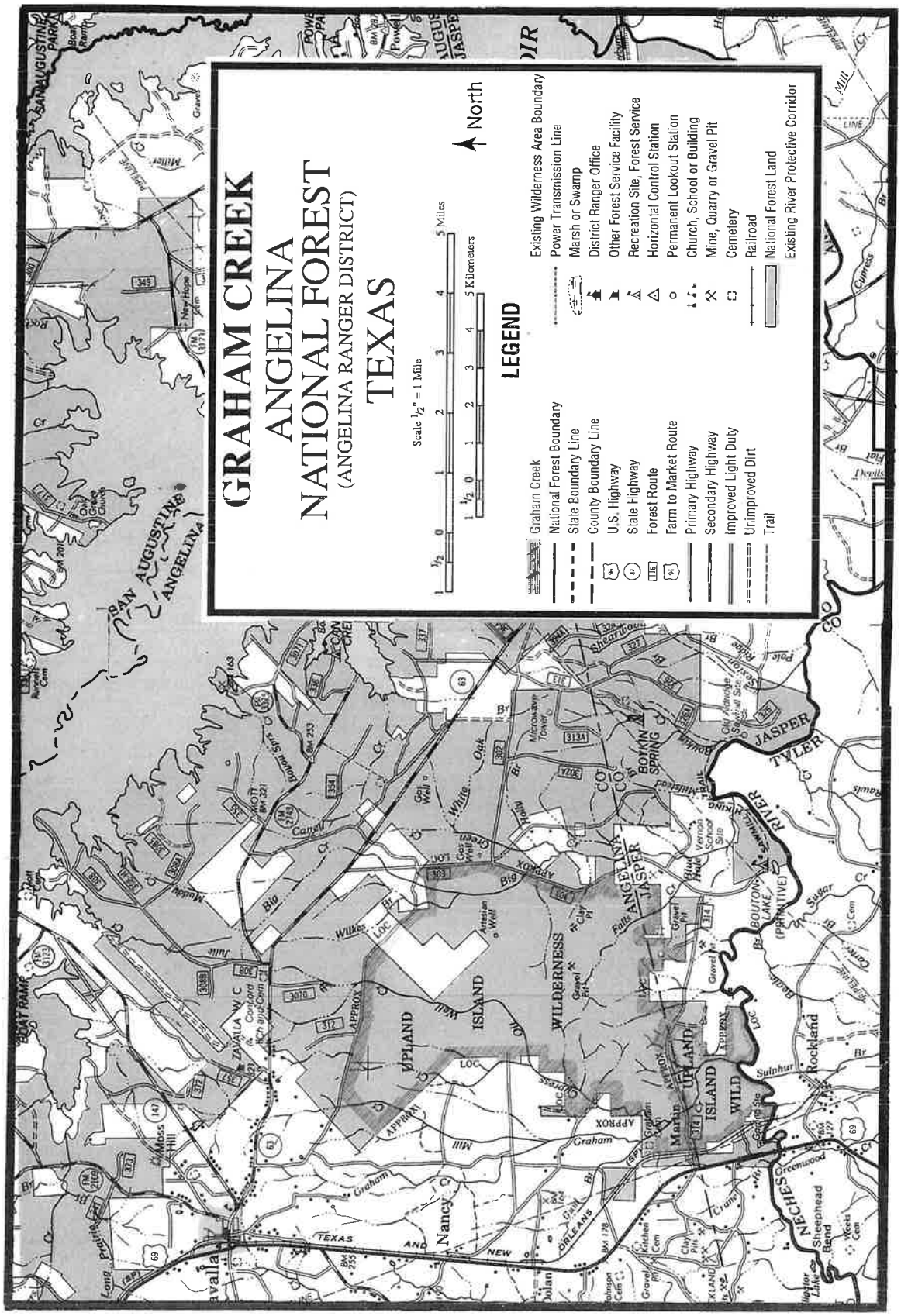
0.68 miles along Angelina County Road to FS boundary.

Telephone Lines

Contel/Continental Telephone: Buried ROW 10 ft.

0.57 miles along FS 303

Figure 1 - Graham Creek



Harmon Creek
Sam Houston National Forest
Raven Ranger District

Roadless Area Review and Evaluation

Description of Analysis Area

Roadless area name and number of acres.

HARMON CREEK: Gross area approximately 1,960 acres; net area approximately 1,960 acres.

Location and vicinity.

The analysis area is located in the northern portion of the Raven Ranger District of the Sam Houston National Forest. It is east of Highway 19, north of Highway 190, and approximately 3.0 miles east of Huntsville in Walker County, Texas.

Describe access to the analysis area, including roads and trails leading to the area.

To reach the analysis area, travel approximately 3.0 miles west from Huntsville, Texas, on Highway 190. Turn north on Forest Development Road (FDR) 227 and travel approximately 1.0 mile to the analysis area, which is on the east side of the road.

General description of the analysis area's geology.

The analysis area is on the western Gulf Coastal Plains and the Texas Blackland Prairies. The soils have developed from sedimentary material and are of recent, pleistocene, and age. The Willis formation consists largely of clayey sand and gravel and some local clay beds. The Fleming formation underlies and is the parent material for the Blacklands, which consist of calcareous clay and sandstone. Soils occurring in the analysis area are the Annon, Depcor, Huntsburg, and Kanebreak series.

General description of the analysis area's topography.

This part of the western Gulf Coastal Plain of Texas and the Texas Blackland Prairies consists of floodplains, stream terraces, and gently sloping side slopes and ridgetops. The elevation between the stream bottoms and ridge tops is approximately 80 feet, and slopes are between 0 and 15 percent.

General description of the analysis area's vegetation, including the ecosystem type.

The analysis area is within the Southern Mixed Forest Ecosystem. The predominant forest type is loblolly pine. Oaks and other hardwoods mixed with the pines. Shortleaf pine also occurs in the overstory. Yaupon is the most common understory species. Riparian vegetation on lower slopes, creek bottoms, and stream terraces is mainly loblolly pine-oak and hardwood slope forest. The Texas Natural Heritage Program (TNHP) loblolly pine-oak series is the predominant plant community.

Key attractions, if any, including sensitive wildlife and scenic landmarks.

Visitors to the analysis area have opportunities to view game, non-game, and threatened and endangered animal species. No sensitive plant species are known to occur in the analysis area.

Area Inventory

Human influence.

1. To what degree have humans and past and present human activity affected natural ecological processes and conditions?

Acquisition of the National Forests in Texas was primarily under the authority of the Weeks Act. The land was acquired from private owners during the 1930's and early 1940's. A significant amount of land was acquired from timber companies. Most of the area was cut over severely during the early 1900's.

2. To what degree is the analysis area natural or natural appearing and free from disturbance?

Little evidence of turn-of-the-century logging and farming remains, but more recent management is evident. The analysis area has been managed intensively for timber production in the last 20 to 30 years. The analysis area contains numerous pine plantations from 2 to 20 years old. Mature timber in the analysis area has been thinned to improve endangered species habitat. Several old woods roads are present. Very little of the analysis area retains a natural appearance or is free from disturbance.

3. If the analysis area's ecological processes or natural appearance or both have been altered by past or present human activity, is the land regaining a natural untrammeled appearance?

No, most of the analysis area is marked by southern pine beetle (SPB) control activities, woods roads, and extensive past harvesting. The

Forest Plan specifies that the analysis area will continue to be managed for multiple uses.

4. Does the existing or attainable National Forest System ownership pattern, both surface and subsurface, ensure perpetuation of identified wilderness values?

Existing surface management can be modified, but reserved mineral rights could pose a problem. Surface occupancy, with mitigating measures implemented, must be allowed in order to accommodate minerals exploration and production, so perpetuation of wilderness values cannot be ensured.

5. Is more than 15 percent of the analysis area in nonnative vegetation?

No exotic species are known to be present in the analysis area.

Improvements, structures, and nonconforming uses.

1. Are any of the following types of areas, features, or nonconforming uses present?

a. Airstrips or heliports: No.

b. Electronic installations: Yes. Sam Houston Electric Company has a permit for a power transmission line.

c. Areas with evidence of historic mining at least 50 years old (Do not include areas of significant current mineral activity): No.

d. Areas under current mineral lease that contain a "no surface occupancy" stipulation: No.

e. Areas under current mineral lease where the lessee has not exercised development and occupancy rights: No.

f. Recreation improvements, such as occupancy spots or minor hunting or outfitter camps: Yes, the analysis area receives moderate use from hunters and has some dispersed camping areas.

g. Timber harvest areas where logging and prior road construction are or are not evident: There are woods roads and harvest units throughout the analysis area, which has been managed as timberland since the 1930's.

h. Cultural treatments involving plantations or plantings: There is evidence of past timber stand and wildlife habitat improvement.

Numerous plantations ranging from 2 to 20 years old are present. Many of the plantations are quite large (up to 85 acres).

i. Private inholdings in the area: No. The analysis area borders scattered private holdings.

j. Dwellings on private inholdings: No. There are dwellings on adjacent private property.

k. Nonconforming structures and improvements: Woods roads, garbage dump areas, power transmission lines, pipeline, forest development roads, and harvest units are present.

l. Ground-return telephone lines: No.

m. Watershed treatment areas: No.

n. Roads: The analysis area contains 6.6 miles of surfaced and maintained roads (FDR Roads 227, 236, 236a, and 257). There are also FDR woods roads in the analysis area. Approximately 112.1 miles of FDR 227g, 227h, 227d, 257d, 257e, 257e1, 257c, 257c1, 257f, 2024, 241, and 241c border or are within the analysis area.

2. Can existing nonconforming uses be mitigated effectively or terminated through removal or rapid natural deterioration?

Many can be mitigated through replanting, reforestation, and revegetation. Surface occupancy with mitigating measures implemented must be allowed in order to accommodate mineral exploration and production rights.

3. Are improvements in the area being affected by the forces of nature rather than by humans, and are they disappearing or muted?

Forest Service roads and 227, which is maintained by Walker County, are being maintained for long-term use.

4. If there are timber harvest areas, has less than 20 percent of the analysis area been harvested within the past 10 years?

Most of the area has been harvested, and about 21 percent of the acreage has been harvested within the past 10 years.

5. Does the area contain less than 1/2 mile of improved road for each 1,000 acres?

No. There are approximately 18.7 miles of FDR and several miles of non-system woods roads in the 1,960-acre analysis area.

6. Are all existing roads under Forest Service jurisdiction?

Yes, with the exception of FDR 227, which Walker County maintains under a cooperative agreement.

Evaluation of Potential Wilderness

Capability.

Does the analysis area have the basic characteristics that would make it suitable for wilderness designation without regard to its availability for or need as wilderness? Consider the following characteristics in analyzing the quality of the wilderness resource. If these characteristics are determined to be important, describe and refer to them.

Experimental benefits.

Does the analysis area provide the opportunity for solitude and serenity?

Such opportunities are very limited, as the analysis area is small and is located in an urban National Forest. Noise from FDR's can be heard throughout the analysis area. Recreation Opportunity Spectrum (ROS) is semiprimitive motorized and roaded-natural.

Challenge.

Does the analysis area offer visitors the opportunity to experience adventure, excitement, challenge, initiative, or self-reliance? Is access easy or difficult?

The analysis area offers few opportunities for these experiences. The existing road system makes access reasonably easy.

Outdoor recreation opportunities.

Describe the analysis area's capability for providing primitive and unconfined types of recreation including:

a. Camping: Several locations are suitable for primitive camping.

b. Hunting: Hunting is readily available for some small and large game species.

c. Fishing: None.

d. Canoeing: None.

e. Boating: None.

f. River rafting: None.

g. Backpacking: There are some opportunities for backpacking. The lack of a trail system and presence of undergrowth makes backpacking difficult.

h. Hiking: Same as for backpacking, above.

i. Riding: There are opportunities for horseback riding along the FDR's and woods roads. No trails have been developed for equestrian use.

j. Photography: There are good opportunities existing for some kinds of nature photography. There are no opportunities for panoramic or scenic shots.

Special features.

1. What is the area's capability to provide outdoor education and scientific study, both formal and informal, in a manner compatible with wilderness?

The analysis area provides opportunities for study and education in subjects such as forestry, archeology, biology, and dispersed recreation.

2. Is there an abundant and varied wildlife population?

A variety of game and nongame animals–including threatened and endangered species–can be found in the analysis area. Species are typical of those found in the western Gulf Coastal Plain forests of Texas.

Manageability.

1. What are the characteristics of the analysis area including ROS classification, adopted VQO, and present and planned uses?

The ROS is semiprimitive motorized and roaded-natural. The Visual Quality Objective (VQO) is maximum modification. The 1987 Forest Plan specifies that the analysis area is to be managed for multiple uses and that aesthetic qualities and recreational uses are to be emphasized.

2. Do boundary locations conflict with important existing or potential public uses outside the boundary that might result in demands to allow nonconforming structures or activities or both in the wilderness?

No. Private land around and near the boundary may be developed in the future, but encroachments are not expected.

3. Is it possible to readily and accurately describe, establish, and recognize boundaries on the ground?

Yes. The analysis area is bounded by existing roads and by the National Forest boundary, which is marked.

4. Do boundaries conform with terrain or other features that constitute a barrier to prohibited use?

No.

5. Do boundaries, to the extent practicable, shield the wilderness environment inside the boundary from the sights and sounds of civilization?

No. The area is bordered by private land, and terrain features and vegetation along the boundary provide minimal protection.

6. Do boundaries provide adequate opportunity for access and traveler transfer facilities?

Yes. Several FDR's allow access to all parts of the analysis area.

Availability.

1. Describe other (nonwilderness) resource demands and uses. What current uses exist?

a. Recreation: Hunting, horseback riding, and dispersed camping are popular.

b. Information on wildlife species, populations, and management needs: The area supports various game, nongame, and threatened and endangered species found in forests of the western Gulf Coastal Plain of Texas.

c. Water availability and use: There is no source of potable water. Water for wildlife and livestock is readily available.

d. Livestock operations: The analysis area is in the Harmon Creek range allotment.

e. Timber: The analysis area is included in the Forest's base of lands suited for timber management and contributes to meeting the National Forests and Grasslands in Texas Final Land and Resource Management Plan (FLRMP) goals. There are 153 acres of slash pine, 1,069 acres of loblolly pine, 623 acres of shortleaf pine, and 115 acres of bottomland hardwoods-yellow pine forest cover. Site indices generally range from 70 to 90 for the pines and hardwoods.

f. Minerals: Sanhall Corporation has an oil lease. There has been no mineral exploration or development within the analysis area.

g. Cultural resources: The analysis area may contain archeological or historical sites or both. Surveys of the analysis area may reveal new sites.

h. Authorized and potential land uses: None.

i. Management considerations including fire, insects and diseases, and presence of non-Federal lands: Fire protection and successful fire suppression have created the possibility of fuel build-up. Prescribed burning has helped to control the fuel loading and reduce the fire danger.

Infestations of SPB could develop if pines in the analysis area are stressed or damaged.

There are no inholdings.

2. What outputs are currently produced or could be produced in the future?

Dispersed recreational activities including hunting, camping, and horseback riding should continue at the present low to moderate level.

The analysis area is expected to produce some timber. Any decrease in the acreage available for timber harvesting will result in a decline in timber production on the Forest.

Prescribed burning, establishment of food plots, or other measures could be employed to improve habitat for red-cockaded woodpecker (RCW) and other wildlife.

The reserved minerals may be explored and developed.

3. Is the analysis area located in such a way that the need for increased water production or additional onsite storage or both is so vital that installation or maintenance of improvements is an obvious and inevitable public necessity?

No.

4. Would wilderness designation seriously restrict or prevent the application of wildlife management measures of considerable magnitude and importance?

Yes. The area contains four inactive RCW clusters. Habitat improvement projects would be limited severely under wilderness management.

5. Is it a highly mineralized area of such strategic or economic importance and extent that restrictions or controls resulting from wilderness designation would not be in the public interest?

No. However, the mineral rights are owned privately, and development is high.

6. Does the area contain natural phenomena of such unique or outstanding nature that general public access and special development to facilitate public enjoyment should be available?

No.

7. Is the land needed to meet clearly documented resource demands such as demands for timber, mineral production, or developed recreation?

Yes. The analysis area is included in the Forest's timber base.

8. Is the land committed through contractual agreements for use, purposes, or activities not in concert with wilderness requirements?

No. However, minerals are owned privately.

Need.

Other wildernesses.

1. What are the locations, sizes, and types of other wildernesses in the general vicinity?

The Little Lake Creek Wilderness, a Federally designated wilderness, is located in the Raven Ranger District of Sam Houston National Forest and consists of 3,810 acres. See Table 1 (found in the Introduction to the Evaluation of Roadless Areas) for more information about wilderness areas in Texas.

2. How far is it to the closest existing wilderness?

The Little Lake Creek Wilderness Area is approximately 25 miles southwest of the analysis area.

3. What is the level of use in nearby wilderness? What are the trends in the use of these areas?

Little Lake Creek Wilderness had an estimated 500 recreation visitor days in 1991. Wilderness use is expected to increase slightly over the next 10 to 20 years.

4. Is the population in and around these areas increasing or decreasing? How quickly is it increasing or decreasing?

The populations of Dallas and Houston grew 27 percent respectively, from 1980 to 1987. The analysis area is about 60 miles from Houston and 225 miles from Dallas.

The combined population of Montgomery and Walker Counties grew from 135,000 in 1980, to 180,000 in 1988.

Nonwilderness lands.

Are there opportunities for un-confined and primitive recreation on nonwilderness areas in the vicinity? If so, where?

Many areas of the Sam Houston National Forest, which is adjacent to the analysis area, are suitable for primitive recreation use. The Raven Ranger District of the Sam Houston National Forest includes 102,000 acres that provide opportunities for primitive recreation.

Habitat needs.

1. Are any biotic species in the analysis area competing directly with increasing public use and development?

No. There are no known sensitive plant species found in Harmon Creek.

2. Could their needs be provided for through means other than wilderness designation?

Not applicable.

3. Is there a need to provide a sanctuary for biotic species that cannot survive in less than primitive surroundings?

Not applicable.

Landform and ecosystem preservation.

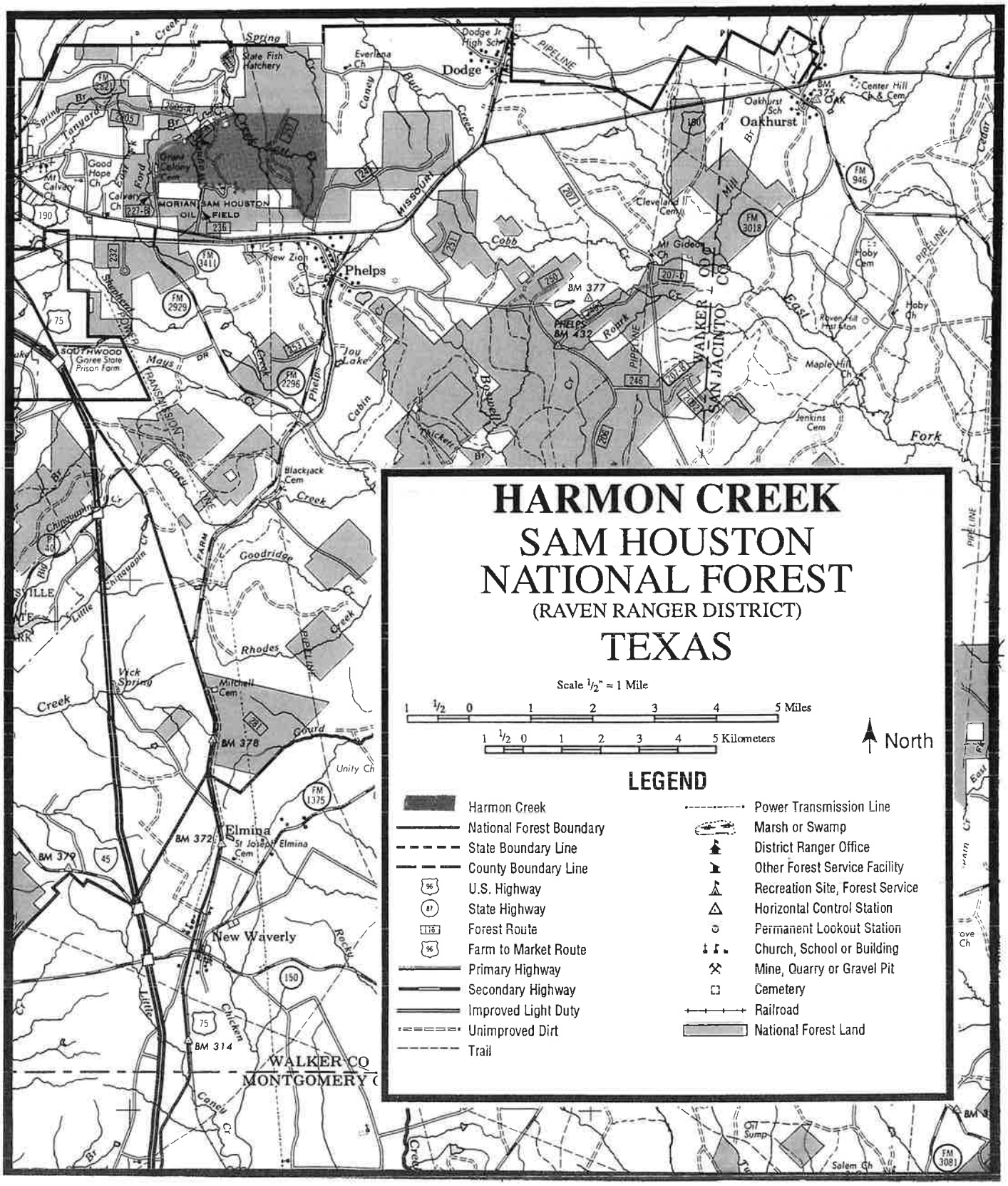
1. What is the analysis area's landform type based on the Region 8 Soil Resource Guide (R-8 1972)? Does the area represent a unique landform type that is not represented in any wilderness areas in the general vicinity?

The analysis area consists of floodplains, stream terraces, gently sloping side slopes, and ridgetops. There landforms are common throughout the western Gulf Coastal Plain.

2. What is the analysis area's ecosystem classification? Does the area represent a unique ecosystem that is not represented in any existing wilderness areas in the general vicinity?

The analysis area's ecosystem is Western Gulf Coastal Plain Forest. This ecosystem occurs in existing wilderness areas in Texas.

Figure 1 - Harmon Creek



Indian Mounds
Sabine National Forest
Yellowpine Ranger District

Roadless Area Review and Evaluation

Description of Analysis Area

Roadless area name and number of acres.

INDIAN MOUNDS: Approximately 4,862 acres.

Location and vicinity.

The analysis area is located in the northeastern portion of the Yellowpine Ranger District of the Sabine National Forest, west of Toledo Bend Reservoir, in Sabine County, Texas. The analysis area is divided into three noncontiguous units, which are separated by private property and the Indian Mounds Wilderness Area. The northern unit contains approximately 3,663 acres and is bounded on the north and east by Toledo Bend Reservoir, on the south by State Highway 83, and on the west by Farm-to-Market (FM) Road 3121. The eastern unit contains about 435 acres and is bounded on the east by Toledo Bend Reservoir, on the north by an inlet of the reservoir, on the west by FM 3382, and on the south by County Roads 28 and 29. The southwestern unit contains 764 acres and is bounded on the southwest by FM 944, on the northeast by Indian Mounds Wilderness Area, and on the southeast by a commercial pipeline.

Describe access to the analysis area, including roads and trails leading to the area.

Access to the northern unit is by State Highway 83, FM 3382, and Sabine County Roads 31, 32, and 33. The eastern unit is accessed by FM 3382 and County Roads 28 and 29. The southwestern unit is accessed by FM 944, FM 1368, County Roads 24 and 26, and Forest Service (FS) Roads 104 and 160.

General description of the analysis area's geology.

The analysis area is in the western Gulf Coastal Plain and is underlain by fluviatile terrace deposits and the Sparta Sands geological formation. The fluviatile terrace deposits, which consist of gravels, sands, and silts, are less than 2 million years old; whereas the Sparta Sands, which consist of clays, quartz, sand, lignite, glauconitic marl, and marine

megafossils are 36 to 58 million years old. Soils associated with these formations are the Sacul-Cuthbert-Kurth Series.

General description of the analysis area's topography.

The analysis area consists of floodplains, stream terraces, concave foot slopes, side slopes, and gently sloping ridgetops. The side slopes generally occur as inclined surfaces on broad interstream divides with narrow floodplains and branchhead inclusions. All of the narrow floodplains and some of the branchhead inclusions have been inundated by Toledo Bend Reservoir.

General description of the analysis area's vegetation, including the ecosystem type.

Loblolly forest and shortleaf pine forests predominate. Longleaf pine is present, but usually occurs as single trees or in small groups. White oak, red oak, sweet gum, magnolia, hickory, American beech, and longleaf pine occur in the overstory and midstory of the loblolly and shortleaf forest cover. Loblolly-hardwood cover types, and one area of American beech-magnolia cover type, are represented. Understory trees, shrubs, vines, and herbaceous vegetation include red maple, dogwood, ironwood, persimmion, Japanese honeysuckle, greenbrier, gallberry, yaupon, huckleberry, panicums, and sedges.

Key attractions, if any, including sensitive wildlife and scenic landmarks.

The key attractions are Toledo Bend Reservoir and Mill Creek Cove Scenic Area. Places within the analysis area provide natural vistas of Toledo Bend Reservoir. These usually occur on small ridges immediately adjacent to the reservoir, but can be farther from the reservoir. Mill Creek Cove Scenic Area offers the opportunity to view a mature Beech-Magnolia hardwood forest.

Bald eagles have nested near the analysis area. They have been observed perching and feeding along the shoreline of Toledo Bend, and it is likely they have used the shoreline within the analysis area. American alligator probably occupy suitable habitat along the shoreline of Toledo Bend Reservoir. No other threatened, endangered, or sensitive species are known to be present, but a detailed inventory of the fauna has not been completed.

The Texas Natural Heritage Committee has completed an inventory of natural plan communities and rare plant species in the analysis area. The inventory identified two sensitive communities, Mill Creek Cove and Suprise Beech. Mill Creek Cove is an old-growth American Beech-Southern Magnolia Community, and Suprise Beech a mature American Beech-White Oak Community.

Area Inventory

Human influence.

1. To what degree have humans and past and present human activity affected natural ecological processes and conditions?

The Federal Government acquired the analysis area in the mid-1930's. Most of the land was virtually denuded of trees. Recent activities have included timber harvesting, reforestation, southern pine beetle (SPB) suppression, prescribed burning, wildlife habitat improvement, seismographic mineral prospecting, and road construction and reconstruction.

2. To what degree is the analysis area natural or natural appearing and free from disturbance?

There is little, if any, evidence of the major logging activities that took place during the early part of this century. There is evidence of timber harvesting, reforestation, SPB suppression, mineral exploration, and pipeline and road construction since 1960. There are areas that display no evidence of recent disturbance. The most notable of these are the Mill Creek Cove Scenic Area and the peninsula just north of Mill Creek Cove.

3. If the analysis area's ecological processes or natural appearance or both have been altered by past or present human activity, is the land regaining a natural, untrammeled appearance?

Only Mill Creek Cove Scenic Area and a few other undisturbed areas appear natural.

4. Does the existing or attainable National Forest System ownership pattern, both surface and subsurface, ensure perpetuation of identified wilderness values?

No. The analysis area is not a contiguous unit, and it adjoins private property in many places. The adjoining private land generally lacks wilderness characteristics and would not be easy to acquire.

Some subsurface minerals are owned privately, and the private owners have legal rights to explore and develop their mineral interests. If these rights were exercised, the land surface with be affected.

5. Is more than 15 percent of the analysis area in nonnative vegetation?

No.

Improvements, structures, and nonconforming uses.

1. Are any of the following types of areas, features, or nonconforming uses present? If so, where?

a. Airstrips or heliports: No.

b. Electronic installations: No.

c. Areas displaying evidence of historic mining at least 50 years old. (Do not include areas of significant current mineral activity): No. However, there are two oil well sites in the Mill Creek Cove Scenic Area. These date to the 1930's.

d. Areas under current mineral leases that contain "no surface occupancy" stipulations: No.

e. Areas under current mineral lease where the lessee has not exercised development and occupancy rights: There are several such areas.

f. Recreation improvements, such as occupancy spots or minor hunting or outfitter camps: There are no developed recreation improvements within the analysis area. Primitive, dispersed camping sites are scattered throughout. Some are inconspicuously located along the lakeshore and along woods roads. Others are adjacent to State, county, and Forest Service roads and are quite conspicuous.

g. Timber harvest areas where logging and prior road construction are or are not evident: The analysis area exhibits evidence of recent harvesting activities and road construction. It cannot be described as heavily logged, but there have been regeneration cuts, intermediate cuts (thinnings), and SPB suppression by timber sales. Most of the analysis area was classified as general forest area in the Final Land and Resource Management Plan (FLRMP), which was approved in May, 1987, and was scheduled to be evaluated for timber harvesting. The most recent timber sale was in the western section of the northern unit. The sale had 290 acres of regeneration cutting, 61 acres of thinning, and 5 acres of cutting to clear road rights-of-way. The sale involved 0.88 miles of road construction and 1.20 miles of road reconstruction. The sale terminated in November, 1990.

h. Cultural treatments involving plantations or plantings: The 290 acres that were clearcut have been site prepared and planted.

i. Private inholdings in the analysis area: There are two inholdings.

j. Dwellings on private inholdings: There are two dwellings on private inholdings.

k. Nonconforming structures and improvements: There are telephone, water, and powerlines in the analysis area.

l. Ground-return telephone lines: None known.

m. Watershed treatment areas: None.

n. Roads: The northern unit has the following roads: FM 3382; FS 171, 172, 172-A, 1783, 1784, 1791, 1792, 1793, 1794, 1795, 1796, and 1797; and Sabine County 31, 32, and 33. The southwestern unit has FS Roads 104, 106 and Sabine County Road 24. The eastern unit has Sabine County Road 28 and an unnamed county road.

2. Can existing nonconforming uses be mitigated effectively or terminated through removal or rapid natural deterioration?

Timber management could be terminated, and woods roads, skid trails, and other evidences of timber management could be mitigated. Some Forest Service roads could be closed and mitigated. County roads and roads providing access to inholdings and special uses must be maintained for long-term service. Rights-of-way for water, power, and telephone lines must also be maintained for long-term service.

3. Are improvements in the analysis area being affected by the forces of nature rather than by humans, and are they disappearing or muted?

The improvements noted previously are being maintained to meet long-term needs.

4. If there are timber harvest areas, has less than 20 percent of the analysis area been harvested within the past 10 years?

Yes.

5. Does the analysis area contain less than 1/2 mile of improved road for each 1,000 acres?

No. The analysis area contains approximately 7.72 miles of improved roads (surfaced with gravel or bituminous material), or 1.68 miles of improved road for each 1,000 acres.

6. Are all existing roads under Forest Service jurisdiction?

No. Only 2.99 miles of the improved roads are under Forest Service jurisdiction. The remainder are controlled by the State of the county.

Evaluation of Potential Wilderness

Capability.

Does the analysis area have the basic characteristics that make it suitable for wilderness designation without regard to its availability for or need as wilderness? Consider the following characteristics in analyzing the quality of the wilderness resource. If these characteristics are determined to be important, describe and refer to them.

Experimental benefits.

Does the analysis area provide the opportunity for solitude and serenity?

The area provides few such opportunities. Traffic on roads within and adjacent to the analysis area disturb solitude and serenity, and adjacent developments-which include subdivisions, marinas, and a county dump-does not provide a good backdrop for solitude and serenity.

Challenge.

Does the analysis area offer visitors the opportunity to experience adventure, excitement, challenge, initiative, or self-reliance? Is access easy or difficult?

The numerous roads adjacent to and within the area make access easy. The analysis area presents opportunities for recreational activities that can involve adventure, excitement, challenge, initiative, and self-reliance.

Outdoor recreation opportunities.

Describe the analysis area's capability for providing primitive and unconfined types of recreation including:

a. Camping: There are numerous locations for primitive camping.

b. Hunting: Hunters can take small game and deer. Use is moderate and access is good.

c. Fishing: There is excellent fishing in Toledo Bend Reservoir, which is adjacent to the analysis area.

d. Canoeing: None of the analysis area's streams or rivers are large enough to support this activity.

e. Boating: Same as for canoeing.

f. River rafting: Same as for canoeing.

g. Backpacking: The analysis area is not large enough to offer a challenge to a seasoned backpacker.

h. Hiking: The northern unit is suitable for hikes of very short distance and is better suited for novice hikers. The eastern and southeastern units are too small for hiking.

i. Riding: The primitive roads could be utilized for horseback riding, but cross-county riding would be challenging, particularly for the novice, because the undergrowth is dense.

j. Photography: Opportunities for vista photography are good in areas adjacent to Toledo Bend Reservoir and poor elsewhere. The entire analysis area presents good opportunities for plant and animal photography.

Special Features.

1. What is the analysis area's capability to provide outdoor education and scientific study, both formal and informal, in a manner compatible with wilderness?

Opportunities are limited. The best opportunities are in the Mill Creek Cove Scenic Area and the Suprise Beech area.

2. Is there an abundant and varied wildlife population?

Game and nongame animals typical of western Coastal Plain forests are present. Wildlife populations are more abundant or varied than in other lakeshore or near-lakeshore areas of Forest Service land in Texas.

Manageability.

1. What are the characteristics of the surrounding area, including its ROS classification, adopted VQO, and present and planned uses?

Recreation Opportunity Spectrum (ROS) on the majority of the area is Roaded Natural (RN). Four small areas (about 200 acres total) in the northern unit are classified as Semiprimitive motorized (SPM). Visual Quality Objective (VQO) ranges from retention for the Mill Creek Cove Scenic Area to maximum modification for the majority of the analysis area. Areas immediately adjacent to the shoreline of Toledo Bend Reservoir are rated partial retention, and areas adjacent to the improved roads are rated modification.

Future land use will continue to stress aesthetic values in association with residential and dispersed recreation uses. There are several private

marinas and residential subdivisions in the immediate area, but demand for recreational use and residential development has stabilized.

2. Do boundary locations conflict with important existing or potential public uses outside the boundary that might result in demands to allow nonconforming structures or activities or both in the wilderness?

Development of adjacent private land will continue, but encroachments are not expected to be a serious problem.

3. Is it possible to readily and accurately describe, establish, and recognize boundaries on the ground?

Yes. The current National Forest boundary is marked, and the analysis area's boundary coincides with easily defined natural or man-made features where it does not coincide with the Forest boundary.

4. Do boundaries, conform with terrain or other features that constitute a barrier to prohibited use?

The boundary presents a barrier to prohibited use only where the boundary coincides with Toledo Bend Reservoir shoreline.

5. Do boundaries, to the extent practicable, shield the wilderness environment inside the boundary from the sights and sounds of civilization?

No. Marinas, residential developments, traffic on roads, and recreational use on the lake are visible and audible from certain points in the analysis area.

6. Do boundaries provide adequate opportunity for access and traveler transfer facilities?

Yes.

Availability.

1. Describe other (nonwilderness) resource demands and uses. What current uses exist?

a. Recreation: Hunting and dispersed camping during the hunting season are the most common uses. The level of hunting and camping use is moderate.

b. Information on wildlife species, populations, and management needs: The analysis area contains game and nongame animals typical of the western Coastal Plain. Deer is the featured species in

most of the analysis area, but gray and fox squirrel are featured in the Mill Creek Cove Scenic Area, in pine-hardwood stands, and in hardwood stands. The deer population is estimated to be increasing and the squirrel population stable. Trends in squirrel numbers depend on mast production.

c. Water availability and use: Water suitable for human consumption is not available.

d. Livestock operations: None.

e. Timber: With the exception of Mill Creek Cove Scenic Area, the analysis area has been managed intensively for timber. Road development is considered economically feasible, and road construction and reconstruction has occurred.

Site indices for southern yellow pines are excellent, ranging from the 80's to the 90's. On the better hardwood sites, site indices for upland hardwoods range from the 70's to the 80's. On pine sites, site indices for upland hardwoods range from the 50's to the 60's.

f. Minerals: There are reserved and outstanding mineral rights. There has been no recent interest in mineral exploration and development, but there has been a flurry of oil and gas exploration within 15 or 20 miles of the analysis area.

g. Cultural resources: Much of the analysis area may have a high potential for the presence of archeological or historical sites or both (historic properties). The Sabine River provided ideal conditions for early settlement. Fertile bottomlands and abundant wildlife attracted and supported Native American inhabitants for more than 5,000 years. Numerous Paleo-Indian to neo-Historic prehistoric sites have been found in the analysis area. Future surveys should reveal additional sites, and evaluation of these sites should broaden our knowledge of the prehistoric inhabitants of the region.

There are several historic sites in the analysis area. The remains of old logging trams, or railways, may be found throughout. Historic farmsteads and cemeteries may also be found within the analysis area.

These sites and the objects and other physical evidence they contain are an important part of our cultural heritage. The National Forests and Grasslands in Texas are charged with the protection and management of these valuable historic properties by laws and regulations.

h. Authorized and potential land uses: An individual has a special use authorization for a road. Utility companies have easements

for telephone, water, and electric lines. The telephone and electric lines are overhead and the water lines are buried. All lines are on road rights-of-way. These rights-of-way are held by various government entities.

i. Management considerations including fire, insects and diseases, and presence of non-Federal lands: Fire protection, aggressive fire suppression, and the lack of regularly scheduled prescribe burning have resulted in a build-up of light and heavy fuels. Suppression is usually not difficult; access to the analysis area is good, and tractor plow units can operate effectively because the terrain is not difficult.

Southern pine beetle (SPB) has been and will continue to be a problem.

There are two private in-holdings in the analysis area, but they are small and present only very minor problems.

2. What outputs are currently produced or could be produced in the future?

The analysis area is producing a proportionate share of the District's annual timber sale program and is expected to continue to do so. The analysis area will also continue to provide moderate levels of dispersed recreation, primarily hunting and dispersed camping during hunting and fishing seasons.

3. Is the analysis area located in such a way that the need for increase water production or additional onsite storage or both is so vital that installation or maintenance of improvements is an obvious and inevitable public necessity?

No.

4. Would wilderness designation seriously restrict or prevent the application of wildlife management measures of considerable magnitude and importance?

No.

5. Is it a highly mineralized area of such strategic or economic importance and extent that restrictions or controls resulting from wilderness designation would not be in the public interest?

No.

6. Does the analysis area contain natural phenomena of such unique or outstanding nature that general public access and special development to facilitate public enjoyment should be available?

No.

7. Is the land needed to meet clearly documented resource demands such as demands for timber, mineral production, or developed recreation?

No.

8. Is the land committed through contractual agreements for use, purposes, or activities not in concert with wilderness requirements?

Yes. Individuals, government entities, and private corporations have special use authorizations for roads and utility lines.

Need.

Other wildernesses.

1. What are the locations, sizes, and types of other wildernesses in the general vicinity?

The National Wilderness Preservation System (NWPS) includes approximately 35,437 acres of designated wilderness in east Texas. The Kisatchie Wilderness Area, in central Louisiana, contains approximately 8,700 acres. See Table 1 (found in the Introduction to the Evaluation of Roadless Areas) for more information about wilderness areas in Texas.

2. How far is it to the closest existing wilderness?

The Indian Mounds Wilderness Area (11,307 acres) is located approximately two miles south of the northern unit. The southwestern unit and eastern unit are located immediately adjacent to Indian Mounds Wilderness Area.

3. What is the level of use in nearby wilderness? What are the trends in the use of these areas?

Indian Mounds Wilderness Area had approximately 3,300 visitor days of recreational use in 1990. Most use is related to hunting. The area is used lightly, and use is not affecting it negatively. Use has remained stable since the wilderness was established in 1984.

4. Is the population in and around these areas increasing or decreasing? How quickly is it increasing or decreasing?

The analysis area is located in Sabine County, where the population grew from 8,702 in 1980 to 9,562 in 1990. The populations of most of the surrounding counties are increasing more slowly.

Nonwilderness lands.

Are there opportunities for unconfined and primitive recreation on nonwilderness areas in the vicinity? If so, where?

National Forest land, within a reasonable distance, is suitable and available for primitive recreation use.

Habitat needs.

1. Are any biotic species in the analysis area competing directly with increasing public use and development?

The bald eagle and American alligator may be competing with public use and development, but this has not been demonstrated. If there is such competition, it is taking place on private land adjacent to Toledo Bend Reservoir.

2. Could their needs be provided for through means other than wilderness designation?

Yes.

3. Is there a need to provide a sanctuary for species that cannot survive in less than primitive surroundings?

This cannot be determined without comprehensive study and data collection by various scientific and interested groups. The Indian Mounds Wilderness Area provides some protection for the bald eagle and American Alligator. However, these species are heavily dependent upon Toledo Bend Reservoir for their livelihood, so any sanctuary would have to include portions of this lake.

Landform and ecosystem preservation.

1. What is the analysis area's landform type? Does the area represent a unique landform type that is not represented in any wilderness areas in the general vicinity?

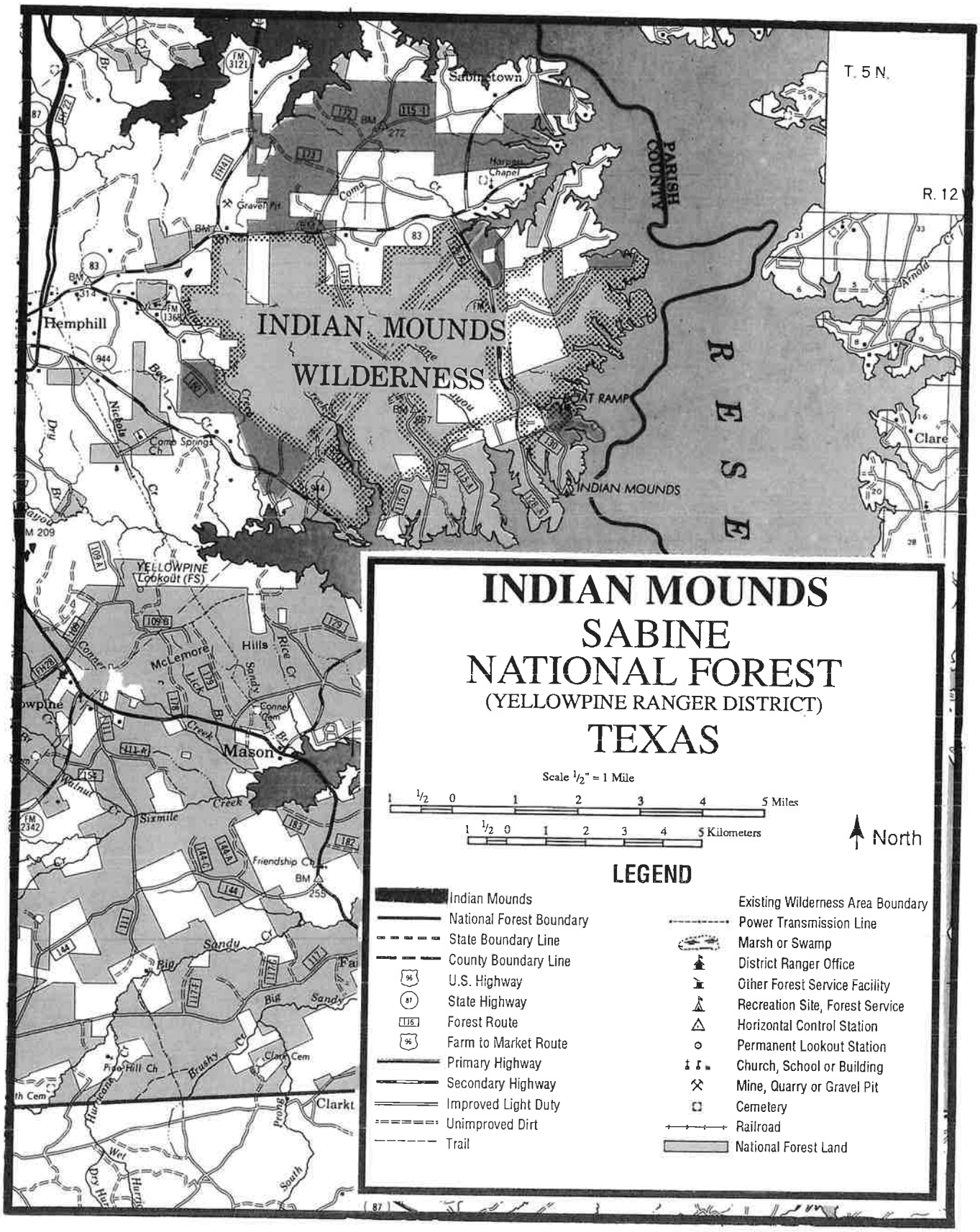
The analysis area consists of floodplains, stream terraces, concave foot slopes, side slopes, and gently sloping ridgetops. These landforms are common in the western Gulf Coastal Plain.

The same landforms occur in the Indian Mounds Wilderness Area.

2. What is the analysis area's ecosystem classification? Does the analysis area represent a unique ecosystem that is not represented in any existing wilderness areas in the general vicinity?

The analysis area's ecosystem is Loblolly Pine-Oak, which is an upland, mainly deciduous forest that occurs primarily on sandy or loamy, low-Ph soils in east Texas. This ecosystem occurs in existing wilderness within the State of Texas.

Figure 1 - Indian Mounds



Jordan Creek
Angelina National Forest
Angelina Ranger District

Roadless Area Review and Evaluation

Description of Analysis Area

Roadless area name and number of acres.

JORDAN CREEK: Approximately 9,776 acres.

Location and vicinity.

The analysis area is located in the southern portion of the Angelina National Forest. The analysis area is south of Sam Rayburn Reservoir, along State Highway (SH) 63, in Angelina and Jasper Counties, Texas. It is bounded on the north by Forest Service (FS) 306 and on the south by SH 63 and private land. A United Gas pipeline right-of-way (ROW) forms the west boundary. The area is bordered to the east by private land, land owned by the U.S. Army Corps of Engineers, and by the Angelina River. Also, Sam Rayburn Reservoir Dam is directly east of the analysis area.

Describe access to the analysis area, including roads and trails leading to the area.

Primary access to the analysis area is from SH 63, which runs from northwest to southeast and parallels a portion of the area's southern boundary. The most direst access is by FS 333, which turns north from SH 63 and goes to Sandy Creek campground, bisecting the western part of the analysis area. Additional access is by FS 335, which turns north from Farm-to-Market (FM) 255R and leads to Harveytown and the Letney boat ramp. This road bisects the eastern part of the analysis area. Other access routes include SH 63, FM 255R, and FS 347, 306, 332, and 306E. Limited access is also possible from the Angelina River and the shore of Lake Sam Rayburn.

General description of the analysis area's geology.

The analysis area is in the western Gulf Coastal Plain and is underlain by the Catahoula, Whistsett, and Manning geologic formations. These formations are 25 to 58 million years old and consist of clays, quartz sands, mudstone, tuffaceous lignite, and fossil wood. Soils associated with these formations are the Koury, Corrigan, Kisatchie, Letney, Rayburn, and Tehran series.

General description of the analysis area's topography.

This part of the western Gulf Coastal Plain consists of floodplains, stream terraces, concave foot slopes, side slopes, and gently sloping ridgetops. The side slopes generally occur as inclined surfaces on broad interstream divides with narrow floodplains and branchhead inclusions. Some of the narrow floodplains, stream terraces, and branchhead divides have been inundated by Sam Rayburn Reservoir.

General description of the analysis area's vegetation, including the ecosystem type.

The analysis area is almost entirely covered by a Longleaf Pine-Little Bluestem Series plant community, which occurs intermittently along the Atlantic and Gulf Coastal Plains. Longleaf pine is dominant, but other pine species and some hardwoods have intruded as a result of changing fire patterns and extensive logging. Hardwood species most common in the analysis area include dogwood, southern red oak, blackjack oak, bluejack oak, water oak, blackgum sassafras, persimmon, and sweetgum. Other associated plant communities, as listed in the Texas Natural Heritage Program (TNHP) report, include the Little Bluestem-Nutall's Rayless Golden Rod Series, the Sphagnum-Beakrush Series, and the Sweetbay Magnolia Series.

Key attractions, if any, including sensitive wildlife and scenic landmarks.

This analysis area lies between Sam Rayburn Reservoir and SH 63. It presents scenic, recreational, and history study opportunities. The Sandy Creek campground, which is a National Forest campground, is located within the analysis area and is open from April to October. The Ebenezer campground, a Corps of Engineers campground, is adjacent to the analysis area and open all year. The analysis area is also known to be suitable habitat for red-cockaded woodpecker (RCW) and several sensitive or endangered plant species (bog coneflower, Drummond's yellow-eyed grass, grasspink, bent sedge, incised goovebur, and nodding nixie). Bald eagles are known to overwinter on lakes in east Texas and several have been sighted on Lake Sam Rayburn. They may be seen flying over the lake or nesting in trees along the shoreline.

Area Inventory

Human influence.

1. To what degree have humans and past and present human activity affected natural ecological processes and conditions?

Acquisition of the National Forests in Texas was primarily under the authority of the Weeks Act. These lands were acquired from private landowners during the 1930's and early 1940's. Significant portions of

these lands were acquired from timber companies. Most of the analysis area had been cut-over heavily. Much of the analysis area was replanted by the Civilian Conservation Corps (CCC) during the late 1930's. About 297 acres in the analysis area display evidence of active timber management; this acreage is in trees 0 to 10 years old. Another 6,511 acres are in 1,200-meter RCW habitat zones that are actively managed as directed by a court order.

In 1966, Sam Rayburn Reservoir was completed. This 114,500-acre lake is under the jurisdiction of the U.S. Army Corps of Engineers. Since the lake was constructed, there have been varying amounts of shore disturbance and shoreline erosion. Both the U.S. Forest Service and the Corps of Engineers have developed campgrounds around the shore of the lake, and three of these are located within or adjacent to the analysis area.

2. To what degree is the analysis area natural or natural appearing and free from disturbance?

There is physical evidence of human activity that took place in the analysis area around the turn of the century. Old railroad tram grades are still evident. These grades were built in the early 1900's when the Forest was being logged by private timber companies. There is some evidence of longleaf pine seed collection operations conducted during the late 1950's or early 1960's. The collection site is near the intersection of FS 343 and FS 306.

The analysis area contains more than 12 RCW clusters, 2 of which are active. Under current court orders, a 1,200-meter zone around each cluster is managed for RCW habitat. This management included thinnings, frequent burning, and control of midstory vegetation in the RCW clusters and in the associated replacement and recruitment stands. Currently, the 1,200-meter RCW habitat zones in the analysis area have a total of about 6,511 acres.

The CCC replanted several areas with slash pine during the early 1930's. This species is nonnative, and area's in slash pine are being converted to longleaf pine. The majority of the analysis area has been burned with prescribed fire within the last five years. Wildfires do occur; however, most are man-caused and are extinguished quickly.

3. If the analysis area's ecological processes or natural appearance or both have been altered by past or present human activity, is the land regaining a natural, appearance?

Compartment 79 contains approximately 100 acres of land that was acquired in 1991. This land had been cleared in the 1920's and had been roaded in the mid-1970's in anticipation of subdivision and the sale of lots. A dam had been constructed and a 10-acre lake was formed

on Ward Branch. The lots were never sold, and the old road system and lake bed are now overgrown with pine stands of various age classes. There are plans to redevelop this site as a primitive horse camp and day-use fishing facility. Redevelopment would include reconstruction of the dam and spillway.

The longleaf pine seed collection area was abandoned in the 1970's and has begun to revert to its natural condition. Regeneration has been abundant and vigorous, and the seed collection area is not readily apparent. A ground target associated with the abandoned airbase at Boykin Springs is located about 0.25 miles south of FS 306 and just west of FS 343. This bombing target was used during the 1940's. Many casings and shell fragments can be found in the area.

Areas previously clearcut or seed-tree cut have since been replanted or restocked and appear to be natural parts of the landscape.

4. Does the existing or attainable National Forest System ownership pattern, both surface and subsurface, ensure perpetuation of identified wilderness values?

No. The mineral rights in parts of the analysis area are owned privately. Therefore, perpetuation of wilderness value cannot be ensured. Surface occupancy, with mitigating measures implemented, will be allowed in order to accommodate exploration and production equipment.

5. Is more than 15 percent of the analysis area in nonnative vegetation?

No. Approximately 570 acres, or 6 percent of the analysis area is planted to slash pine, which is nonnative. Current plans call for conversion of this acreage to longleaf pine. An estimated 67 acres have already been converted from slash pine to longleaf pine.

Improvements, structures, and nonconforming uses.

1. Are any of the following types of areas, features, or nonconforming uses present?

a. Airstrips or heliports: No.

b. Electronic installations: No.

c. Areas displaying evidence of historic mining at least 50 years old (Do not include areas of significant current mineral activity): The analysis area may contain gravel pits that have become overgrown with timber.

d. Areas under current mineral leases that contain "no surface occupancy" stipulations: No.

e. Areas under current mineral lease where the lessee has not exercised development and occupancy rights: No.

f. Recreation improvements, such as occupancy spots or minor hunting or outfitter camps: The analysis area contains one campground (Sandy Creek) which receives moderate to high usage. Letney, an abandoned campground, does receive some dispersed recreational use. The analysis area has several trails that are used by all terrain vehicles (ATVs) and horseback riders.

g. Timber harvest areas where logging and prior road construction are or are not evident: There are approximately 297 acres of regeneration currently less than 10 years old. Old timber haul roads and skid trails are overgrown and are evident only to the keen observer. There were once tramways throughout the analysis area; these were used to transport timber to various sawmills during the early 1900's. A seed production area was established and was a source of seed for longleaf pine regeneration on FS 343 just south of FS 306. It has been abandoned and is returning to its natural condition.

h. Cultural treatments involving plantations or plantings: Approximately 6,511 acres of the analysis area are within 1,200-meter RCW habitat zones. These areas are being thinned according to an October 20, 1988 court decision regarding the management of the RCW habitat in the National Forests in Texas. All midstory hardwoods and nonmerchantable midstory pines are being removed also.

i. Private inholdings in the analysis area: Yes. There is one private inholding (approximately 17 acres) in the analysis area.

j. Dwellings on private inholdings: Yes. There are several dwellings on the private inholding within the analysis area. The small tract of land along FS 333 and FS 333A is occupied and owned by Scott Dodson, heir to Burtis L. Wigley.

k. Nonconforming structures and improvements: Yes. These include a variety of special uses which are detailed in Table 1. There are also approximately 47.7 miles of inventoried roads, which include state and county roads. There are range fences in the analysis area. The analysis area has one developed recreation area, Sandy Creek. An abandoned recreation area, Letney, does receive some use. Letney's campsites and restrooms have been dismantled, but the boat ramp is still intact.

l. Ground-return telephone lines: There are an estimated 8.3 miles of buried telephone lines in the analysis area. There are also 1.1 miles

of aerial line. There are no pay phone lines. Telephone permittees are listed in Table 1.

m. Watershed treatment areas: No.

n. Roads: There are 41.6 miles of inventoried FS roads and 6.07 miles of roads under state and county jurisdiction. There are also some old woods roads and haul roads, these are overgrown and are visible only to the keen observer.

2. Can existing nonconforming uses be mitigated effectively or terminated through removal or rapid natural deterioration?

No. Approximately 47 miles of FS roads are in use in the analysis area. Some roads (overgrown woods roads and old haul roads that are no longer in use or maintained) could be closed if necessary to promote wilderness management. However, several state and county roads could not be closed or mitigated. These include SH 63, FM 255R, and various other county roads that receive heavy use from local residents living within or adjacent to the analysis area. Other nonconforming uses, such as the campground and outstanding mineral rights, cannot be removed or mitigated. Special uses that are permitted must be maintained if they are to continue their service.

3. Are improvements in the area being affected by the forces of nature rather than by humans, and are they disappearing or muted?

All inventoried roads are being maintained for long-term needs. Other permanent improvements, such as the recreational areas and those constructed under special use permits, are also maintained for long-term use. The longleaf pine seed collection area has been abandoned and is reverting back to its natural state. The abandoned bombing target is apparent only to the keen observer.

4. If there are timber harvest areas, has less than 20 percent of the analysis area been harvested within the past 10 years?

Yes. Approximately 297 acres are in regeneration in 0-to 10-years age class. This acreage accounts for about three percent of the total area.

5. Does the area analysis contain less than 1/2 mile of improved road for each 1,000 acres?

No. There are 41.6 miles of FS improved roads within the analysis area and 6.07 miles of state and county roads (4.8/1,000 acres).

Only 6.07 miles of roads are under state and county jurisdiction (0.35 miles/1,000 acres). However, FS 306 and FS 335 access several parcels

of private land adjacent to the proposed area, and are being considered for conversion to county jurisdiction. Such conversion would increase the road density of county roads to approximately 1.2 miles/1,000 acres.

An additional 2.4 miles of roads administered by the Forest Service is under special use permit for access to private inholdings, adjacent private land, or special use (microwave radio tower) sites. These roads, the 3.5 miles of existing state and county roads, and FS 306 and FS 335 would have to be kept open. In addition, FS 333 provides access to Sandy Creek Recreation Area. This road is paved and maintained so that the public can make use of the recreational facilities. Total density of roads that cannot be closed is 1.5 miles/1,000 acres.

6. Are all existing roads under Forest Service jurisdiction?

No. State Highway (SH) 63 and FM 255R are under the jurisdiction of the State of Texas, and various roads are under the jurisdiction of Jasper County or Angelina County.

Evaluation of Potential Wilderness

Capability.

Does the analysis area have the basic characteristics that make would it suitable for wilderness designation without regard to its availability for or need as wilderness? Consider the following characteristics in analyzing the quality of the wilderness resource. If these characteristics are determined to be important, describe and refer to them.

Experimental benefits.

Does the analysis area provide the opportunity for solitude and serenity?

The analysis area provides some opportunities for solitude and serenity. Forest Service roads and activities on private land are visible from some points. Also, SH 63 runs along part of the analysis area's southern boundary, and FM 255R runs through the analysis area. Each is a source of highway noise. Recreational activities such as camping and ATV use can cause noise that could disrupt solitude and serenity.

Challenge.

Does the analysis area offer visitors the opportunity to experience adventure, excitement, challenge, initiative, or self-reliance? Is access easy or difficult?

Existing FS, state, and county roads make access to the analysis area reasonably easy. The terrain is rolling and broken by creeks. The varying topography and elevations could offer the visitor some opportunities for excitement, initiative, or self-reliance. There are also campgrounds

and an informal network of hiking trails; these offer various opportunities for adventure and challenge.

Outdoor recreation opportunities.

Describe the analysis area's capability for providing primitive and unconfined types of recreation including:

a. Camping: Numerous locations are suitable for primitive and developed camping.

b. Hunting: Small and large game species occur in the analysis area and can be hunted there.

c. Fishing: Sam Rayburn Reservoir is adjacent to this area and offers excellent fishing opportunities.

d. Canoeing: The Angelina River is adjacent to this analysis area and provides adequate flow for an enjoyable float trip. It is also possible to canoe on Sam Rayburn Reservoir, to the north.

e. Boating: Sam Rayburn Reservoir is adjacent to the analysis area and provides excellent boating opportunities.

f. River rafting: The Angelina River is large enough to support this activity, but the flow is slow and log and brush jams can block the way.

g. Backpacking: There are many opportunities for backpacking in the analysis area.

h. Hiking: Same as for backpacking, but there is no developed trail system.

i. Riding: Riding opportunities do exist. The Tree Farm Recreation Complex is a planned project that will accommodate approximately 100 horse or camping rigs. Horseback riders are now using a large network of informal trails.

j. Photography: Good opportunities exist.

Special features.

1. What is the area's capability to provide outdoor education and scientific study, both formal and informal, in a manner compatible with wilderness?

The analysis area presents opportunities for education and study in geology, archeology, biology, and dispersed recreation. Trout Creek is

a proposed Research Natural Area (RNA) and is located within the analysis area. Most of the analysis area is also being considered for designation as a proposed recreational, wildlife, and historical area. Several bogs in the analysis area have been the subject of study, and more such study is anticipated. The RCW clusters in the analysis area have also been the subject of scientific study.

2. Is there an abundant and varied wildlife population?

Game and nongame animals that commonly occur in pine-hardwood forest in the eastern Coastal Plains are found in the analysis area. Accurate population figures are not available for all species. The analysis area does contain a significant number of active and inactive RCW cluster sites. The RCW is listed on the Federal list of endangered species and is protected under the Endangered Species Act.

Manageability.

1. What are the characteristics of the analysis area including its ROS classification, adopted VQO, and present and planned uses?

Recreation Opportunity Spectrum (ROS) on the majority of the analysis area is Roaded Natural (RN). For the most part, Visual Quality Objectives (VQO) range from partial retention (PR) to modification (M) because of aesthetic values along the existing state and FS roads, and the lakeshore along Sam Rayburn Reservoir.

Future land use will stress aesthetic values, forest management, and recreational uses. The Forest Plan, which is being revised, may place increased emphasis on the importance of maintaining the aesthetic values associated with views adjacent to Sam Rayburn, along the Angelina River, and in campgrounds and roads within the analysis area.

2. Do boundary locations conflict with important existing or potential public uses outside the boundary that might result in demands to allow nonconforming structures or activities or both in the wilderness?

Even though development may occur on private land around and near the boundary, encroachments are not expected to be a serious problem.

3. Is it possible to readily and accurately describe, establish, and recognize boundaries on the ground?

Yes. The current National Forest boundary is marked.

4. Do boundaries, conform with terrain or other features that constitute a barrier to prohibited use?

Some portions of the boundary are located in areas that would be difficult to cross or access. A portion of the boundary consists of lakeshore and the Angelina River bottom and is accessible only by foot or boat. Other boundaries are in places where the prohibition against the use of motorized vehicles would be difficult to administer. Most of the southern boundary is adjacent to private land, and the northern boundary is formed by FS 306 and the shore of Sam Rayburn Reservoir. The communities along the lakeshore require access through Forest Service lands, and therefore roads accessing these areas could not be closed.

5. Do boundaries, to the extent practicable, shield the wilderness environment inside the boundary from the sights and sounds of civilization?

The lakeshore boundary does provide some degree of protection for some of the analysis area. However, parts of the north and south boundaries are adjacent to roads and private land. It is possible that private development and road construction could take place near these boundaries and that these could give rise to sights and sounds incompatible with wilderness.

6. Do boundaries provide adequate opportunity for access and traveler transfer facilities?

Yes. There are points visitors could transfer from motorized to nonmotorized transportation.

Availability.

1. Describe other (nonwilderness) resource demands and uses. What current uses exist?

a. Recreation: Hunting, camping, and boating are currently the dominant uses, while horseback riding, ATV riding and hiking appear to be second in importance.

b. Information on wildlife species, populations, and management needs: The analysis area contains several RCW clusters, which are protected under the Endangered Species Act. Management of RCW habitat is governed under a October 20, 1988 court decision regarding the management of RCW habitat in the National Forests in Texas. Under these guidelines, 1,200-meter habitat zones have been established to provide protected habitat for the RCW. Management activities include mid-story removal and prescribed burning within the 1,200-meter boundaries. The analysis area also contains both game and nongame species commonly found in the southeastern Coastal

Plains, including gray squirrel and white-tailed deer. Outside the RCW habitat zones, white-tailed deer is the featured species.

c. Water availability and use: Drinking water is available at Sandy Creek Campground. Sam Rayburn Reservoir, creeks, and low areas provide water for wildlife.

d. Livestock operations: Currently, one permittee is authorized to graze livestock within the analysis area. The McGee Bend Allotment is 2,307 acres. Twenty-five head of cattle are permitted on the allotment for grazing purposes for nine months (March 1 through November 30) each year. This permit is valid through February 28, 2001.

e. Timber: The analysis area is considered a high-quality site for timber production. Loblolly pine indices range from 70 to 95. Timber types are longleaf pine (71 percent), loblolly (17 percent), pine (3 percent), shortleaf pine (3 percent), slash pine (6 percent), and various hardwoods (3 percent). Oaks, bay, and magnolia may be found in the creek bottoms, intermixed with pines. Approximately 279 acres, or 3 percent of the area, is in trees less than 10 years old. Approximately 80 percent of the standing timber is between 40 and 70 years old. An estimated 4 percent of the timber is more than 70 years old.

f. Minerals: Most of the mineral rights are owned privately and are not subject to Forest Service jurisdiction. Where mineral rights are outstanding, the Forest Service must allow the construction and maintenance of exploration and production sites.

g. Cultural resources: Much of the analysis area may contain archeological sites or historical sites, or both (historic properties). The Angelina and Neches Rivers created ideal conditions for early settlement. Fertile bottomlands, abundant wildlife, and cool artesian springs attracted and supported Native American inhabitants for more than 5,000 years. Numerous Paleo-Indian to Neo-Historic prehistoric sites have been found in the analysis area. Future surveys will result in the discovery of additional sites, and evaluation of these sites should broaden our knowledge of the prehistoric inhabitants of the region.

The analysis area also contains several historic sites. Old logging trams are common also.

These sites and the objects and other physical evidence in them are an important part of our cultural heritage. The National Forests and Grasslands in Texas is charged with the protection and management of these valuable historic properties, by laws and regulations.

h. Authorized and potential land uses: A variety of commercial and noncommercial special uses are authorized in the analysis area. These permittees, the special uses, and the mileages along Forest Service roads or boundaries are listed in Table 1.

i. Management considerations including fire, insects and diseases, and presence of non-Federal lands: The analysis area has been burned periodically to reduce fuel build-ups since the Forest Service acquired the land in the 1930's. Prescribed burns have been conducted approximately every three to five years. Wildfires do occur, but are rather infrequent. The analysis area's terrain is rolling. Therefore, it would not be difficult to suppress wildfires unless adverse conditions (high winds or very dry fuels) occurred.

Potential for spread of the Southern Pine Beetle (SPB) is low because longleaf pine is the predominant tree species. Although few infestations have occurred in the analysis area, the majority of the standing timber is at or near maturity and this could increase susceptibility during an epidemic.

There is one tract of private land inside the analysis area's boundary. This will be a consideration if the analysis area is managed as wilderness.

2. What outputs are currently produced or could be produced in the future?

Dispersed recreation activities, such as hunting and fishing, should continue at about the present moderate to high level. The analysis area is adjacent to Sam Rayburn Reservoir, which is now accessible by means of FS roads. Because the analysis area is visible from Sam Rayburn Reservoir, it is desirable to manage the lake's shore for aesthetic and recreational purposes.

The analysis area is contributing significant timber volumes to the District sales program and is expected to continue to do so in the future.

3. Is the analysis area located in such a way that the need for increased water production or additional onsite storage or both is so vital that installation or maintenance of improvements is an obvious and inevitable public necessity?

No.

4. Would wilderness designation seriously restrict or prevent the application of wildlife management measures of considerable magnitude and importance?

Yes. The presence of RCW necessitates habitat maintenance activities that are not conducive to wilderness conditions.

5. Is it a highly mineralized area of such strategic or economic importance and extent that restrictions or controls resulting from wilderness designation would not be in the public interest?

The analysis area is not highly mineralized and is considered to have a low potential for oil or gas occurrence. However, it would be necessary to permit drilling where mineral rights are outstanding. Permission to construct and maintain access roads would have to be granted.

6. Does the area contain natural phenomena of such unique or outstanding nature that general public access and special development to facilitate public enjoyment should be available?

Yes. The analysis area supports sensitive plants. Also, the developed recreation areas should remain available to the public.

7. Is the land needed to meet clearly documented resource demands such as for timber, mineral production, or developed recreation?

Yes. There are large demands for dispersed recreation (hunting, camping, horseback and ATV riding, and fishing), minerals, grazing, and timber.

Timber stands within the 1,200-meter RCW foraging zones are being thinned to comply with the court order. This thinning contributes to the timber harvest on the Angelina National Forest.

8. Is the land committed through contractual agreements for use, purposes, or activities not in concert with wilderness requirements?

Yes. There are outstanding rights to all of the minerals within the analysis area. There are also several special use permits which are listed in Table 1.

Need.

Other wildernesses.

1. What are the locations, sizes, and types of other wildernesses in the general vicinity?

See Table 1 (found in the Introduction to the Evaluation of Roadless Areas) for more information about wilderness areas in Texas.

2. How far is it to the closest wilderness?

Upland Island Wilderness (13,390 acres) is approximately 4.5 miles to the west, and Turkey Hill Wilderness (5,286 acres) is approximately 18 miles to the north.

3. What is the level of use in nearby wilderness? What are the trends in the use of these areas?

Upland Island Wilderness received approximately 3,000 Recreation Visitor Days (RVD's) of use. Of these, 500 RVD's involved overnight camping. The average size of visiting groups is 2.6 people. More than 56 percent of visitors to Upland Island Wilderness visit here more than twice per year. An estimated 27 percent of visitors to Upland Island go into the wilderness alone. Most visitors are there to hunt or to scout for future hunting trips. A large percentage of visitors are under 16 years of age.

Turkey Hill Wilderness received an estimated 1,500 RVD's (about 14 percent of capacity), of which 500 involved overnight camping. Most of the use was related to hunter use. Users have not had any significant effects on the area's wilderness qualities or resources. A small increase in use over the next 10 to 20 years is anticipated.

4. Is the population in and around these areas increasing or decreasing? How quickly is it increasing or decreasing?

The population of Texas grew 0.6 percent annually from 1980 to 1987. This slow increase is expected to continue. The large metropolitan areas such as Dallas and Houston grew at much faster rates (27 percent and 17 percent respectively, 1980-87). These population centers are about 100 miles (Houston) to 175 miles (Dallas) from the analysis area.

The population of Deep East Texas which includes Angelina and Jasper Counties and the analysis area, increased by about 10 percent between 2980 and 1988. The population of Deep East Texas area is expected to increase by about 50 percent over the next 35 years.

The analysis area is located in Angelina and Jasper Counties. The populations of these counties have generally increased steadily over the past 10 years.

Nonwilderness lands.

Are there opportunities for unconfined and primitive recreation on nonwilderness areas in the vicinity? If so, where?

Many acres of National Forest land within reasonable distance of the analysis area are suitable and available for primitive recreation use.

Habitat needs.

1. Are any biotic species in the analysis area competing directly with increasing public use and development?

Yes. There are many active and inactive RCW clusters in the analysis area. The active colonies occupy 111 acres and the inactive clusters 129 acres. There is a 200-foot boundary and a 1,200-meter foraging habitat zone around each RCW cluster. The RCW is protected under the Endangered Species Act, and its habitat is managed under direction of a court order.

The analysis area also supports several plant species identified as sensitive by the TNHP. These species are bog coneflower, Drummond's, and nodding nixie. Habitat for most of these plants can be maintained only by frequent burning.

2. Could their needs be provided for through means other than wilderness designation?

Yes.

3. Is there a need to provide a sanctuary for species that cannot survive in less than primitive surroundings?

No. Through conscientious vegetative management and mitigation of disturbances.

Landform and ecosystem preservation.

1. What is the analysis area's landform type based on the Region 8 Soil Resource Inventory (R-8 1977)? Does the area represent a unique landform type that is not represented in any existing wilderness areas in the general vicinity?

The analysis area is on the Coastal Plain of eastern Texas. The dominant landforms are low ridge segments and ridge segments. Deep sandy

soils predominate on gently sloping areas, while areas that are flat or undulating receive moisture from stream terraces.

The same landforms are typical of Upland Island Wilderness Area, about four miles west of the analysis area.

2. What is the area's ecosystem classification based on the Texas Natural Heritage Program Report (1990)? Does the analysis area represent a unique ecosystem that is not represented in any existing wilderness areas in the general vicinity?

The plant communities found in the analysis area are the Sphagnum-Beakrush, Little Bluestem-Nutall's Rayless Goldenrod, and Sweetbay Magnolia Series. These communities are typical of the Southern Coastal Plains.

Some of these plant communities are unique to the analysis area. However, there is some overlap of these communities onto adjacent Forest Service lands.

Table 1. Jordan Creek Special Uses

Aerial Powerlines

Jasper-Newton Electric Co-op: ROW width 25ft.

2.6 miles along FS 347
1.2 miles along Angelina county road 22
1.9 miles along FS 333
0.8 miles along FS 306
1.1 miles along FS 306E
0.8 miles along Jasper county road 3
0.3 miles along Hawk Development road
0.6 miles between 255R and Hawk Development road
0.6 miles along FS 332
0.4 miles along Dallas Matthews road (Jasper county)
0.8 miles along 255R
0.2 miles across FS land just south of 255R
0.1 miles along Jasper county road 4

Water lines

Upper Jasper Water Authority: ROW width 10ft.

1.1 miles between Hawk Development road and FS 306
0.8 miles along Jasper county road 3
0.8 miles along FS 306
0.4 miles along FS 333 between FS 347 and FS 306
2.5 miles along FS 347
1.1 miles along Angelina county road 22
0.4 miles along State Highway 63

Westwood Water Supply Corp.: ROW width 10ft.

1.1 miles between Hawk Development road and FS 306

Telephone lines

Southwestern Bell Telephone (buried): ROW width 10ft.

1.3 miles along Edward B. Mack road (Angelina county)
1.1 miles along Angelina county road 22
0.4 miles along FS 333 between FS 347 and FS 306
0.4 miles along FS 306
1.9 miles along both sides of FS 335
1.4 miles along FS 332
0.2 miles along Dallas Matthews road (Jasper county)
1.5 miles along 255R
0.1 miles along Jasper county road 4

Southwestern Bell Telephone (aerial): ROW width 25ft

1.1 miles along FS 347 between FS 333 and Angelina county road 22

Pipeline

United Gas Pipeline: ROW width 50ft. (Outstanding Right)

3.6 miles between Parker Point and State Highway 63

Other Uses

McGee Hills Sign
Westwood Water Supply Well and Pumphouse

Figure 1 - Jordan Creek

Little Lake Creek
Sam Houston National Forest
Raven Ranger District

Roadless Area Review and Evaluation

Description of Analysis Area

Roadless area name and number of acres.

LITTLE LAKE CREEK: Gross area approximately 691 acres; net area approximately 691 acres.

Location and vicinity.

The analysis area is in the southwestern part of the Raven Ranger District of the Sam Houston National Forest. It is located along the south and west side of Farm-to-Market (FM) 149, approximately 16 miles east of Interstate 45, in Montgomery County, Texas. The site is adjacent to Little Lake Creek Wilderness Area.

Describe access to the analysis area, including roads and trails leading to the area.

To reach the analysis area, go first to the junction of FM 1375 and FM 149. Follow FM 149 north approximately one mile to Forest Development Road (FDR) 211. Take FDR 211 south approximately one mile to the analysis area, which will be on the east side of the road.

General description of the analysis area's geology.

The analysis area is on the western Gulf Coastal Plain. Its soils have developed from sedimentary material and are recent, pleistocene, and tertiary. The Willis formation, which underlies part of the analysis area, consists largely of clayey sand and gravel and some local clay beds. The Fleming formation underlies and is the parent material for the Blacklands, which consists of calcareous clay and sandstone. Soils associated with the analysis area are the Vicksburg and Blanton series.

General description of the analysis area's topography.

This part of the southern Gulf Coastal Plain and the Texas Blackland Prairies consists of gently sloping side slopes and ridgetops. The difference between the elevations of stream bottoms and ridgetops is approximately 80 feet. Slopes are between 3 and 7 percent.

General description of the analysis area's vegetation, including the ecosystem type.

The analysis area is almost entirely forested. Loblolly and shortleaf pines dominate on the ridges and upper slopes, where red oaks, white oaks, hickories, and sweetgum are present also. Hardwoods become more dominant near streams, but pines remain a significant component of vegetation in most places.

Key attractions, if any, including sensitive wildlife and scenic landmarks.

The analysis area provides the opportunity to view game, nongame, and threatened and endangered animal species. No sensitive plant species are known to occur in the analysis area.

Area Inventory

Human influence.

1. To what degree have humans and past and present human activity affected natural ecological processes and conditions?

The land that makes up the National Forests in Texas was acquired primarily under the authority of the Weeks Act. The land was acquired during the 1930's and early 1940's from private owners. A significant amount of land was acquired from timber companies. Most of the area was cut over severely during the early 1900's.

2. To what degree is the analysis area natural or natural appearing and free from disturbance?

The analysis area displays little evidence of turn-of-the-century logging and farming, but signs of more recent management are obvious. The analysis area has been managed intensively for timber production in the last 20 to 30 years. Many 2 to 20 year-old pine plantations are present. Mature timber in the analysis area has been thinned to improve habitat for endangered species. There are several old woods roads in the analysis area. Very little of the analysis area retains a natural appearance or is free from disturbance.

3. If the analysis area's ecological processes or natural appearance or both have been altered by past or present human activity, is the land regaining a natural, untrammeled appearance?

No. Most of the analysis area reflects southern pine beetle (SPB) control activities and extensive past harvesting; many woods roads are present. Under the current Forest Plan, the analysis area is to be managed for multiple uses.

4. Does the existing or attainable National Forest System ownership pattern, both surface and subsurface, ensure perpetuation of identified wilderness values?

Yes. Surface management can be modified over time to perpetuate wilderness conditions.

5. Is more than 15 percent of the analysis area in nonnative vegetation?

No exotic species are known to be present.

Improvements, structures, and non-conforming uses.

1. Are any of the following types of areas, features, or nonconforming uses present?

a. Airstrips or heliports: No.

b. Electronic installations: No.

c. Areas displaying evidence of historic mining at least 50 years old (Do not include areas of significant current mineral activity): No.

d. Areas under current mineral leases that contain "no surface occupancy" stipulations: No.

e. Areas under current mineral lease where the lessee has not exercised development and occupancy rights: No.

f. Recreation improvements, such as occupancy spots or minor hunting or outfitter camps: Yes. The analysis area receives moderate use from hunters and from hikers on the Lone Star Hiking Trail, and has some dispersed campsites.

g. Timber harvest areas where logging and prior road construction are or are not evident: There are woods roads, pipelines, and harvest units throughout the analysis area, which has been part of the timber management base since the 1930's.

h. Cultural treatments involving plantations or plantings: Yes. There is evidence of past timber stand and wildlife habitat improvement. Numerous plantations from 2 to 20 years old are present. Many of these plantations are quite large (up to 85 acres).

i. Private inholdings in the area: No.

j. Dwellings on private inholdings: Not applicable.

k. Nonconforming structures and improvements: Yes. Woods roads, garbage dump areas, pipelines, forest development roads, and harvest units are present.

l. Ground-return telephone lines: No.

m. Watershed treatment areas: No.

n. Roads: Yes. There are several miles of woods roads within the analysis area. Approximately 1.2 miles of FDR 211 and 4.3 miles of FDR 244 parallel the west and southwest boundaries.

2. Can existing nonconforming uses be mitigated effectively or terminated through removal or rapid natural deterioration?

Yes, through replanting, reforestation, and revegetation.

3. Are improvements in the area being affected by the forces of nature rather than by humans, and are they disappearing or muted?

Yes, with the exception of FDR 211 and 244. These roads are maintained by Montgomery County and by the Forest Service, respectively.

4. If there are timber harvest areas, has less than 20 percent of the analysis area been harvested within the past 10 years?

Yes. Most of the area has been harvested and where regeneration cutting has occurred, about half of the regeneration is less than 10 years old.

5. Does the analysis area contain less than 1/2 mile of improved road for each 1,000 acres?

No. The analysis area, which consists of 691 acres, contains about 5.5 miles of FDR and an additional length of woods roads.

6. Are all existing roads under Forest Service jurisdiction?

Yes. However, Montgomery County maintains FDR 211 under a cooperative agreement.

Evaluation of Potential Wilderness

Capability.

Does the analysis area have contain the basic characteristics that would make it suitable for wilderness designation without regard to its availability for or need as wilderness? Consider the following characteristics in analyzing the quality of the wilderness resource. If these characteristics are determined to be important, describe and refer to them.

Experimental benefits.

Does the analysis area provide the opportunity for solitude and serenity?

Such opportunities are very limited because the analysis area is very small and is part of an urban National Forest. The FDR's are a source of vehicle noise. The analysis area's Recreation Opportunity Spectrum (ROS) is semiprimitive motorized and roaded-natural. The Little Lake Creek Wilderness, which adjoins the analysis area on the northeast, does provide an opportunity for solitude and serenity.

Challenge.

Does the analysis analysis area offer visitors the opportunity to experience adventure, excitement, challenge, initiative, or self-reliance? Is access easy or difficult?

The analysis area offers few opportunities for these experiences. Existing roads and trails make access reasonably easy.

Outdoor recreation opportunities.

Describe the analysis area's capability for providing primitive and unconfined types of recreation including:

a. Camping: Several locations are suitable for primitive camping.

b. Hunting: There is hunting for some small and large game species.

c. Fishing: None.

d. Canoeing: None.

e. Boating: None.

f. River rafting: None.

g. Backpacking: The Lone Star Hiking Trail traverses the analysis area and presents opportunities for backpacking.

h. Hiking: The Lone Star Hiking Trail traverses the analysis area.

i. Riding: The FDR's and woods roads are suitable for horseback riding. No trails have been developed for equestrian use.

j. Photography: There are good opportunities for some types of nature photography. There are no opportunities for panoramic or scenic shots.

Special features.

1. What is the area's capability to provide outdoor education and scientific study, both formal and informal, in a manner compatible with wilderness?

The analysis area is a suitable setting for study and education in subjects such as forestry, archeology, biology, and dispersed recreation.

2. Is there an abundant and varied wildlife population?

A variety of game and nongame animals, including threatened and endangered species, occur in the analysis area. Species are typical of those occurring in the Gulf Coastal Plain forests of Texas.

Manageability.

1. What are the characteristics of the surrounding area, including ROS classification, adopted Visual Quality Objective VQO, and present and planned uses?

The ROS is semiprimitive motorized and roaded-natural. The Visual Quality Objective (VQO) reflects aesthetic values along roads bordering Little Lake Creek Wilderness. The 1987 Forest Plan specifies that future land use is multiple-use management, stressing aesthetic qualities and recreational uses.

2. Do boundary locations conflict with important existing or potential public uses outside the boundary that might result in demands to allow nonconforming structures or activities or both in the wilderness?

No. The analysis area is surrounded by National Forest land.

3. Is it possible to readily and accurately describe, establish, and recognize boundaries on the ground?

Yes. The analysis area is bounded by roads.

4. Do boundaries, where possible, conform with terrain or other features that constitute a barrier or prohibited use?

No. The current area is identified by the existing roads on the west and southwest sides, and Little Lake Creek Wilderness on the northeast sides.

5. Do boundaries, to the extent practicable, shield the wilderness environment inside the boundary from the sights and sounds of civilization?

No. The analysis is so small that its boundaries can provide only minimal buffering. The analysis area is the buffer zone for Little Lake Creek Wilderness.

6. Do boundaries provide adequate opportunity for access and traveler transfer facilities?

Yes. FDR's 211 and 244 provide access along the west and southwest boundaries.

Availability.

1. Describe other (non-wilderness) resource demands and uses. What current uses exist?

a. Recreation: Yes. Hunting, horseback riding, and hiking are popular. These activities would be compatible with wilderness.

b. Information on wildlife species, populations, and management needs: Yes. The area supports various game, nongame, and threatened and endangered species typical of Gulf Coastal Plain forests of Texas.

c. Water availability and use: There is no source of potable water, but water is readily available for wildlife and livestock.

d. Livestock operations: The analysis area is in the Pole Creek range allotment.

e. Timber: The analysis area is included in the Forest's base of land suited for timber management. Forest cover types are loblolly pine (95 percent), and various hardwoods (5 percent along streams). Site indices for the pines and hardwoods are generally from 70 to 90.

f. Minerals: The U.S. owns all mineral rights in the analysis area. No exploration or development for surface or subsurface minerals has been initiated. However, four lease applications have been approved.

g. Cultural resources: The analysis area may contain archeological or historical, or both sites. Evaluation of any sites discovered should broaden our knowledge of the region's history and prehistory.

h. Authorized and potential land uses: None.

i. Management considerations including fire, insects and diseases, and presence of non-Federal lands: Fire protection and successful fire suppression have created the possibility of fuel build-up. Prescribed burning has helped to control the fuel loading and reduce the fire danger.

Infestations of SPB could develop if pines in the analysis area are stressed or damaged.

There are no inholdings in the analysis area.

2. What outputs are currently produced or could be produced in the future?

Dispersed recreational activities, including hunting, hiking, and horseback riding should continue at the present low to moderate level.

The analysis area will be expected to produce a portion of the Raven Ranger District's quota of timber. Any decrease in the acreage available for timber harvesting will result in a decline in timber production on the Forest.

Prescribed burning, establishment of food plots or other measures could be employed to improve habitat for red-cockaded woodpecker (RCW) and other wildlife.

Oil and gas may be explored for and developed.

3. Is the analysis area located in such a way that the need for increased water production or additional onsite storage or both is so vital that installation or maintenance of improvements is an obvious and inevitable public necessity?

No.

4. Would wilderness designation seriously restrict or prevent the application of wildlife management measures of considerable magnitude and importance?

Yes. Wilderness designation would preclude wildlife habitat improvement. Management activities to develop game species and protect threatened and endangered species would not be possible. Failure to implement habitat improvement projects would harm some species significantly, like the RCW.

5. Is it a highly mineralized area of such strategic or economic importance and extent that restrictions or controls resulting from wilderness designation would not be in the public interest?

The potential for oil and gas exploration and development is moderate.

6. Does the area contain natural phenomena of such unique or outstanding nature that general public access and special development to facilitate public enjoyment should be available?

No.

7. Is the land needed to meet clearly documented resource demands such as demands for timber, mineral production, or developed recreation?

Yes. The analysis area is included in the Forest's timber base and is currently under an active prescription.

8. Is the land committed through contractual agreements for use, purposes, or activities not in concert with wilderness requirements?

Yes. An active timber sale is being conducted.

Need.

Other wildernesses.

1. What are the locations, sizes, and types of other wildernesses in the general vicinity?

The Little Lake Creek Wilderness, a Federally designated wilderness, is located in the Raven Ranger District of the Sam Houston National Forest and consists of 3,810 acres. See Table 1 (found in the Introduction to the Evaluation of Roadless Areas) for more information about wilderness areas in Texas.

2. How far is it to the closest existing wilderness?

The Little Lake Creek Wilderness adjoins the analysis area on the northwest.

3. What is the level of use in nearby wilderness? What are the trends in the use of these areas?

Little Lake Creek Wilderness had an estimated 500 Recreation Visitor Days (RVD's) of use in 1991. Wilderness use is expected to increase slightly over the next 10 to 20 years.

4. Is the population in and around these areas increasing or decreasing? How quickly is it increasing or decreasing?

The populations of Dallas and Houston grew 27 percent and 17 percent, respectively, from 1980 to 1987. The analysis area is about 60 miles from Houston and 225 miles from Dallas.

The population of Montgomery County increased from 99,320 in 1980 to 139,320 in 1988.

Nonwilderness lands.

Are there opportunities for unconfined and primitive recreation on nonwilderness areas in the vicinity? If so, where?

Many areas of the Sam Houston National Forest, which adjoins the analysis area, are suitable for primitive recreation use.

Habitat needs.

1. Are any biotic species in the analysis area competing directly with increasing public use and development?

No. No sensitive plant species are known to occur in the analysis area.

2. Could their needs be provided for through means other than wilderness designation?

Not applicable.

3. Is there a need to provide a sanctuary for biotic species that cannot survive in less than primitive surroundings?

Suitable habitat for all species can be maintained by means of conscientious vegetation management and mitigation of disturbances to protected sites.

Landform and ecosystem preservation.

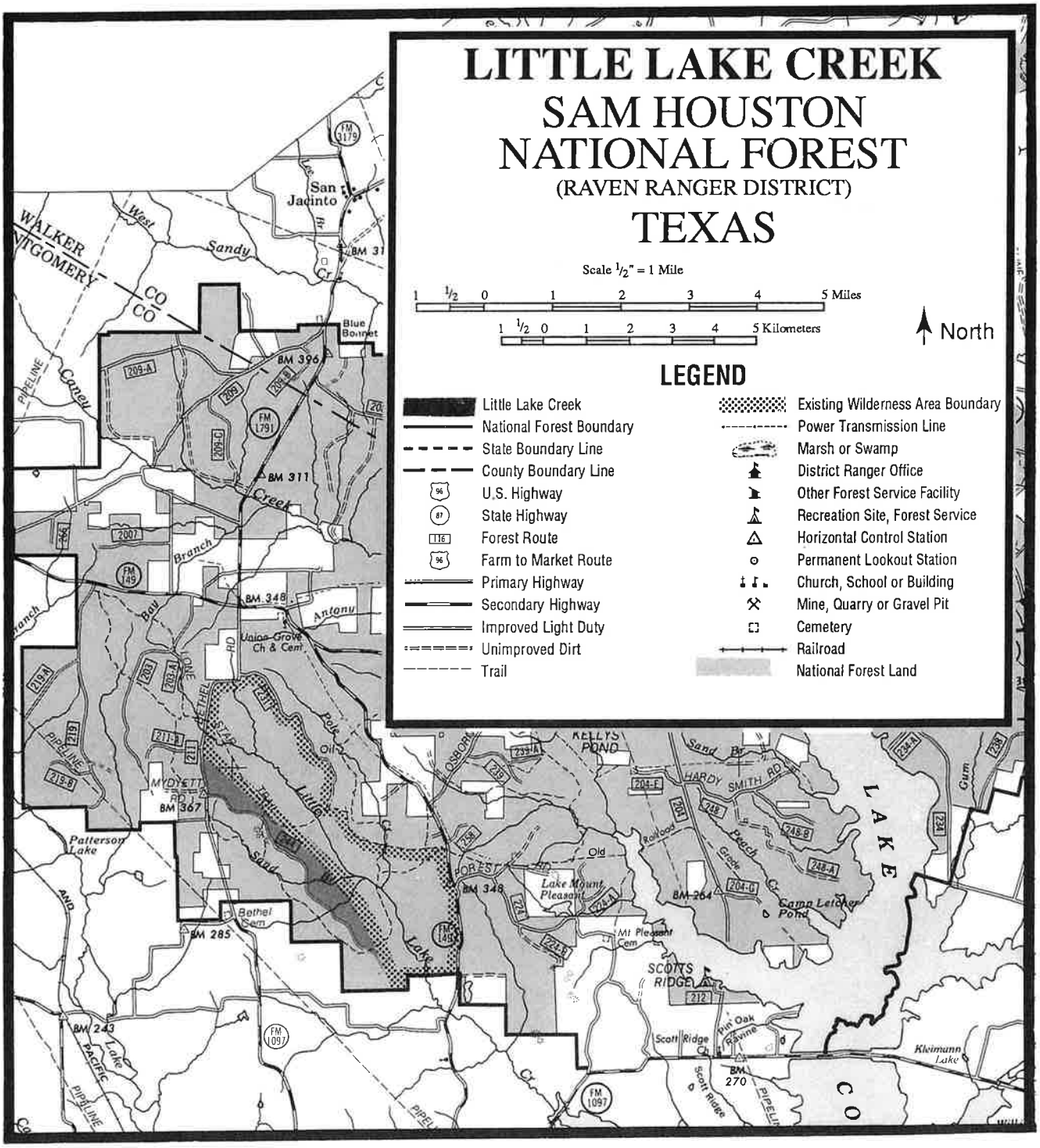
1. What is the analysis area's landform type based on the Region 8 Soil Resource Guide (R-8 1972)? Does the area represent a unique landform type that is not represented in any wilderness areas in the general vicinity?

The analysis area consists of gently sloping side slopes and ridgetops. These landforms are common in designated wilderness areas in the region.

2. What is the analysis area's ecosystem classification? Does the area represent a unique ecosystem that is not represented in any existing wilderness areas in the general vicinity?

The analysis area's ecosystem is Southern Gulf Coastal Plain Forest. This ecosystem occurs in existing wilderness areas in Texas.

Figure 1 - Little Lake Creek



Longleaf Ridge
Angelina National Forest
Angelina Ranger District

Roadless Area Review and Evaluation

Description of Analysis Area

Roadless area name and number of acres.

LONGLEAF RIDGE: Approximately 24,625 acres.

Location and vicinity.

The analysis area is located in the southern portion of the Angelina National Forest. The analysis area is south of Sam Rayburn Reservoir, along State Highway (SH) 63, in Angelina and Jasper counties. It is bounded on the north by Sam Rayburn Reservoir, on the south by the Neches River, and on the west by Upland Island Wilderness. The analysis area is bounded by both government and private land on the east. Sam Rayburn Reservoir Dam lies directly east of the analysis area.

Describe access to the analysis area, including roads and trails leading to the area.

Primary access to the analysis area is from SH 63, which runs from northwest to southeast through the analysis area. Access from the east is by Farm-to-Market (FM) 255R. From the west, the most direct access is by Forest Service (FS) 303, along the boundary between Upland Island Wilderness and the analysis area. Other access is by a network of Forest Service, State, and county roads. These include FS 313, 347, 333, 306, and 335; SH 63; and FM 255R. This analysis area is also accessible from the Sawmill Hiking Trail along the Neches River.

General description of the area's geology.

The analysis area is in the western Gulf Coastal Plain and is underlain by the Catahoula, Whitsett and Manning geologic formations. These formations are 25 to 58 million years old and consist of clays, quartz sands, mudstone, tuffaceous lignite, and fossil wood. Soils associated with these formations are the Koury, Corrigan, Kisatchie, Letney, Rayburn, and Tehran Series.

General description of the analysis area's topography.

This part of the western Gulf Coastal Plain consists of floodplains, stream terraces, concave foot slopes, side slopes, and gently sloping ridgetops. The side slopes generally occur as inclined surfaces on broad interstream divides with narrow floodplains and branchhead inclusions. Some of the narrow floodplains, stream terraces, and branchhead divides have been inundated by Sam Rayburn Reservoir.

General description of the analysis area's vegetation, including the ecosystem type.

The analysis area is almost entirely covered with Texas Natural Heritage Program (TNHP) Longleaf Pine-Little Bluestem Series vegetation, which is found intermittently along the Atlantic and Gulf Coastal Plains. Longleaf pine is dominant, but other pine species and some hardwoods have intruded as a result of changing fire patterns, extensive logging, and planting. Some slash pine has been planted in longleaf areas. Hardwood species most common in the analysis area include dogwood, southern red oak, blackjack oak, water oak, blackgum, sassafras, persimmon, and sweetgum. Other associated plant communities include (TNHP) Sphagnum-Beakrush Series, Sweetbay Magnolia Series, Bluejack Oak-Pine Series, Little Bluestem-Nuttall's Rayless Goldenrod Series, and Loblolly Pine-Oak Series. Generally, pine is dominant on the uplands, while bottomland hardwoods are intermixed with pines along river bottoms and stream zones.

Key attractions, if any, including sensitive wildlife and scenic landmarks.

This analysis area lies between Sam Rayburn Reservoir and the Neches River. It presents scenic, recreational, and history study opportunities. Boykin Springs and Sandy Creek, two National Forest campgrounds located in the analysis area, are used all year. The analysis area also contains the Old Aldridge Sawmill Hiking Trail, which leads to the sawmill ruins and the Neches River bottom. The analysis area is popular with off-road vehicle (ORV) enthusiasts and horseback riders.

The analysis area is suitable habitat for the endangered red-cockaded woodpecker (RCW) and several sensitive species of plants. The analysis area contains examples of most of the ecosystems found on the National Forests in Texas. TNHP nominated numerous sites within the analysis area for having exemplary plant communities.

The Sam Rayburn Reservoir Dam is just east of the analysis area. There is a visitor's center at the dam; it provides a scenic vista and information about the dam and its operation.

Area Inventory

Human influence.

1. To what degree have humans and past and present human activity affected natural ecological processes and conditions?

Acquisition of the National Forests in Texas was primarily under the authority of the Weeks Act. These lands were acquired from timber companies and other private landowners during the 1930's and early 1940's. Most of the analysis area had been cutover heavily. Most of the analysis area was replanted by the Civilian Conservation Corps (CCC) in the late 1930's.

Natural ecological processes and conditions in the analysis area have been disturbed by human activity. In 1966, Sam Rayburn Reservoir was completed. This 114,500-acre lake is under the jurisdiction of the U.S. Army Corps of Engineers. The analysis area was logged heavily during the early 1900's. Disturbances include numerous timber harvests, road construction, and special uses such as grazing, and pipelines.

Approximately 932 acres are in trees less that 10 years old. Approximately 14,168 acres in the analysis area are within 1,200-meter RCW habitat zones. These areas have been thinned or will be thinned within the next 10 years, as required by a court order. All midstory hardwoods and all nonmerchantable midstory pines within the 200 foot cluster boundaries are now being removed.

2. To what degree is the area natural or natural appearing and free from disturbance?

Several areas display evidence of human activity that took place around the turn of the century. The Old Aldridge Sawmill site displays such evidence. The analysis area contained an extensive tram system that supported early logging activities, and evidence of the tramways is still visible to the keen observer. During the Great Depression, CCC workers built Boykin Springs Recreation Area as part of Franklin Delano Roosevelt's (FDR's) New Deal, which was to relieve unemployment and provide reforestation in the region.

The analysis area contains several active and inactive RCW clusters. Under current court order, many overlapping 1,200-meter zones are managed for RCW habitat. Management includes thinnings, frequent burning, and control of midstory vegetation in the RCW clusters and recruitment stands. The 1,200-meter RCW habitat zones in the analysis area have a total area of approximately 14,168 acres.

The CCC replanted several areas with slash pine during the early 1930's. This species is nonnative and areas in slash pine are being converted back to longleaf pine. The majority of the analysis area has been burned with prescribed fire within the last five years. Wildfires do

occur; however, most are man-caused and are extinguished quickly. Several special uses have been permitted and some of these are unnatural in appearance. Permitted special uses include a microwave tower, overhead powerlines, and a municipal water system tank.

3. If the analysis area's ecological processes or natural appearance or both have been altered by past or present human activity, is the land regaining a natural, untrammeled appearance?

Much of the analysis area has regained a natural appearance. There is an extensively used road system, and there are several regeneration areas. As previously noted, several areas were replanted with nonnative slash pine during the 1930's. Several areas contain natural looking sensitive plant communities. There are longleaf pine stands of several hundred acres which appear relatively intact.

At tract of approximately 100 acres, which had been cleared during the 1920's, was acquired in 1991. In the early 1970's, this tract was clearcut and roaded in anticipation of subdivision and the sale of lots. A dam was also constructed, and a 10-acre lake was formed on Ward Branch. The lots were never sold. The old road system is still evident, but the dam is breached and the lake bed overgrown with pine saplings. There are plans to redevelop this site (The Tree Farm Recreation Complex) as a primitive horse camp and day-use fishing facility. Redevelopment is to include reconstruction of the dam and spillway.

4. Does the existing or attainable National Forest System ownership pattern, both surface and subsurface, ensure perpetuation of identified wilderness values?

No. Some of the mineral rights in the analysis area are owned privately. The perpetuation of wilderness conditions cannot be ensured where this is the case. The Forest Service does retain mineral rights on approximately 1,545 acres of land on the western boundary of the analysis area. There are currently two oil and gas leases. Beard Oil Co. has a 10-year lease (number 60598) on a 240-acre tract. This lease will expire on June 30, 1995. Caddis Resources, Inc. leases 1437.72 acres; this lease number 86835 will expire in FY 1996. The Forest Service is obligated to allow surface occupancy for exploration and production activities on these leases and where mineral rights are owned privately.

5. Is more than 15 percent of the analysis area in nonnative vegetation?

No. Approximately 820 acres, or 3 percent, of the analysis area is planted to slash pine, which is nonnative. Current plans call for conversion of this acreage to longleaf pine. An estimated 45 acres have already been converted from slash pine to longleaf pine.

Improvements, structures, and nonconforming uses.

1. Are any of the following types of areas, features, or nonconforming uses present?

a. Airstrips or heliports: Yes. Boykin Springs is the site of an abandoned airbase that was used as a training ground in the 1940's. An abandoned runway is located approximately 0.5 miles southeast of Boykin Springs Recreation Area. Artifacts associated with the airbase can be found near the abandoned runway. A bombing target associated with the abandoned airbase is located about 0.25 miles south of FS 306 and just west of FS 343. The target was bombed from the air during the 1940's, and many casings and shell fragments can be found near it. These areas are overgrown and remnants of the airbase are visable only to the keen observer. All facilities associated with the airbase were abandoned in the late 1940's.

b. Electronic installations: There is a microwave radio tower just north of Boykin Springs Recreation Area. This tower is permitted to AT&T and is also utilized for Forest Service radio transmission. Other special use electronic installations are listed in Table 1.

c. Areas displaying evidence of historic mining at least 50 years old (Do not include areas of significant current mineral activity): Yes. There are several gravel or borrow pits in the analysis area. These are becoming overgrown with timber. Sexton Lake is an old borrow pit that has filled naturally with water. Its depth is unknown, but estimated at 15 to 20 feet. Sexton Lake is within 40 feet of FS 326. The lake area is used heavily by campers and all terrain vehicles (ATV) users. The lake covers approximately four acres, and is occasionally stocked with catfish.

d. Areas under current mineral lease that contain a "no surface occupancy" stipulation: No.

e. Areas under current mineral lease where the lessee has not exercised development and occupancy rights: Yes. There are two such areas. The leases belong to Beard Oil Co. (lease 60598, expiring June 30, 1995) and to Caddis Resources Inc. (lease 86835, expiring in FY 1996).

f. Recreation improvements, such as occupancy spots or minor hunting or outfitter camps: The analysis area contains two recreation areas, Boykin Springs and Sandy Creek, which receive moderate to high usage. Letney, an abandoned campground, receives some dispersed recreational use. The boat ramp at Letney is still intact and is utilized by the public. Letney is also used as a horse camp by several equestrian organizations. The Sexton Lake area receives moderate to high use for dispersed camping and ATV activities.

g. Timber harvest areas where logging and prior road construction are or are not evident: There are approximately 866 acres of regeneration that is currently less than 10 years old. A system of old timber haul roads and skid trails extends throughout the analysis area. Many of these roads and trails are overgrown and are evident only to the keen observer. There were once tramways throughout the analysis area; they were used to transport timber to sawmills throughout the area during the early 1900's.

A longleaf pine seed production area was established and utilized during the 1960's and 1970's. The seed production area was just south of FS 306 and adjacent to FS 343. It has been abandoned and the site is returning to its natural condition.

h. Cultural treatments involving plantations or plantings: Approximately 14,168 acres of the analysis area are within 1,200-meter RCW habitat zones. These areas are being thinned according to a court order. All mid-story hardwoods and nonmerchantable midstory pines within the 200-foot cluster boundaries are being removed also.

i. Private inholdings in the analysis area: Yes. There are an estimated 567 acres of private inholdings within the analysis area.

j. Dwellings on private inholdings: Yes. There are several dwellings on private inholdings within the analysis area. The inholding on the western boundary contains at least one dwelling owned by Dressor Frazier. The small inholding along FS 333 and FS 333A is occupied and owned by Burtis L. Wigley. There are several homes on a tract of private land just south of Letney. This area is referred to as Harveytown. There are numerous private dwellings in the subdivisions along Sam Rayburn Reservoir.

k. Nonconforming structures and improvements: Yes. These include a variety of special uses which are detailed in Table 1. There are also approximately 109.18 miles of inventoried roads, including paved State and county roads.

This analysis area includes two developed recreation areas, Boykin Springs and Sandy Creek. An abandoned recreation area, Letney, receives some use. The campsites and restrooms at Letney have been dismantled, but the boat ramp is still intact.

The Boykin Springs Lake Trail follows the shore of Boykin Springs Lake, a 9-acre lake constructed by the CCC during the early 1930's. The Sawmill Hiking Trail is 5-1/2 miles long and begins at Bouton Lake and ends at Boykin Springs Recreation Area. A 3/4-mile spur trail leads to the old abandoned Aldridge Sawmill site. The sawmill is a historic site and dates back to early 1900's.

United Pipeline maintains a gas pipeline on a right-of-way through the analysis area. This pipeline was in use before the Forest Service acquired the land and is not subject to mitigation.

l. Ground-return telephone lines: There are an estimated 16 miles of buried telephone lines in the analysis area. There are also 1.1 miles of aerial line. There are no pay phone lines in the analysis area. Telephone permittees are listed in Table 1.

m. Watershed treatment areas: No.

n. Roads: There are 89 miles of improved graveled FS roads and approximately 6 miles of paved roads in use in the analysis area. There are 14.18 miles of roads under State and county jurisdiction. Approximately six miles of these roads are paved, and the remainder is improved graveled road. There are also some old woods roads and haul roads, these are overgrown and are visable only to the keen observer.

2. Can existing nonconforming uses be mitigated effectively or terminated through removal or rapid natural deterioration?

No. Approximately 95 miles of FS roads are in use in the analysis area. Some roads (overgrown woods roads and old haul roads that are no longer in use or maintained) could be closed if necessary to promote wilderness management. However, several State and county roads could not be closed or mitigated. These include SH 63, FM 255R, and various other county roads that receive heavy use from local residents living within or adjacent to the analysis area. Other nonconforming uses, such as the radio tower, campgrounds, and outstanding rights for pipeline and minerals, cannot be removed or mitigated. Special uses that are permitted must be maintained if they are to continue their service.

3. Are improvements in the area being affected by the forces of nature rather than by humans, and are they disappearing or muted?

All inventoried roads are being maintained for long-term services. Other permanent improvements, such as the recreational areas and those constructed under special use permits, are also maintained for long-term use. The hiking trails are maintained, but the Old Aldridge Sawmill ruins are not maintained and are deteriorating. The sawmill site has not been nominated for listing in the National Register for Historic Sites, although it may be nominated in the future. All of the permitted special uses are being maintained.

4. If there are timber harvest areas, has less than 20 percent of the analysis area been harvested within the past 10 years?

Yes. Approximately 866 acres are in regeneration in the 0 to 10 years class. This acreage accounts for about four percent of the total area.

5. Does the analysis area contain less than 1/2 mile of improved road for each 1,000 acres?

No. There are approximately 109 miles of improved roads within the analysis area (4.4 miles/1,000 acres). This includes Forest Service, State, and county roads.

Only 14 of the 109 miles of road are under State or county jurisdiction (0.6 miles/ 1,000 acres). However, FS 306, FS 333, and FS 335 provide access to several parcels of private land adjacent to the analysis area and are being considered for conversion to county jurisdiction. Such conversion would increase the road density to 0.9 miles/1,000 acres.

An additional 5.6 miles of road administered by the Forest Service is under special use permit for access to private inholdings, adjacent private land, or special use (microwave radio tower) sites. These roads, the 14 miles of existing State and county roads, and FS 306 and FS 335 would have to be kept open.

FS 333 provides access to Sandy Creek Recreation Area and FS 313 provides access to Boykin Springs Recreation Area. These roads are paved and maintained so that the public can make use of the recreational facilities. Both recreation areas are used all year and would have to be kept open.

6. Are all existing roads under Forest Service jurisdiction?

No. State highway 63 and FM 255R are under the jurisdiction of the State of Texas, and various county roads are under the jurisdiction of Jasper County or Angelina County.

Evaluation of Potential Wilderness

Capability.

Does the analysis area have the basic characteristics that would make it suitable for wilderness designation without regard to its availability for or need as wilderness? Consider the following characteristics in analyzing the quality of the wilderness resource. If these characteristics are determined to be important, describe and refer to them.

Experimental benefits.

Does that analysis area provide the opportunity for solitude and serenity?

The analysis area provides some opportunities for solitude and serenity. Forest Service roads and activities on private land are visible from many areas. Also, SH 63 runs through the analysis area and is a source of some highway noise. Recreational activities such as camping and ATV use can cause noise that could disrupt solitude and serenity. Motorboat traffic on Sam Rayburn Reservoir and the Neches River may affect solitude.

Challenge.

Does the analysis area offer visitors the opportunity to experience adventure, excitement, challenge, initiative, or self-reliance? Is access easy or difficult?

Existing FS, State, and county roads make access to the analysis area reasonably easy. The terrain is relatively flat with some low ridges. A significant portion of the analysis area is adjacent to Sam Rayburn Reservoir and the Neches River, which could present opportunities for excitement, initiative, or self-reliance. There are also campgrounds and hiking trails; these offer various opportunities for adventure and challenge.

Outdoor recreation opportunities.

Describe the analysis area's capability for providing primitive and unconfined types of recreation including:

a. Camping: Numerous locations are suitable for primitive and developed camping.

b. Hunting: Small and large game species occur in the analysis area and can be hunted there.

c. Fishing: Sam Rayburn Reservoir is adjacent to the analysis area and offers excellent fishing opportunities. The Angelina and Neches Rivers also offer fishing opportunities, as do Boykin and Sexton Lakes.

d. Canoeing: The Neches and Angelina Rivers are adjacent to small sections of the analysis area's southern and eastern boundaries. Both provide adequate flows for enjoyable float trips. It is also possible to canoe on Sam Rayburn Reservoir, to the north.

e. Boating: Sam Rayburn Reservoir is adjacent to the analysis area and provides excellent boating opportunities.

f. River rafting: The Neches and Angelina Rivers are large enough to support this activity, but the flow is slow and log and brush jams can block the way.

g. Backpacking: The Sawmill Hiking Trail, a 5-1/2-mile developed trail, begins at Bouton Lake and ends at Boykin Springs Recreation Area. A 3/4-mile spur trail leads to the Old Aldridge Sawmill ruins on the Neches River.

h. Hiking: Same as for backpacking. The Sawmill Hiking Trail is a developed and well marked trail system. The Boykin Springs Lake trail follows the shore of a 9-acre spring-fed, artificial lake in the Boykin Springs Recreation Area.

i. Riding: Horseback riding opportunities do exist. The Tree Farm Recreation Complex is a planned project that will accommodate approximately 100 horse or camping rigs. The analysis area is used heavily by horseback riders on an informal network of trails. The Tree Farm Recreation Complex will be inconsistent with wilderness management objectives.

j. Photography: Good opportunities exist.

Special Features.

1. What is the area's capability to provide outdoor education and scientific study, both formal and informal, in a manner compatible with wilderness?

The analysis area presents opportunities for education and study in geology, archeology, biology, and dispersed recreation. The analysis area includes three areas that have been proposed as Research Natural Areas (RNA's); these are Trout Creek, Neches River Banks, and Boykin Springs-Longleaf. The Boykin Springs area has also been proposed as a botanical area. Most of the analysis area is also being considered for designation as a National Recreational, Wildlife, and Historical Area (NRA). Most of these proposals would be compatible with wilderness designation.

2. Is there an abundant and varied wildlife population?

Game and nongame animals that commonly occur in eastern pine-hardwood forest in the eastern Coastal Plains are found in the analysis area. Accurate population figures are not available for all species. The analysis area does contain several active and inactive RCW cluster

sites. The RCW is listed on the Federal list of endangered species and is protected under the Endangered Species Act.

Manageability.

1. What are the characteristics of the analysis area including its ROS classification, adopted VQO, and present and planned uses?

The Recreation Opportunity Spectrum (ROS) on the majority of the analysis area is Roaded Natural (RN). For the most part the Visual Quality Objective (VQO) ranges from retention (R) to modification (M) because of aesthetic values along the Neches River, hiking trails, campgrounds, and the lakeshore along Sam Rayburn Reservoir.

Future land use will stress aesthetic values, forest management, and recreational uses. The Forest Plan currently being revised, may place increased emphasis on the importance of maintaining the aesthetic values associated with views adjacent to Sam Rayburn Reservoir, along the Angelina and Neches Rivers, and in campgrounds and trail systems within the analysis area.

2. Do boundary locations conflict with important existing or potential public uses outside the boundary that might result in demands to allow nonconforming structures or activities or both in the wilderness?

Even though development may occur on private land around and near the boundary, encroachments are not expected to be a serious problem.

3. Is it possible to readily and accurately describe, establish, and recognize boundaries on the ground?

Yes. The current National Forest boundary is marked.

4. Do boundaries conform with terrain or other features that constitute a barrier to prohibited use?

Some portions of the boundary are located in areas that would be difficult to cross or access. A major portion of the boundary consists of lakeshore, and the Neches River bottom is accessible only by foot or boat. Other boundaries are in places where prohibition against the use of motorized vehicles would be difficult to administer. Most of the southern boundary is adjacent to private land, and part of the northern boundary is adjacent to private tracts along the shore of Sam Rayburn Reservoir. The boundaries between the private tracts follow arbitrary lines and do not conform to geographical barriers. The communities along the lakeshore require road access through Forest Service lands, and the access roads could not be closed.

5. Do boundaries, to the extent practicable, shield the wilderness environment inside the boundary from the sights and sounds of civilization?

The lakeshore boundary does provide some degree of protection for some of the analysis area. However, motorboat traffic on the lake or the Neches River may interfere with solitude. Parts of the northern and southern boundaries are adjacent to private land. It is possible that private development and road construction could take place near these boundaries and that these could give rise to sights and sounds incompatible with wilderness.

6. Do boundaries provide adequate opportunity for access and traveler transfer facilities?

Yes. There are points where visitors could transfer from motorized to nonmotorized transportation.

Availability.

1. Describe other (nonwilderness) resource demands and uses. What current uses exist?

a. Recreation: Hunting and camping are currently the dominant uses, while horseback riding, ATV riding, and hiking appear to be second in importance.

b. Information on wildlife species, populations, and management needs: This analysis area contains several RCW clusters and these are protected under the Endangered Species Act. Management of RCW habitat is governed under a court order. Under its guidelines, 1,200-meter habitat zones have been established to provide protected habitat for the RCW. Management activities include removal of midstory vegetation within 200 feet of each cluster tree and prescribed burning within 1,200 meters of each cluster tree. Currently, there are 389 acres of active cluster sites and 300 acres of inactive sites. The analysis area contains 507 acres of replacement stands, for active and inactive clusters. It also contains 345 acres of recruitment stands. The 1,200-meter habitat zones total 14,168 acres.

The analysis area also contains both game and nongame species commonly found in the southeastern Coastal Plains. The species present include gray squirrel and white-tailed deer.

c. Water availability and use: There are sources of potable water in the analysis area. Drinking water is available at Sandy Creek and Boykin Springs Recreation Areas. Sam Rayburn Reservoir,

the Angelina and Neches Rivers, and creeks and other low areas provide water for wildlife.

d. Livestock operations: Two permittees are authorized to graze livestock within the analysis area. The Boykin Allotment is 2,983 acres. Twenty-five head of cattle are permitted on the allotment for grazing purposes from March 1 through November 1 each year.

e. Timber: The analysis area is considered a high-quality site for timber production. Loblolly pine site indices range from 70 to 95. Timber types are longleaf (53 percent); loblolly pine (35 percent); shortleaf pine (3 percent); slash pine (3 percent); and various hardwoods (5 percent). Some hardwood (mostly oaks, hickory, and some Beech-Magnolia timber type) can be found in the creek bottoms, intermixed with the pines. Approximately 866 acres, or four percent, of the area is in trees less than 10 years old. Approximately 60 percent of the standing timber is between 50 and 70 years old. An estimated 20 percent of the timber is greater than 70 years old, and 2 percent is more than 100 years old. All of the analysis area except stringers along intermittent stream courses, is classified in the 1987 Forest Plan as suited for timber production. The timber sale targets established by the 1987 Forest Plan can be met only if timber is harvested in this analysis area.

f. Minerals: The U.S. owns mineral rights to 2,490 acres in the analysis area; mineral rights to more than 22,000 acres are owned privately. The Forest Service must allow the construction and maintenance of exploration sites where mineral rights are owned privately. The area is considered to have moderate potential for oil and gas occurrence. There are currently two oil and gas leases on land where the U.S. owns the mineral rights. Beard Oil Company (lease 60598) has a 10-year lease on 240 acres. This lease will expire June 30, 1995. Caddis Resources, Inc. has a five-year lease on 70 acres which expires in 1996.

g. Cultural resources: Much of the analysis area may contain archeological or historical sites (historic properties). The Angelina and Neches Rivers provided ideal conditions for early settlement. Fertile bottomlands, abundant wildlife, cool artesian springs attracted and supported Native American inhabitants for more than 5,000 years. Numerous Paleo-Indian to Neo-Historic prehistoric sites have been found in the analysis areas. Future surveys will likely reveal additional sites, and evaluation of these sites should broaden our knowledge of the prehistoric inhabitants of the region.

There are several historic sites in the analysis area. The Aldridge Mill complex is perhaps the best example of a turn-of-the-century sawmill in the National Forests in Texas. There are numerous cemeteries in the analysis area. The Boykin Cemetery, at Boykin

Springs Recreation Area, is the most notable of these. Old logging tramways are also common.

These sites and the objects and other physical evidence they contain are an important part of our cultural heritage. The National Forests and Grasslands in Texas (NFGT) are charged with the protection and management of these valuable historic properties by laws and regulations.

h. Authorized and potential land uses: A variety of commercial and noncommercial special uses are authorized in the analysis area. The permittees, the special uses, and the mileages along Forest Service roads or boundaries are listed in Table 1.

i. Management considerations including fire, insects and diseases, and presence of non-Federal lands: The analysis area has been burned periodically to reduce fuel build-up since the Forest Service acquired the land in the 1930's. The controlled burns have been conducted approximately every 3 to 5 years. Wildfires do occur, but are infrequent. The analysis area's terrain is gentle with rolling hills. Therefore, it would not be difficult to suppress wildfires unless adverse conditions (high winds or very dry fuels) occurred.

Many of the analysis area's plant communities identified by the TNHP are fire dependent. The presence of manmade barriers such as roads and reservoirs prevents the rapid spread of natural fire through the analysis area. Controlled fire is needed to retain the fire-dependent communities.

Potential spread of the southern pine beetle (SPB) is low because longleaf pine is the predominant tree species. Although few infestations have occurred in the analysis area, the majority of the standing timber is at or near maturity and this could increase susceptibility during an epidemic.

The presence of private land is not a major consideration in managing the analysis area as General Forest land. Inholdings would complicate wilderness management because they imply access and other special use needs. Private ownership of mineral rights could cause problems in wilderness management.

2. What outputs are currently produced or could be produced in the future?

Dispersed recreation activities, such as hunting and fishing, should continue at about the present moderate to high use level. The analysis area is adjacent to Sam Rayburn Reservoir, which is now accessible by means of FS roads. Because the analysis area is visible from Sam Rayburn Reservoir, it is desirable to manage the lake's shore for aesthetic

and recreational purposes. The analysis area is contributing significant timber volumes to the District sales program and is expected to continue to do so in the future.

3. Is the analysis area located in such a way that the need for increased water production or additional onsite storage or both is so vital that installation or maintenance of improvements is an obvious and inevitable public necessity?

No.

4. Would wilderness designation seriously restrict or prevent the application of wildlife management measures of considerable magnitude and importance?

Yes. The presence of RCW necessitates habitat maintenance activities that are not conducive to wilderness conditions.

5. Is it a highly mineralized area of such strategic or economic importance and extent that restrictions or controls resulting from wilderness designation would not be in the public interest?

The analysis area is not highly mineralized, but is considered to have at least a moderate potential for oil and gas occurrence and development. Since most of the mineral rights are outstanding, permission to drill in the analysis area would be granted. Permission to construct and maintain access roads would be granted also.

6. Does the area contain natural phenomena of such unique or outstanding nature that general public access and special development to facilitate public enjoyment should be available?

Yes. The analysis area contains the Boykin Springs and Sandy Creek Recreation areas, which receive moderate to high usage. There are also developed trail systems which receive moderate use. There are areas of historic importance within the analysis area, including the Old Aldridge Sawmill ruins and the Boykin Springs Recreational Area.

The analysis area supports sensitive plant communities, and TNHP has nominated several areas as exemplary plant communities. At least three areas within the analysis area have been proposed as RNA's.

7. Is the land needed to meet clearly documented resource demands such as demands for timber, mineral production, or developed recreation?

Yes. There are demands for developed and dispersed recreation (hunting, fishing, camping, horseback riding, and ATV use), grazing, and

timber. Designation of the analysis area as wilderness would reduce the amount of wood available to industry.

Timber stands within the 1,200-meter RCW foraging zones are being thinned to comply with a court order. This thinning area contributes to the timber harvest on the Angelina National Forest.

8. Is the land committed through contractual agreements for use, purposes, or activities not in concert with wilderness requirements?

Yes. Mineral rights in most of the analysis area are reserved or outstanding. Surface occupation, with mitigation measures implemented, must be allowed in order to accommodate exploration and production equipment. Beard Oil Company (lease 60598) leases mineral rights on 240 acres of Forest land, and Caddis Resources, Inc. (lease 86835) leases mineral rights on 740 acres of Forest land. These leases will expire on June 30, 1995 and in FY 1996, respectively.

United Pipeline also retains an outstanding right-of-way for a gas pipeline that was in place prior to Forest Service land aquisitions. There are also several special use permits which are listed in Table 1.

Management of RCW habitat is governed by a court order. Management activities include removal of midstory vegetation within 200 feet of each cluster tree. There are currently 389 acres of active cluster sites and 300 acres of inactive sites.

Need.

Other wildernesses.

1. What is the locations, sizes, and types of other wildernesses in the general vicinity?

The National Wilderness Preservation System includes 84,012 acres of designated wilderness in Texas, as well as additional land in other near by states. See Table 1 (found in the Introduction to the Evaluation of Roadless Areas) for more information about wilderness areas in Texas.

2. How far is it to the closest existing wilderness?

Upland Island Wilderness consists of 13,390 acres and is adjacent to the analysis area, on the west along FS 303. Turkey Hill Wilderness consists of 5,286 acres and is approximately 26 miles north of the analysis area. Both of these wildernesses are located on the Angelina National Forest.

3. What is the level of use in nearby wilderness? What are the trends in the use of these areas?

Upland Island Wilderness received approximately 3000 Recreation Visitor Days (RVD's), about 11 percent of capacity. Of these, 500 RVD's involved overnight camping. The average size of visiting groups is 2.6 people. More than 56 percent of visitors to Upland Island Wilderness visit there more than twice per year. An estimated 27 percent of visitors to Upland Island go into the wilderness alone. Most visitors are there to hunt or to scout places for future hunting trips. A large percentage of visitors are under 16 years of age.

Turkey Hill Wilderness received an estimated 1,500 RVD's, about 14 percent of capacity, of which 500 involved overnight camping. Most of the use is hunter related. Users have not had any significant effects on the areas wilderness qualities or resources. A small increase in use over the next 10 to 20 years is anticipated.

4. Is the population in and around these areas increasing or decreasing? How quickly is it increasing or decreasing?

The population of Texas grew 0.6 percent rate from 1980 to 1987. This slow increase is expected to continue. The large metropolitan areas such as Dallas and Houston grew at much faster rates (27 percent and 17 percent respectively, 1980-87). These population centers are about 100 miles (Houston) to 175 miles (Dallas) from the analysis area.

The analysis area is located in Angelina and Jasper counties. The population of Angelina county grew from 64,172 in 1980 to 69,920 in 1988. The population of Jasper County grew from 30,781 in 1980 to 32,014 in 1988. The population of San Augustine County, to the north of the analysis area, grew from 8,785 in 1980 to 9,174 in 1988. The population of the Deep East Texas Region, in which the analysis area is located, is expected to increase about 50 percent over the next 35 years.

Nonwilderness lands.

Are there opportunities for unconfined and primitive recreation on nonwilderness areas in the vicinity? If so,where?

Many acres of National Forest land within reasonable distance of the analysis area are suitable and available for primitive recreation use.

Habitat needs.

1. Are any biotic species in the analysis area competing directly with increasing public use and development?

Yes. There are several active and inactive RCW clusters in this analysis area. The active clusters occupy 389 acres and the inactive clusters comprise 300 acres. There is a 200-foot boundary and a 1,200-meter foraging habitat zone around each RCW cluster. The RCW is protected under the Endangered Species Act, and its habitat is managed under direction of a court order.

The analysis area also supports several plant species identified as sensitive by the TNHP. Habitat for most of these plants can be maintained only by means of frequent burning.

2. Could their needs be provided for through means other than wilderness designation?

Yes. Wilderness designation would constrain or halt the management needed to meet the needs of the RCW and the sensitive plant communities.

3. Is there a need to provide a sanctuary for species that cannot survive in less than primitive surroundings?

No. Conscientious vegetation management and mitigation of disturbances can maintain suitable habitat conditions.

Landform and ecosystem preservation.

1. What is the analysis area's landform type based on the Region 8 Soil Resource Inventory (R-8, 1977)? Does the area represent a unique landform type that is not represented in any wilderness areas in the general vicinity?

The analysis area is on the Coastal Plain of eastern Texas. The dominant landforms are low ridge segments and ridge segments. Deep sandy soils predominate on gently sloping areas, while flat or undulating areas receive moisture from stream terraces.

The same landforms are typical of the Upland Island Wilderness area, which adjoins the analysis area on the west.

2. What is the area's ecosystem classification based on the Texas Natural Heritage Program Report (1990)? Does the analysis area represent a unique ecosystem that is not represented in any existing wilderness areas in the general vicinity?

The analysis area contains several series of sensitive plant communities within the longleaf pine forest type. These plant communities include the Longleaf Pine-Little Bluestem Series, Sphagnum-Beakrush Series, Sweetbay Magnolia Series, Blackjack Oak-Pine Series, and Little Bluestem-Nuttall's Rayless Goldenrod Series.

Some of these plant communities are unique to the analysis area. However, there is some overlap of these communities into Upland Island Wilderness and other adjacent Forest Service lands.

Table 1. Special Uses For Longleaf Ridge

Aerial Powerlines

Jasper-Newton Electric Co-op: ROW width 25ft.

- 4.0 miles along FS 302
- 0.4 miles along FS 309 to pvt
- 0.6 miles northeast from FS 303 to pvt
- ** 0.6 miles along FS 303
- 0.2 miles along FS 313
- ** 1.5 miles south from FS 302 along FS boundary
- 0.4 miles west from FS boundary to radio tower
- 0.6 miles along Angelina county road 4-9
- 0.5 miles along Angelina county road 4-11
- 2.6 miles along FS 347
- 1.2 miles along Angelina county road 22
- 3.0 miles along FS 333
- 3.4 miles along FS 306
- 1.3 miles along Angelina county road 21
- 0.6 miles along Angelina county road 23
- 0.4 miles between Angelina road 23 and V.O. Easley road
- 0.6 miles along D.M. Henderson road (Jasper county)
- 0.3 miles along Southwestern Timber Co. road 1 (Jasper county)
- 0.2 miles along Southwestern Timber Co. road 2 (Jasper county)
- 1.1 miles along FS 306E
- 0.8 miles along Jasper county road 3
- 0.3 miles along Hawk Development road (Jasper county)
- 0.6 miles between 255R and Hawk Development road
- 0.2 miles along FS 335 between FS 306 and Harveytown
- 0.4 miles within Letney campground
- 0.6 miles along FS 332
- ** 0.4 miles along Dallas Matthews road (Jasper county)
- 0.5 miles along FS 376
- 0.2 miles along Jasper county road 2
- 0.8 miles along 255R
- 0.2 across FS land just south of 255R
- 0.1 miles along Jasper county road 4

** lies along boundary of Longleaf Ridge area

There are approximately 26 miles (79 acres) of aerial powerlines within the boundary of Longleaf Ridge, and approximately 2.5 miles (7.6 acres) along the boundary.

Water Lines

Upper Jasper Water Authority: ROW width is 10ft.

1.1 miles between Hawk Development road and FS 306 (1.3 acres)
0.8 miles along Jasper county road 3 (0.97 acres)
3.2 miles along FS 306 (3.9 acres)
0.2 miles along FS 335 between FS 306 and Harveytown (0.24 acres)
0.3 miles along Southwestern Timber Co. road 1 (Jasper county) (0.36 acres)
0.5 miles along D.M. Henderson road (Jasper county) (0.6 acres)
0.8 miles along V.O. Easley road (Jasper county) (0.97 acres)
0.6 miles along Angelina county road 23 (0.73 acres)
0.4 miles along FS 333 between FS 306 and FS 347 (0.48 acres)
2.5 miles along FS 347 (3.0 acres)
1.1 miles along Angelina county road 22 (1.3 acres)
1.3 miles along state highway 63 between Angelina county road 4-11 and FS 347 (1.6 acres)

Westwood Water Supply Corp: ROW width 10ft.

1.1 miles between Hawk Development road and FS 306 (1.3 acres)
0.6 miles along FS 306 (0.73 acres)
0.2 miles along Southwestern Timber Co. road 2 (Jasper county) (0.24 acres)

Other Uses

AT&T Microwave Tower (2.73 acres)
Plum Ridge Missionary Baptist Church (1 acre)
Upper Jasper Water Authority Pumphouse (0.23 acres)
Westwood Water Supply Corp. Pumphouse (4.54 acres)
Westwood Community Sign (< 0.1 acres)
McGee Hills Sign (< 0.1 acres)

Pipelines

United Gas Pipeline: ROW width 50ft
(Outstanding right)

7.6 miles across forest service land (46 acres)

Telephone Lines

Southwestern Bell: Buried ROW width 10ft.

1.3 miles along Edward B. Mack road (Angelina county)
1.1 miles along Angelina county 22
0.4 miles along FS 333 between FS 347 and FS 306
3.2 miles along FS 306
0.8 miles along FS 333 between FS 306 and Sandy Creek Campground
0.8 miles along Angelina county road 21
0.7 miles along Angelina county road 23
0.6 miles along V.O. Easley road (Jasper county)
0.8 miles along D.M. Henderson road (Jasper county)
0.3 miles along Southwestern Timber Co. road 1 (Jasper county)
0.2 miles along Southwestern Timber Co. road 2 (Jasper county)
1.9 miles along both sides of FS 335
1.4 miles along FS 332
** 0.2 miles along Dallas Matthews road (Jasper county)
1.5 miles along 255R
0.2 miles along Jasper county road 2
0.1 miles along Jasper County road 4

** lies along boundary of Longleaf Ridge area

There are approximately 15.3 miles (18.5 acres) of telephone line within Longleaf Ridge area, and approximately 0.2 miles (0.2 acres) along the boundary.

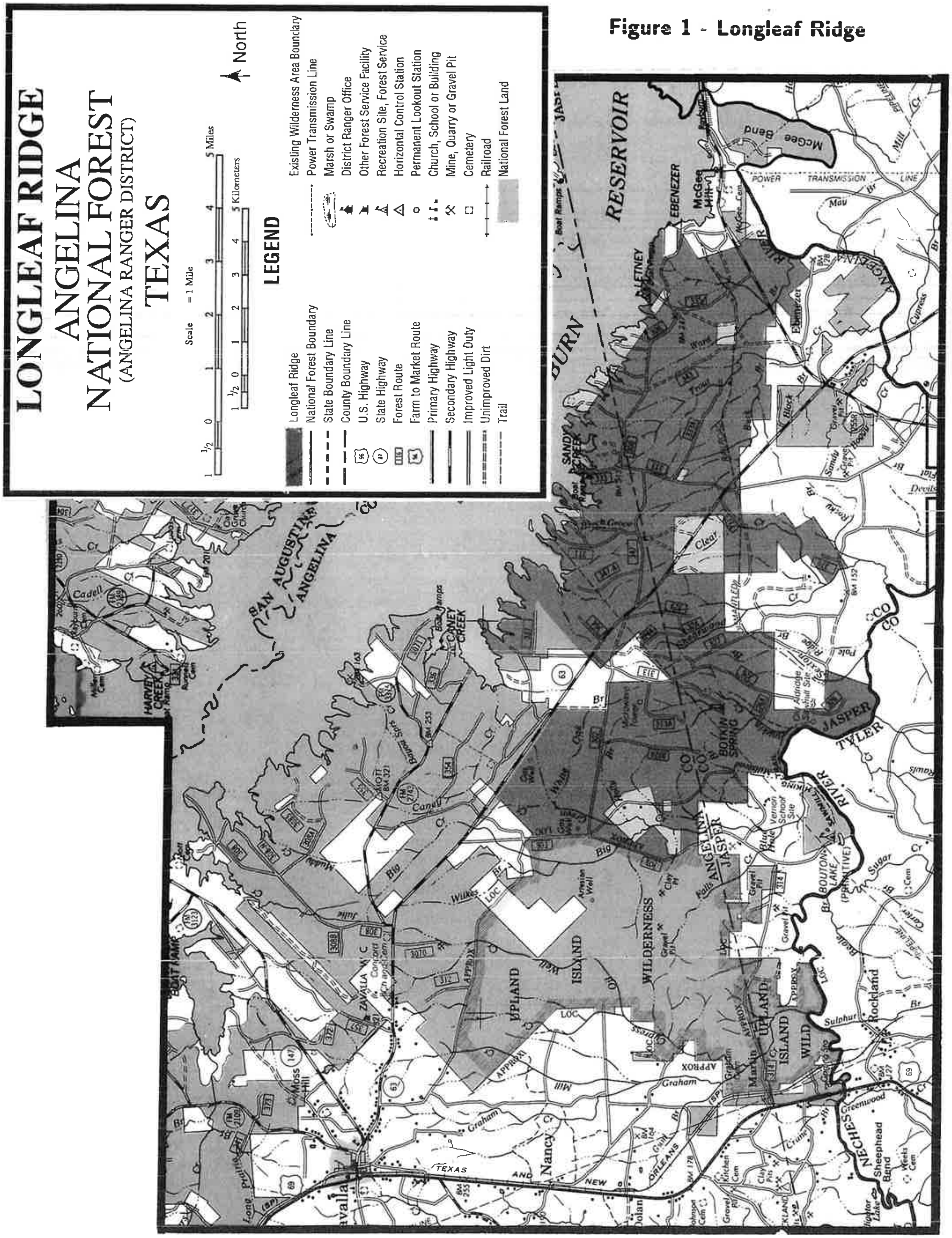
Southwestern Bell: Aerial ROW width 25ft.

1.1 miles along FS 347 between FS 333 and Angelina county road 22 (3.3 acres)

Contel/Continental Telephone: Buried ROW width 10ft.

0.6 miles along FS 303 (0.7 acres)

Figure 1 - Longleaf Ridge



Stark Tract
Sabine National Forest
Yellowpine Ranger District

Roadless Area Review and Evaluation

Description of Analysis Area

Roadless area name and number of acres.

STARK TRACT: Gross area approximately 3,350 acres; net area approximately 3,350 acres.

Location and vicinity.

The analysis area is located in the extreme southeastern portion of the Yellowpine Ranger District of the Sabine National Forest, in Sabine and Newton counties, Texas. It is approximately three miles west of the Toledo Bend Reservoir dam, and is bounded on the north and east by the reservoir; on the south by the Sabine National Forest boundary; and on the west by private land.

Describe access to the analysis area, including roads and trails leading to the area.

Access is by Forest Service (FS) 196 and by Newton County Road 1421. Both of these roads originate at State Highway (SH) 255.

General description of the analysis area's geology.

The analysis area is in the western Gulf Coastal Plain and is underlain by the Catahoula geologic formation. This formation is a 25 to 36 million years old formation and consists of mudstone, tuffaceous sands, and fossil wood. Soils associated with the Catahoula formation are the Corrigan, Letney, and Kisatchie series.

General description of the analysis area's topography.

This part of the western Gulf Coastal Plain consists of floodplains, stream terraces, concave foot slopes, side slopes, and gently sloping ridgetops. The side slopes generally occur as inclined surfaces on broad interstream divides, with narrow floodplains and branchhead inclusions. The floodplains, the stream terraces, and some of the branchhead inclusions have been inundated by Toledo Bend Reservoir.

General description of the analysis area's vegetation, including the ecosystem type.

The analysis area is forested with species typical of the western Gulf Coastal Plain. Southern yellow pine is the predominant cover type, with longleaf pine dominating the sandy hills and longleaf, loblolly, and shortleaf on the middle to lower slopes leading to Toledo Bend Reservoir.

The longleaf stands on the sandhills have understories of blackjack oak, bluejack oak, and post oak and a sparse cover of xerophytic forbs. Hairsedge, Gray's beakrush, little bluestem, slender bluestem, and piney-woods dropseed are common in the herb layer.

White oaks, red oaks, sweetgum, and black hickory are found in the overstory and midstory in the longleaf, loblolly, and shortleaf cover types on the middle to lower slopes. In these types, the understory consists of flowering dogwood, redbay, fringetree, and sassafras. Shrub species include coral bean, beauty-berry, and Elliot's blueberry.

The Texas Natural Heritage Program (TNHP) Longleaf Pine-Little Bluestem Series is the predominant plant community in the analysis area.

Key attractions, if any, including sensitive wildlife and scenic landmarks.

The key attractions are Toledo Bend Reservoir and the dry, sandy hill-tops covered with longleaf pine and associated species. The endangered red-cockaded woodpecker (RCW) existed here in the past, but all clusters within the analysis are now inactive.

Bald eagles perch and feed along the shore of Toledo Bend Reservoir, and it is likely that they use the shore within the analysis area. American alligator probably occurs along the shore of Toledo Bend within the analysis area. No other threatened, endangered, or sensitive species are known to be present, but no detailed inventory of the fauna has been completed.

The TNHP Committee has identified four natural plant communities and a number of sensitive plant species within the analysis area. Sensitive plants in the analysis area are scarlet catchfly, Mohlenbrock's umbrella sedge, bog coneflower, Carolina lily, and nodding nixie.

Area Inventory

Human influence.

1. To what degree have humans and past and present human activity affected natural ecological processes and conditions?

The analysis area was acquired from private owners in the early 1970's. It appears that the land was cut over in the 1920's and that it regenerated naturally to the cover types that exist now. There is no evidence that the previous owners conducted intensive logging operations. If there was any harvesting, it consisted of very light thinning. Activities occurring since Forest Service acquisition include timber harvesting, reforestation, southern pine beetle (SPB) suppression, soil and water restoration, prescribed burning on a three-year burning rotation, the construction of FS Road 196, and reconstruction of County Road 1421.

2. To what degree is the analysis area natural or natural appearing and free from disturbance?

There is little, if any, evidence of the major logging that took place during the early part of this century. There is some evidence of recent timber harvesting and reforestation, SPB suppression, and road construction. Most of the analysis area shows little evidence of disturbances other than vigorous prescribed burning, but the numerous woods roads along the sandy ridges show signs of heavy use by off-road vehicles (ORVs), particularly during hunting season.

3. If the analysis area's ecological processes or natural appearance or both have been altered by past or present human activity, is the land regaining a natural appearance?

The analysis area is not regaining a natural appearance because resource protection and management activities continue. The 1987 Forest Plan specifies that the analysis area is to be managed for multiple use, and the area will not regain natural appearance under such management.

4. Does the existing or attainable National Forest system ownership pattern, both surface and subsurface, ensure perpetuation of identified wilderness values?

The existing National Forest System ownership is not contiguous with other National Forest land, and is an isolated area that is not inspected frequently. Therefore, enforcing compliance with regulations is difficult. Also, because the analysis area is adjacent to private land on two sides, there are opportunities for nonconforming access and use along many sections of the boundary. The government does not control the mineral rights and thus cannot prevent all mineral exploration and development inconsistent with wilderness conditions.

Lessees of the private minerals are planning a seismic line, exploration and development of three oil wells, and construction of a pipeline in the immediate future. They also plan to drill as many as 12 additional oil wells before the mineral ownership reverts to the U.S. government. The private mineral owners are assured of the right to explore for and develop their mineral interest. However, the Forest Service can include stipulations that protect the analysis area and require mitigation of any adverse effects on the surface or other resources.

5. Is more than 15 percent of the analysis area in nonnative vegetation?

No.

Improvements, structures, and nonconforming uses

1. Are any of the following types of areas, features, or nonconforming uses present? If so, where?

a. Airstrips or heliports: No.

b. Electronic installations: No.

c. Areas displaying evidence of historic mining at least 50 years old (Do not include areas of significant current mineral activity): None.

d. Areas under current mineral lease that contain a "no surface occupancy" stipulation: No.

e. Areas under current mineral lease where the lessee has not exercised development and occupancy rights: The U.S. does not own the minerals in the analysis area. The minerals are reserved, and exploration and development activities are being planned. However, all mineral ownership will revert to the U.S. by the year 2000.

f. Recreation improvements such as occupancy spots or minor hunting or outfitter camps: There are no developed recreational improvements within the analysis area. Primitive, dispersed camping sites used by hunters and fishermen are scattered throughout the analysis area.

g. Timber harvest areas where logging and prior road construction are or are not evident: The analysis area displays evidence of recent harvesting and road construction. It cannot be classified as heavily logged, but there have been regeneration cuts, intermediated cuts (thinnings), and SPB suppression by means of timber sale. Most of the analysis area was classified as General Forest area in the Final Land and Resource Management Plan (FLRMP) approved in May, 1987, and was scheduled to be evaluated for timber harvesting as

outlined in Appendix K of the FLRMP. The only timber sale since government acquisition took place in 1984 and consisted of 142 acres of regeneration cutting and 479 acres of thinning. The sale was confined to the area that is served by FS 196.

h. Cultural treatments involving plantations or plantings: The 142 acres of regeneration referred to previously was site prepared by means of prescribed burning and was machine planted to longleaf pine.

i. Private inholdings in the area: No.

j. Dwellings on private inholdings: Not applicable.

k. Nonconforming structures and improvements: None known.

l. Ground-return telephone lines: None known.

m. Watershed treatment areas: An area of about two acres was treated for watershed improvement in 1985. This area is located approximately 0.25 miles north of the terminus of FS 196.

n. Roads: The analysis area has two improved roads, FS 196 and County Road 1421.

2. Can existing nonconforming uses be mitigated effectively or terminated through removal or rapid natural deterioration?

No. County Road 1421 provides access to private land and cannot be terminated. Past timber management activities, watershed restoration efforts, and FS Road 196 could be mitigated through natural processes.

3. Are improvements in the analysis area being affected by the forces of nature rather than by humans, and are they disappearing or muted?

The improvements noted previously are being maintained to meet long-term needs.

4. If there are timber harvest areas, has less than 20 percent of the analysis area been harvested within the the past 10 years?

Yes.

5. Does the analysis area contain less than 1/2 mile of improved road for each 1,000 acres?

No. The analysis analysis area contains approximately 3.2 miles (0.95 miles/1,000 acres) of improved roads (surfaced with gravel or bituminous material). There is also approximately 11 miles of unimproved road.

6. Are all existing roads under Forest Service jurisdiction?

No. Only 1.5 miles of the improved roads (0.44 miles/1,000 acres) is under Forest Service jurisdiction. The remaining 1.7 miles of road (0.5 miles/1,000 acres) is under Newton County jurisdiction.

Evaluation of Potential Wilderness

Capability.

Does the analysis area have the basic characteristics that would make it suitable for wilderness designation without regard to its availability for or need as wilderness? Consider the following characteristics in analyzing the quality of the wilderness resource. If these characteristics are determined to be important, describe and refer to them.

Experimental benefits.

Does the analysis area provide the opportunity for solitude and serenity?

There are some opportunities for solitude and serenity. Developments on private land adjacent to Toledo Bend Reservoir are visible from the shore of the lake. Sights and sounds of activities on these developments would disturb solitude and serenity within the analysis area. A recent Recreation Opportunity Spectrum (ROS) inventory indicates that about 2,670 acres (or 80 percent) of the analysis area provides opportunities for semiprimitive recreation and thus for solitude and serenity.

Challenge.

Does the analysis area offer visitors the opportunity to experience, adventure, excitement, challenge, initiative, or self-reliance? Is access easy or difficult?

The analysis area offers opportunities for these experiences. Access is easy, but the number of access points is limited. Foot travel in the analysis area is not particularly arduous, but dense underbrush and hot, humid summer weather can challenge users.

Outdoor recreation opportunities.

Describe the analysis capability for providing primitive and unconfined types of recreation including:

a. Camping: There are numerous locations for primitive camping.

b. Hunting: The analysis area supports small game and deer.

c. Fishing: There are opportunities for fishing within the analysis area, but the adjacent Toledo Bend Reservoir provide excellent fishing opportunities.

d. Canoeing: The analysis area has no streams or rivers large enough to support this activity.

e. Boating: Same as for canoeing.

f. River rafting: Same as for canoeing.

g. Backpacking: There are opportunities for backpacking. However, the analysis area is not large enough nor difficult enough to offer much challenge to a seasoned backpacker.

h. Hiking: The analysis area is suitable for hikes of moderate distances.

i. Riding: The analysis area's sandy ridges are suitable sites for riding.

j. Photography: Opportunities for vista photography are poor in the analysis area's interior, but good along the shore of Toledo Bend Reservoir. Opportunities for plant and animal photography are good throughout the analysis area.

Special features.

1. What is the area's capability to provide outdoor education and scientific study, both formal and informal, in a manner compatible with wilderness?

The analysis area provides opportunities for study and education in biology, geology, and dispersed recreation.

2. Is there an abundant and varied wildlife population?

The analysis area supports game and nongame animals were typical of western Coastal Plain forests. Accurate population figures are not available.

Manageability.

1. What are the characteristics of the analysis area including its ROS classification, adopted VQO, and present and planned uses?

ROS is roaded natural (for 20 percent of the analysis area), semiprimitive motorized (for 42 percent of the analysis area), and semiprimitive nonmotorized (for 38 percent of the analysis area). The area within (1/2 mile from FS 196) or the county road is classified roaded natural. The Visual Quality Objective (VQO) of the majority of the analysis area is maximum modification. Areas immediately adjacent to Toledo Bend Reservoir are classified as partial retention, and areas adjacent to FS 196 and the county road are classified as modification.

Future land use will continue to stress recreation and aesthetic values in association with residential and dispersed recreation uses. There are several private marinas and residential subdivisions in the immediate area. Under the 1987 Forest Plan, future land use is to stress multiple-use forest management with sensitivity to aesthetics, recreation, and biodiversity.

2. Do boundary locations conflict with important existing or potential public uses outside the boundary that might result in demands to allow nonconforming structures or activities or both in the wilderness?

Development will continue on adjacent private land, but encroachments are not expected to be a serious problem.

3. Is is possible to readily and accurately describe, establish, and recognize boundaries on the ground?

Yes. The current National Forest boundary is marked, and the analysis area's boundary coincides with easily defined natural boundaries where it does not coincide with the National Forest boundary.

4. Do boundaries, where possible, conform with terrain or other features that constitute a barrier to prohibited use?

The boundary presents a barrier to prohibited use only where the boundary is the shoreline of Toledo Bend Reservoir.

5. Do boundaries, to the extent practicable, shield the wilderness environment inside the boundary from the sights and sounds of civilization?

No. Sounds of traffic on roads adjacent to and within the analysis area, sound of boating activity on Toledo Bend Reservoir, and sounds

from private developments on adjacent private land can be heard in the analysis area.

6. Do boundaries provide adequate opportunity for access and traveler transfer facilities?

Roads provide public access at two points, and the lake provides additional access.

Availability.

1. Describe other (nonwilderness) resource demands and uses. What current uses exist?

a. Recreation: Hunting and dispersed camping during the hunting season are the most frequent uses. The level of use is moderate.

b. Information on wildlife species, populations, and management needs: The analysis area supports game and nongame animals typical of the western Coastal Plain region. Deer is the featured species in most of the analysis area, but quail is featured in the sand hills, and RCW is also featured. Populations of species other than RCW are thought to be stable.

c. Water availability and use: Water suitable for human consumption is not available. Water for wildlife is abundant.

d. Livestock operations: None.

e. Timber: There are excellent sites for southern yellow pines and good sites for upland hardwoods. A Longleaf Pine Progeny Study Area (10 acres) and two superior longleaf trees are located within the analysis area. The analysis area has been managed intensively for timber. Road development is considered economically feasible and roads have been built.

Site indices range from the 80's to the 90's for southern yellow pines. Only three stands are hardwood forest types. On the upland hardwood sites, site index for hardwoods is 70.

The majority of stands in the analysis area are 40 to 65 years of age. There are about 142 acres of stands less than 10 years old and about 50 acres of stands more than 90 years old.

f. Minerals: Minerals in the analysis area are reserved by private interest with final reversion to Federal ownership during the year 2000. The analysis area has high potential for oil and gas recovery, and mineral exploration and developments are being planned. Since the mineral rights are owned privately, the Forest Service must allow

the construction and maintenance of access routes, drilling sites, and pipeline rights-of-way.

g. Cultural Resources: Much of the analysis area may have a high potential for the presence of archeological or historical sites or both (historic properties). The Sabine River provided ideal conditions for early settlement. Fertile bottomlands and abundant wildlife attracted and supported Native American inhabitants for more than 5,000 years. Numerous Paleo-Indian to Neo-Historic prehistoric sites have been found in the analysis area. Future surveys should reveal additional sites, and evaluation of these sites should broaden our knowledge of the prehistoric inhabitants of the region.

There are several historic sites in the analysis area. The remains of old logging trams, or railways, are present throughout the analysis area. Historic farmsteads and cemeteries are present in the analysis area.

These sites and the objects and other physical evidence they contain are an important part of our cultural heritage. The National Forests and Grasslands in Texas (NFGT) is charged with the protection and management of these valuable historic properties by laws and regulations.

h. Authorized and potential land uses: There is a special use to Newton County for the county road right-of-way.

i. Management considerations including fire, insects and diseases, and presence of non-Federal lands: The analysis area has been prescribed burned on a 3-year burning rotation for the last 12 years, and heavy fuel loads have been reduced. Maintaining the longleaf pine ecosystem will require continued frequent use of fire. The longleaf-bluestem ecosystem produces light, flashy fuels in a single growing season. The presence of such fuels, the remoteness of the analysis area, and the distance from suppression forces combine to create a high risk of wildfire.

Southern pine beetle (SPB) has been and will continue to be a problem.

2. What outputs are currently produced or could be produced in the future?

The analysis area is producing a proportionate share of the District's annual timber sale program and is expected to continue to do so. The analysis area will also continue to provide opportunities for dispersed recreation (primarily hunting and dispersed camping during hunting and fishing seasons) at a moderate level of use. After the year 2000,

when all of the mineral rights have reverted to U.S. ownership, the analysis area will be available for mineral exploration and development.

3. Is the area located in such a way that the need for increased water production or additional onsite storage or both is so vital that installation or maintenance of improvements is an obvious and inevitable public necessity?

No.

4. Would wilderness designation seriously restrict or prevent the application of wildlife management measures of considerable magnitude and importance?

No.

5. Is it a highly mineralized area of such strategic or economic importance and extent that restrictions or controls resulting from wilderness designation would not be in the public interest?

The analysis area is considered to have a high potential for oil and gas production. Wilderness designation would not have immediate effects on minerals exploration and development because rights to all minerals will not revert to U.S. ownership until the year 2000. Wilderness designation would affect mineral exploration and development after the year 2000.

6. Does the area contain natural phenomena of such unique or outstanding nature that general public access and special developments to facilitate public enjoyment should be available?

No.

7. Is the land needed to meet clearly documented resource demands such as demands for timber, mineral production, or developed recreation?

Yes. There are demands for dispersed recreation, minerals, and timber production. Designation of the analysis area as wilderness would reduce the amount of wood available to industry.

8. Is the land committed through contractual agreements for use, purposes, or activities not in concert with wilderness requirements?

Yes. Exploration for and development of reserved minerals will not be consistent with wilderness conditions. In additions, the presence of 1.7 miles of Newton County road is not consistent with wilderness.

Need.

Other wildernesses.

1. What are the locations, sizes, and types of other wildernesses in the general vicinity?

The National Wilderness Preservation System includes approximately 84,012 acres of designated wilderness in Texas and additional land in nearby states. See Table 1 (found in the Introduction to the Evaluation of Roadless Areas) for more information about wilderness areas in Texas.

2. How far is it to the closest existing wilderness?

The Indian Mounds Wilderness Area (11,037 acres) is located approximately 12 air miles (40 miles by road) northeast of the analysis area.

3. What is the level of use in nearby wilderness? What are the trends in the use of these areas?

Indian Mounds Wilderness Area received approximately 3,300 visitor days of average annual use. Most of this use is associated with hunting. Use is light and is not affecting the area negatively. Use has increased slightly since the wilderness was established in 1984.

4. Is the population in and around these areas increasing or decreasing? How quickly is it increasing or decreasing?

The population of Texas grew 0.6 percent annually from 1980 to 1987. This slow increase is expected to continue. The large metropolitan areas such as Dallas and Houston grew at much faster rate (27 percent and 17 percent respectively, 1980-87). These population centers are about 160 miles (Houston) and 270 miles (Dallas) from the analysis areas, and have a combined population of more than 5 million persons.

The population of the Deep East Texas region, which includes Newton County and the analysis area, increased by about 10 percent between 1980 and 1988. The region's population is expected to increase by about 50 percent over the next 35 years.

Nonwilderness lands.

Are there opportunities for unconfined and primitive recreation on nonwilderness areas in the vicinity? If so, where?

National Forest land within a reasonable distance is suitable and available for primitive recreation use.

Habitat needs.

1. Are any biotic species in the analysis area competing directly with increasing public use and development?

There is no record of such competition. However, the area along the shoreline of the lake is suitable habitat for the bald eagle and the American alligator. If these species are present, they may compete with increased public use and development.

2. Could their needs be provided for through means other than wilderness designation?

Yes.

3. Is there a need to provide a sanctuary for species that cannot survive in less than primitive surroundings?

No. The nearby Indian Mounds Wilderness Area provides some habitat for the bald eagle; however, this species and the American alligator are heavily dependent upon Toledo Bend Reservoir for their livelihood. Any sanctuary for these species would have to include portions of this lake.

Landform and ecosystem preservation.

1. What is the analysis area's landform type based on the Region 8 Soil Resource Inventory (R-8 1977)? Does the area represent a unique landform type that is not represented in any wilderness areas in the general vicinity?

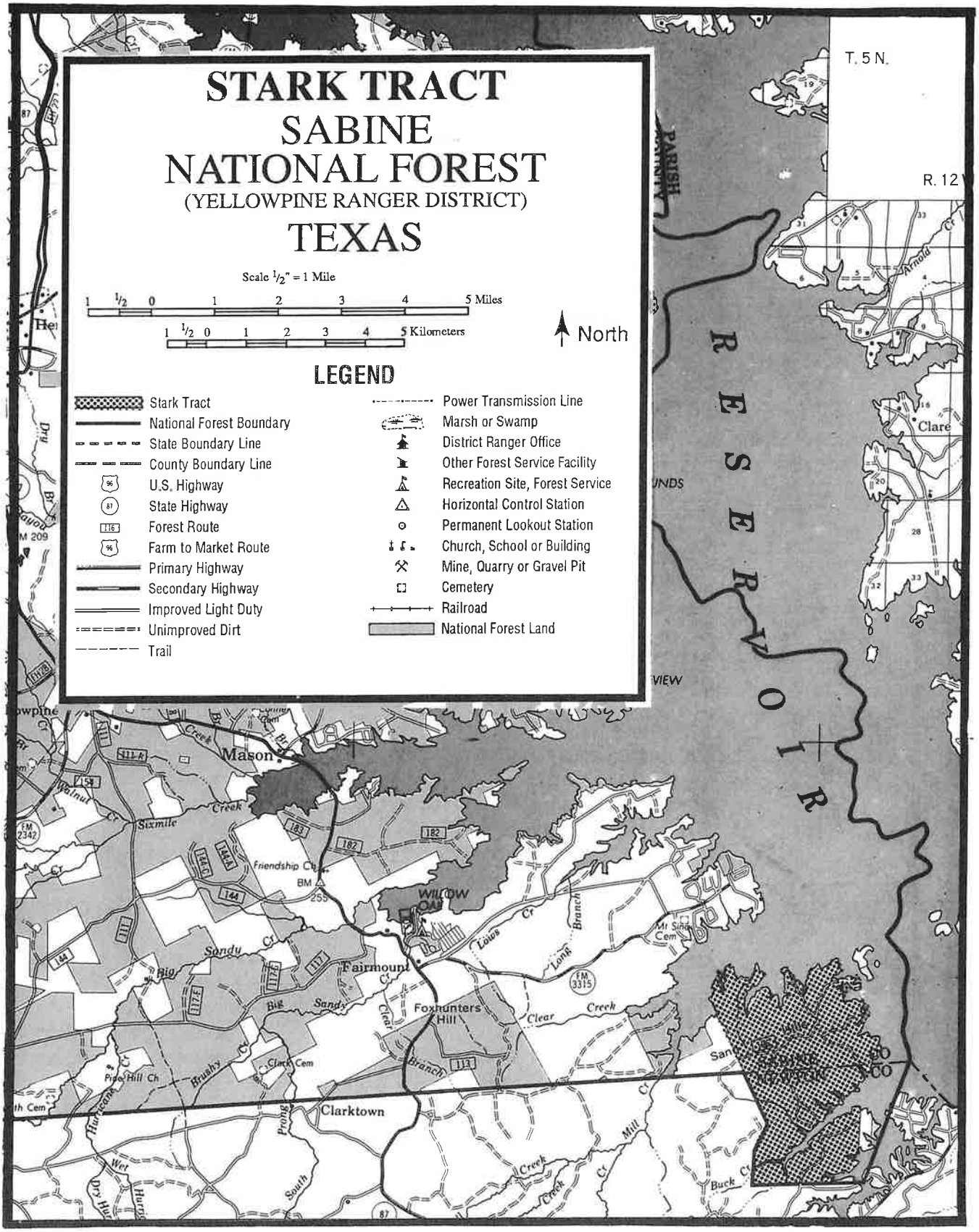
The analysis area consists of floodplains, stream terraces, concave foot slopes, side slopes, and gently sloping ridgetops. These landforms are not unique and are typical of the Upland Island and Indian Mounds Wilderness Areas.

2. What is the area's ecosystem classification? Does the analysis area represent a unique ecosystem that is not represented in any existing wilderness areas in the general vicinity?

The analysis area represents a classic vegetational continuum with fire-maintained ecotones along an environmental gradient from upland xeric

sandhill woodlands and barrens, dry hardwood sandy forest, and dry upland longleaf pine savannas downslope to broadleaf evergreen acid seep forests. The plant community most common in the analysis area is the TNHP Longleaf Pine-Little Bluestem Series. Other plant communities present include the Blackjack Oak-Pine Series, Sphagum-Beakrush Series, and Sweetbay Magnolia Series. This ecosystem is represented in existing wildernesses in Texas.

Figure 1 - Stark Tract



Turkey Hill
Angelina National Forest
Angelina Ranger District

Roadless Area Review and Evaluation

Description of Analysis Area

Roadless area name and number of acres.

TURKEY HILL: Gross area approximately 152 acres; net area approximately 152 acres.

Location and vicinity.

The analysis area in the northeastern portion of the Angelina National Forest. It is located along the east side of Farm-to-Market (FM) 705, approximately 2.5 miles south of State Highway (SH) 103 in San Augustine County, Texas. The site is bounded by private property on the north and south, by Ayish Bayou on the east, and by the Turkey Hill Wilderness on the west.

Describe access to the analysis area, including roads and trails leading to the area.

Access to the analysis area is by FM 705, and the county road that leads to Pisgah Cemetery.

General description of the analysis area's geology.

The analysis area is in the western Gulf Coastal Plain and is underlain by the Cook Mountain geologic formation and recent alluvium. The Cook Mountain formation is 36 to 58 million years old and consists of clays, marl, sands, glanconite, and megafossils. Soils are the Koury series and the Alazan-Bezner Complex.

General description of the analysis area's topography.

This part of the western Gulf Coastal Plain consists of floodplains, stream terraces, side slopes, and gently sloping ridgetops. The stream terraces are characterized by a hummocky surface on which the mounds are two to three feet higher than the depressions.

General description of the analysis area's vegetation, including the ecosystem type.

The ridges are forested with a mixture of pines and hardwoods, and the Ayish Bayou floodplain is forested entirely with hardwoods. Loblolly pine, red oaks, white oaks, and hickories occur on the upper slopes, while sweetgum, water tupelo, various oaks, beech, and hickory occur on the floodplain. The dominant plant community is the Texas Natural Heritage Program (TNHP) American Beech-White Oak Series.

Key attractions, if any, including sensitive wildlife and scenic landmarks.

The analysis area lies along Ayish Bayou and presents opportunities for viewing wildlife such as white-tailed deer and various ducks. Sensitive plants such as bloodroot, Carolina lily, slender wake-robin, and southern lady's-slipper occur in the analysis area.

Area Inventory

Human Influence.

1. To what degree have humans and past and present human activity affected natural ecological processes and conditions?

Acquisition of the National Forests in Texas was primarily under the authority of the Weeks Act. These lands were acquired from private landowners during the 1930's and early 1940's. Significant portions of these lands were acquired from timber companies. Most of the analysis area was cut over heavily during the early 1900's.

2. To what degree is the analysis area natural or natural appearing and free from disturbance?

Little evidence of turn-of-the-century logging and farming is visible. However, signs of more recent activity are evident. Stands on approximately 23 acres (15 percent of the analysis area) were thinned in 1990. Fifteen acres of hardwoods were shelterwood cut approximately 15 to 20 years ago. The shelterwood area has since been restocked through resprouting and reseeding from existing trees. The analysis area contains approximately 0.2 miles of graveled county road. Part of the analysis area was prescribed burned in 1987.

3. If the analysis area's ecological processes or natural appearance or both have been altered by past or present human activity, is the land regaining a natural, untrammeled appearance?

Apart from the county road and the shelterwood cut, the analysis area appears natural. The shelterwood area contains seed trees which were left to aid in regeneration of the stand. These trees are still present,

and the regeneration is heavy and noticeable. Under current (1987 Forest Plan) management direction, the analysis area will continue to be managed for multiple use and will not regain a natural appearance.

4. Does the existing or attainable National Forest System ownership pattern, both surface and subsurface, ensure perpetuation of identified wilderness values?

The mineral rights within the analysis area were leased in the fall of 1991. Surface occupancy, with mitigating measures implemented, must be allowed in order to accommodate minerals exploration and production. Therefore, perpetuation of wilderness conditions cannot be ensured.

5. Is more than 15 percent of the analysis area in nonnative vegetation?

No exotic species are known to be present in the analysis area.

Improvements, structures, and nonconforming uses.

1. Are any of the following types of areas, features, or nonconforming uses present?

a. Airstrips or heliports: No.

b. Electronic installations: No.

c. Areas displaying evidence of historic mining at least 50 years old (Do not include areas of significant current mineral activity): No.

d. Areas under current mineral lease that contain a "no surface occupancy" stipulation: No.

e. Areas under current mineral lease where the lessee has not exercised development and occupancy rights: Yes. (See previous discussion under #4.)

f. Recreation improvements, such as occupancy spots or minor hunting or outfitter camps: Yes. The analysis area receives moderate use from hunters and has some undeveloped, dispersed camp sites.

g. Timber harvest areas where logging and prior road construction are or are not evident: Yes. There were once tramways throughout the forest; however, there is now no evidence of these in the analysis area. Old haul roads have been reseeded and are overgrown. A 15 to 20-year-old shelterwood cut of 15 acres is still evident. The cemetery road is evident.

h. Cultural treatments involving plantations or plantings: No.

i. Private inholdings in the area: No.

j. Dwellings on private inholdings: Not applicable.

k. Nonconforming structures and improvements: A San Augustine County Road that provides access to Pisgah Cemetery crosses part of the analysis area.

l. Ground-return telephone lines: No such lines are known to be present. However, there is an aerial powerline along the west boundary.

m. Watershed treatment areas: No.

n. Roads: The analysis area contains approximately 0.2 miles of graveled county road. Approximately 0.5 miles of surfaced FM 705 parallels the west boundary.

2. Can existing nonconforming uses be mitigated effectively or terminated through removal or rapid natural deterioration?

The county road across the analysis area must be maintained to provide continued access to Pisgah Cemetery. The mineral rights have been leased, and surface occupancy, with mitigating measures implemented, must be allowed in order to accommodate exploration and production equipment. The powerline must be maintained as specified in the special use permit.

3. Are improvements in the area being affected by the forces of nature rather than by humans, and are they disappearing or muted?

The county road and aerial powerline are being maintained for long-term service.

4. If there are timber harvest areas, has less than 20 percent of the area been harvested within the past 10 years?

Yes. All of the regeneration within the analysis area is more than 10 years old.

5. Does the analysis area contain less than 1/2 mile of improved road for each 1,000 acres?

No. The 152-acre analysis area contains 0.2 miles (1.31 miles/1,000 acres) of improved road.

6. Are all existing roads under Forest Service jurisdiction?

No. The only existing road is under San Augustine County jurisdiction.

Evaluation of Potential Wilderness

Capability.

Does the analysis area have the basic characteristics that would make it suitable for wilderness designation without regard to its availability for or need as wilderness? Consider the following characteristics in analyzing the quality of the wilderness resource. If these characteristics are determined to be important, describe and refer to them.

Experimental benefits.

Does the analysis area provide the opportunity for solitude and serenity?

The analysis area provides limited opportunities for solitude and serenity. Public roads and activities on private land are visible from some places in the analysis area. Vehicle noise from FM 705 or the county road can be heard in parts of the analysis area. The inventoried Recreation Opportunity Spectrum (ROS) for the analysis area is roaded-natural.

Challenge.

Does the analysis area offer visitors the opportunity to experience adventure, excitement, challenge, initiative, or self-reliance? Is access easy or difficult?

The area offers few opportunities for these experiences and the experiences offered are similar to those available in Turkey Hill Wilderness. The terrain is relatively flat with some low ridges. The east side of Turkey Hill lies along Ayish Bayou, which could offer the visitor some opportunity for excitement, initiative, or self-reliance. Existing roads make access to the analysis area reasonably easy.

Outdoor recreation opportunities.

3. Describe the analysis area's capability for providing primitive and unconfined typed of recreation including:

a. Camping: Several locations are suitable for primitive camping.

b. Hunting: Small and large game species occur in the analysis area and can be hunted there.

c. Fishing: Both Ayish Bayou and Clear Branch provide opportunities for fishing.

d. Canoeing: Ayish Bayou and Clear Branch Creek provide opportunities for canoeing.

e. Boating: It is possible to operate small boats on Ayish Bayou.

f. River rafting: Limited opportunities are available on Ayish Bayou and Clear Branch Creek.

g. Backpacking: The analysis area's small size, the absence of a trail network, and the presence of obstructing undergrowth greatly limits opportunities for backpacking.

h. Hiking: Same as for backpacking.

i. Riding: Horseback riding opportunities do exist, but there are no developed trails.

j. Photography: There are opportunities for close-up photos. There are no opportunities for panoramic or scenic shots.

Special features.

1. What is the area's capability to provide outdoor education and scientific study, both formal and informal, in a manner compatible with wilderness?

The analysis area provides opportunities for education and study in geology, archeology, biology, and dispersed recreation. The analysis area has been utilized by forestry students in class exercises.

2. Is there an abundant and varied wildlife population?

The analysis area supports a variety of game and nongame animals. Species are typical of those found in forests on the southern Coastal Plain.

Manageability.

1. What are the characteristics of the surrounding area including ROS classification, adopted Visual Quality Objective (VQO), and present and planned uses?

The ROS is roaded natural. Because of the aesthetic values along the roads that pass through and by Turkey Hill Wilderness, the Visual Quality Objective (VQO) is partial retention.

Under the 1987 Forest Plan, land use is to be multiple-use management stressing aesthetic qualities as well as recreational uses.

2. Do boundary locations conflict with important existing or potential public uses outside the boundary that might result in demands to allow nonconforming structures or activities or both in the wilderness?

Even though development may occur on private land around and near the boundary, encroachments are not expected to be a serious problem.

3. Is it possible to readily and accurately describe, establish, and recognize boundaries on the ground?

Yes. The current National Forest boundary is marked.

4. Do boundaries, conform with terrain or other features that constitute a barrier to prohibited use?

Some portions of the boundary are located in areas that would be difficult to cross or access. The east boundary follows Ayish Bayou, which is accessible only by boat. There are areas where the prohibition against the use of motorized vehicles, such as all terrain vehicles (ATVs), would be difficult to administer. The north and south boundaries are adjacent to private land and follow tract boundaries, and the west boundary parallels FM 705. These boundaries follow arbitrary lines that do not conform with terrain or other features constituting natural or man-made barriers.

5. Do boundaries, to the extent practicable, shield the wilderness environment inside the boundary from the sights and sounds of civilization?

The boundaries provide minimal buffering because the analysis area is small and because private property and roads surround most of the analysis area. Sights and sounds of civilization on private developments north and south of the area and FM 705, which parallels the west boundary, would not be shielded. The east boundary is Ayish Bayou, which is generally a good buffer against the sites and sounds of civilization.

6. Do boundaries provide adequate opportunity for access and traveler transfer facilities?

Yes. FM 705 and the Pisgah Cemetery road provide access along the west boundary, while Ayish Bayou provides access along the east boundary.

Availability.

1. Describe other (nonwilderness) resource demands and uses. What current uses exist?

a. Recreation: Hunting is currently the dominant use, while horseback riding and hiking are less popular. All of these activities would be compatible with wilderness.

b. Information on wildlife species, populations, and management needs: The analysis area contains various game and nongame species in southern Coastal Plain forests. The northern portion of the Angelina National Forest is being restocked with eastern turkey.

c. Water availability and use: The analysis area contains no source of potable water. Water for wildlife is readily available.

d. Livestock operations: None.

e. Timber: Even though there are some good sites with high quality timber, limited access and wet soils would make harvesting difficult. The upland portions of the analysis area are presently included in the Forest's base of lands suited for timber management. The other areas are not included in the base of lands classified as suited for timber management. Predominant forest cover types are loblolly-hardwood (14 percent), white oak-red oak-hickory (48 percent), bottomland hardwood (12 percent), and sweetgum-nuttall oak-willow (10 percent).

Site indices are generally 70 to 90 for the pines and hardwoods on the ridges, and 80 to 100 for the hardwoods on the upper slopes and on the floodplain.

f. Minerals: The analysis area's mineral rights have been leased. No surface or subsurface exploration or development has been initiated. The potential for oil and gas occurrence is considered low.

g. Cultural resources: Much of the analysis contain archeological or historical sites (historic properties). The Ayish Bayou area provided ideal conditions for early settlement. Fertile bottomlands, abundant wildlife, and cool artesian springs attracted and supported Native American inhabitants for more than 5,000 years. Numerous Paleo-Indian to Neo-Historic prehistoric sites have been found in the analysis area. Future surveys will likely reveal additional sites, and evaluation of these sites should broaden our knowledge of the prehistoric inhabitants of the region.

No excavations have been conducted in the analysis area, but excavations have been conducted in areas to the north and south. These excavations have revealed physical evidence of early habitation.

These sites, and the objects and other physical evidence they contain, are an important part of our cultural heritage. The National Forests and Grasslands in Texas (NFGT) are charged with the protection and management of these valuable historic properties by laws and regulations.

h. Authorized and potential land uses: Deep East Texas Electric Co-op has a special-use permit for an aerial powerline along the east edge of FM 705.

i. Management considerations including fire, insects and diseases, and presence of non-Federal lands: Because the analysis area receives protection from fire and because fire suppression efforts have been successful, there is a possibility of a fuel buildup. A schedule of prescribed burning has helped to control fuel loadings and reduce fire danger.

There is a potential for the southern pine beetle (SPB) to infest pines in the analysis area if the trees are stressed or damaged. However, because pine stocking is relatively low, the risk of infestation is considered low to moderate.

There are no private inholdings.

2. What outputs are currently produced or could be produced in the future?

Dispersed recreation activities–primarily hunting, hiking, and fishing–should continue at the present low to moderate level.

The area is expected to produce timber. Any decline in the acreage available for timber harvesting will result in a decline in timber production on the Angelina National Forest. Wild turkeys are being restocked in the general area. The analysis area could be managed so that turkey habitat would be improved.

The analysis area may contain exploitable minerals.

3. Is the analysis area located in such a way that the need for increased water production or additional onsite storage or both is so vital that installation or maintenance of improvements is an obvious and inevitable public necessity?

No.

4. Would wilderness designation seriously restrict or prevent the application of wildlife management measures of considerable magnitude and importance?

No. Wilderness designation would preclude wildlife habitat management practices that would improve wild turkey habitat; however, failure to employ these practices would not significantly harm turkey populations or habitat.

5. Is it a highly mineralized area of such strategic or economic importance and extent that restrictions or controls resulting from wilderness designation would not be in the public interest?

No.

6. Does the area contain natural phenomena of such unique or outstanding nature that general public access and special development to facilitate public enjoyment should be available?

No.

7. Is the land needed to meet clearly documented resource demands such as demands for timber, mineral production, or developed recreation?

Yes. The analysis area is expected to produce timber, for which there is a demonstrated demand.

8. Is the land committed through contractual agreements for use, purposes, or activities not in concert with wilderness requirements?

Yes. The mineral rights to the area have been leased and a special use permit has been issued for the powerline corridor.

Need.

Other wildernesses.

1. What are the locations, sizes, and types of other wildernesses in the general vicinity?

The National Wilderness Preservation System includes 84,012 acres of designated wilderness in Texas, as well as additional wilderness in nearby states. See Table 1 (found in the Introduction to the Evaluation of Roadless Areas) for more information about wilderness areas in Texas.

2. How far is it to the closest existing wilderness?

The Turkey Hill Wilderness (5,286 acres) adjoins the analysis area on the west. Vehicular access to the wilderness is by FM 705, which separates the analysis area from the wilderness, and by FS 307, which is off FM 705.

3. What is the level of use in nearby wilderness? What are the trends in the use of these areas?

An estimated 1,500 Recreation Visitor Days (RVD's), or about 14 percent of capacity, were recorded in Turkey Hill Wilderness in 1991. Of these RVD's, 500 involved overnight camping. Upland Island Wilderness received approximately 3,000 RVD's or about 11 percent of capacity. Again, 500 RVD's involved overnight camping. Most use of the two wildernesses is related to hunting. Wilderness use is expected to increase slightly over the next 10 to 20 years.

4. Is the population in and around these areas increasing or decreasing? How quickly is it increasing or decreasing?

The population of Texas grew 0.6 percent annually from 1980 to 1987. This slow increase is expected to continue. The large metropolitan areas such as Dallas and Houston grew much faster (27 percent and 17 percent respectively, 1980-87). These population centers are about 100 miles (Houston) to 175 miles (Dallas) from the analysis area and have a combined population of more than 5 million persons.

The population of Deep East Texas, which includes San Augustine County and the analysis area, increased about 10 percent between 1980 and 1988. The region's population is expected to increase about 50 percent over the next 35 years.

The population of San Augustine County has increased in size from 8,785 in 1980, to 9,174 in 1988. This is an increase of 4.43 percent. Adjacent Angelina and Jasper counties experienced population increases of 8.96 percent and 4.01 percent, respectively. Together, the Angelina and Jasper County populations were estimated to be 105,965 in 1990 (Albers 1990).

Nonwilderness lands.

Are there opportunities for unconfined and primitive recreation on nonwilderness areas in the vicinity? If so, where?

Many areas in the Angelina National Forest, which is adjacent to the analysis area, are suitable for primitive recreation. The National Forests in Texas contain 82,348 acres of nonwilderness land that offer primitive recreation opportunities.

Habitat needs.

1. Are any species in the analysis area competing directly with increasing public use and development?

Yes. Four sensitive plant species (bloodroot, Carolina lily, slender wake-robin, and southern lady's-slipper) are found in the analysis area.

2. Could their needs be provided for through means other than wilderness designation?

Yes. Habitat for the sensitive species in the analysis area can be maintained without wilderness designation.

3. Is there a need to provide a sanctuary for species that cannot survive in less than primitive surroundings?

No. Conscious vegetation management and mitigation of disturbances can maintain suitable habitat conditions.

Landform and ecosystem preservation.

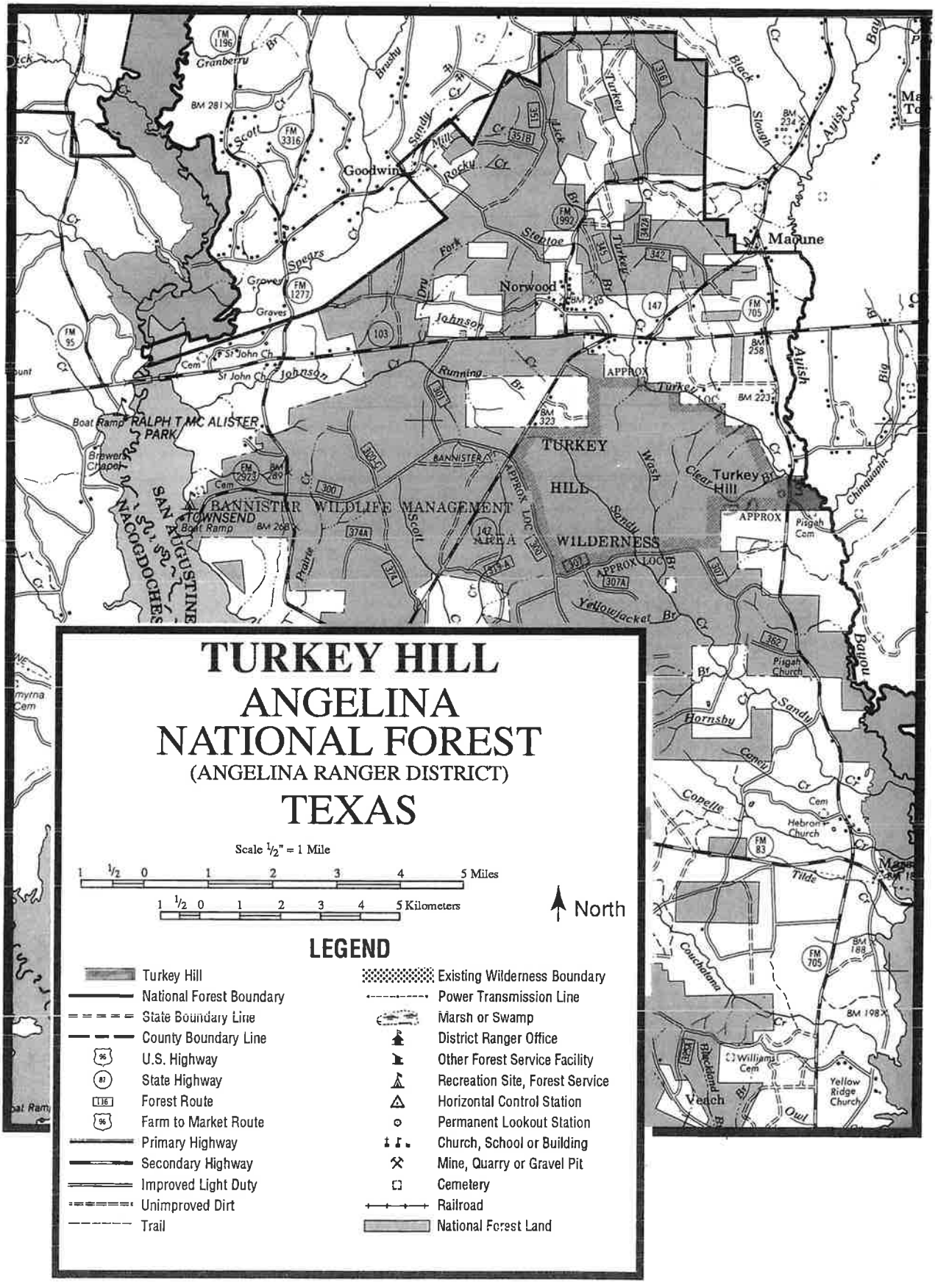
1. What is the analysis area's landform type based on the Region 8 Soil Resource Guide (R-8 1972)? Does the area represent a unique landform type that is not represented in any wilderness areas in the general vicinity?

The analysis area is on the Coastal Plain of eastern Texas. The analysis area consists of ridges (10 percent), slopes (40 percent), and floodplains (50 percent). These landforms are not unique, and similar features can be found in the nearby Turkey Hill Wilderness Area.

2. What is the area's ecosystem classification? Does the area represent a unique ecosystem that is not represented in any existing wilderness areas in the general vicinity?

Turkey Hill is classified as an American Beech-White Oak Forest (Orzell 1990). The same type of ecosystem can be found in existing wilderness areas in Texas.

Figure 1 - Turkey Hill



Winters Bayou
Sam Houston National Forest
San Jacinto Ranger District

Roadless Area Review and Evaluation

Description of Analysis Area

Roadless area name and number of acres.

WINTERS BAYOU: Gross Area approximately 710 acres; net area approximately 710 acres.

Location and vicinity.

The analysis area is at the southern end of the San Jacinto Ranger District, Sam Houston National Forest. It is in San Jacinto County, about five miles northwest of Cleveland, Texas. It is near Montague Church, on Farm-to-Market (FM) 1725. Approximately 565 acres, or 80 percent of the analysis area, is managed as part of the 971-acre Winters Bayou Scenic Area. The analysis area is bounded by National Forest System land on the north and on part of the southern boundary. It adjoins private land along about half of its perimeter.

Describe access to the analysis area, including roads and trails leading to the area.

The Lone Star Hiking Trail begins at a trail head near Montague Church, and continues through Winters Bayou Scenic Area to a point on the American Petrofina pipeline. The trail crosses the west side of the analysis area. Portions of the south and east boundaries are private land lines. Direct access to the analysis area is from the northeast on Forest Development Road (FDR) 229.

General description of the analysis area's geology.

The analysis area is in the Gulf Coastal Plains physiographic province and is underlain by recent alluium, fluviatile terrace deposits, and the Bentley geologic formation. These formations are less than 2-1/2 million years old and consist of unconsolidated beds of clay, silt, sand, gravel, and organic matter. The primary soils occurring in the analysis area are the Hatliff, Dallardwille, and Choates Series.

General description of the analysis area's topography.

The analysis area is almost flat and is poorly drained. Landforms present include floodplains, stream and marine terraces, footslopes, and gently sloping ridgetops. About 60 percent of the analysis area is within the floodplain of Winters Bayou. The floodplain is often flooded for three to four days following heavy rain. The analysis area drains into the East Fork of the San Jacinto River.

General description of the analysis area's vegetation, including the ecosystem type.

The analysis area is part of the Southeastern Mixed Forest Ecological Region and is forested with species common in both bottomland and upland forest types. Water oak, bitter pecan, sycamore, river birch, magnolia, hickory, and species such as cabbage palmetto and switch cane are common in the floodplains. Midstory species include ironwood, holly, dogwood, and yaupon. Upland areas are mixed forest types with loblolly pine, white oak, red oak, hickory, and sweetgum in the overstory. The understory species are redbay, waymyrtle, American beautyberry, yaupon, dogwood, and hophornbean. The most common plant community is the Texas Natural Heritage Program (TNHP) Swamp Chestnut Oak-Willow Oak Series.

Key attractions, if any, including sensitive wildlife and scenic landmarks.

Plant and animal communities common in the Gulf Coastal Plain, and specifically those common in the Big Thicket Ecosystem, are key attractions. Heron rookeries, alligators, wild pigs, and numerous bird and plant species are present. There are no known red-cockaded woodpecker (RCW) clusters in the analysis area, and no sensitive species are known to occur in the analysis area. The Lone Star Hiking Trail, a National Recreation Trail, makes the plant, wildlife, and visual resources more accessible and attractive.

Area Inventory

Human influence.

1. To what degree have humans and past and present human activity affected natural ecological processes and conditions?

Although much of the Forest land in the vicinity was harvested during the early 1900's, wet sites like Winters Bayou area were not. Neither were they suitable for farming. Southern pine beetle (SPB) activity has occurred and treatments have been performed in the analysis area. Livestock was allowed to graze in the analysis area recently, but grazing has had little effect on plant and animal associatons. TNHP recently

classified the analysis area as degraded on the basis of tornado and beetle damage.

2. To what degree is the analysis area natural or natural appearing and free from disturbance

The analysis area appears natural throughout. The only man-caused disturbances are related to trail construction and maintenance, SPB treatment, powerline right-of-way maintenance, oil and gas exploration and production, and road construction and maintenance.

3. If the analysis area's ecological processes or natural appearance or both have been altered by past or present human activity, is the land regaining a natural, untrammeled appearance?

Land on the Coastal Plains recovers from natural and man-caused disturbances quickly. If Coastal Plain land is undisturbed for several years, vegetation reclaims roads, trails, and other disturbed areas. The TNHP stated that the analysis area should recover if left undisturbed. To the casual observer, most of the analysis area appears natural and untraveled.

Approximately 145 acres of the analysis area not included in the Winters Bayou Scenic Area are managed as General Forest. General Forest areas are managed for multiple uses and will not regain a natural appearance.

4. Does the existing or attainable National Forest System ownership pattern, both surface and subsurface, ensure perpetuation of identified wilderness values?

Surface ownership patterns would not preclude perpetuation of wilderness conditions.

Rights to minerals on almost two-thirds of the analysis area are reserved in private ownership until 1995. Surface occupancy, with mitigating measures implemented, must be allowed in order to accommodate mineral exploration and production where mineral rights are controlled privately. Recently, there has been some mineral exploration very near the analysis area. One group has recently proposed to drill a well in the analysis area.

Rights to minerals on the remaining one-third of the analysis area are in U.S. ownership. An application for lease of these rights has been received and is being processed. Surface occupancy, with mitigating measures and subject to terms of the lease, must also be allowed where rights are leased from the Federal government.

5. Is more than 15 percent of the analysis area in nonnative vegetation?

No.

Improvements, structures, and nonconforming uses.

1. Are any of the following types of areas, features, or nonconforming uses present? If so, where?

a. Airstrips or heliports: No.

b. Electronic installations: No.

c. Areas displaying evidence of historic mining at least 50 years old (Do not include areas of significant current mineral activity): No.

d. Areas under current mineral leases that contain "no surface occupancy" stipulation: There were none as of June, 1992. However, an application for lease of about 258 acres was received. About half of the area applied for is within the Scenic Area. The 1987 Forest Plan requires that leases of mineral rights in the Scenic Area contain "no surface occupancy" stipulations.

e. Areas under current mineral lease where the lessee has not exercised development and occupancy rights: No. See previous discussions.

f. Recreation improvements, such as occupancy spots or minor hunting or outfitter camps: No hunter camps or outfitter guide camps are present. The Lone Star Trail, a National Recreation Trail, passes through the western part of the analysis area. There is a metal bridge located where the trail crosses Winters Bayou.

g. Timber harvest areas where logging and prior road construction are or are not evident: Clearings and stumps resulting from SPB infestation treatments are visible in several places.

h. Cultural treatments involving plantations and timber stand improvement: There is no evidence of timber stand or wildlife habitat improvement.

i. Private inholdings in the analysis area: Not applicable.

j. Dwellings on private inholdings: Not applicable.

k. Nonconforming structures and improvements: None are present. One powerline crosses the western part of the analysis area. This powerline may be removed in the future.

l. Ground-return telephone lines: No.

m. Watershed treatment areas: No.

n. Roads: No.

2. Can existing nonconforming uses be mitigated effectively or terminated through removal or rapid natural deterioration?

The Lone Star Hiking Trail is consistent in design and purpose with wilderness management.

3. Are improvements in the area being affected by the forces of nature rather than by humans, and are they disappearing or muted?

Yes. Exceptions are the improvements previously listed.

4. If there are timber harvest areas, has less than 20 percent of the area been harvested within the past 10 years?

Yes. Other than treatment of scattered/small SPB spots, none of the analysis area has been harvested in the last 10 years.

5. Does the analysis area contain less than 1/2 mile of improved road for each 1,000 acres?

Yes. The analysis area contains no roads that are open for general public use.

6. Are all existing roads under Forest Service jurisdiction?

There are no Forest Service or other public roads in the analysis area. However, a drilling pad, an access road, and a well have been proposed.

Evaluation of Potential Wilderness

Capability.

Does the analysis area contain the basic characteristics that would make it suitable for wilderness designation without regard to its availability for or need as wilderness? Consider the following characteristics in analyzing the quality of the wilderness resource. If these characteristics are determined to be important, describe and refer to them.

Experimental benefits.

Does the analysis area provide the opportunity for solitude and serenity?

Opportunities for solitude and serenity are limited. Sights and sounds of activities on adjacent private and National Forest lands would interfere with solitude in much of this small analysis area.

Challenge.

Does the analysis area offer visitors the opportunity to experience adventure, excitement, challenge, initiative, or self-reliance? Is access easy or difficult?

Access is easy because the analysis area is flat and small. Travel within the analysis area can become somewhat difficult and challenging during wet periods because there are no foot bridges or elevated trails, in wet places. The excitement and sense of adventure that can be derived from viewing unique plants and wildlife are the primary benefits of travel within the analysis area.

Outdoor recreation opportunities.

Describe the analysis area's capability for providing primitive and unconfined types of recreation including:

a. Camping: Numerous locations are suitable for primitive camping.

b. Hunting: Hunting for deer, pigs, and squirrels is excellent.

c. Fishing: Winters Creek is a popular with local bank fishermen.

d. Canoeing: Winters Creek will support canoeing during most of the year. The stream flow is usually unsuitable in August and during periods of drought.

e. Boating: Only canoes and small flat-bottomed boats are practical on the Bayou.

f. River rafting: The frequency of portages would make rafting impractical.

g. Backpacking: The Lone Star Hiking Trail, which passes through the analysis area, is popular with backpackers. Wet sites, dense vegetation, the analysis area's small size, and the absence of other trails greatly limit other backpacking opportunities.

h. Hiking: There are excellent opportunities for hiking along the banks of Winters Creek and on the Lone Star Hiking Trail.

i. Riding: The Lone Star Hiking Trail is restricted to foot traffic only. Dense "Big Thicket" vegetation and frequent wet site conditions severely limit the opportunity for horse or mountain bike travel.

j. Photography: There are very few opportunities for vista photography, but there are excellent opportunities for many types of plant and animal photography.

Special features.

1. What is the area's capability to provide outdoor education and scientific study, both formal and informal, in a manner compatible with wilderness?

The analysis area presents opportunities for study and education is subjects such as zoology, botany, and dispersed recreation. The presence of bottomland forest and the diversity of the analysis area presents special opportunities for studies of riparian vegetation, floodplain ecosystems, and neotropical migrant birds.

2. Is there an abundant and varied wildlife population?

Diversity and abundance of wildlife is the analysis area's best feature. Accurate population figures are not available for most species.

Manageability.

1. What are the characteristics of the surrounding area including ROS classification, adopted VQO, and present and planned uses?

Recreation Opportunity Spectrum (ROS) is semi-primitive, nonmotorized in six percent of the analysis area, and roaded-natural elsewhere. The Visual Quality Objective (VQO) for the analysis area is retention.

Present and planned use for the Scenic Area is semiprimitive, nonmotorized with a VQO of retention.

With the exception of the travel zone on Highway 1725, the surrounding areas are General Forest. Along the highway, the forest management theme is recreation and protection of aesthetic values. In adjacent General Forest areas, visual quality objectives range from retention (along county roads) to maximum modification (in areas away from major travel corridors). The ROS mix for the general area is similar to that in the analysis area. The 1987 Forest Plan established a management regime that would perpetuate this condition.

2. Do boundary locations conflict with important existing or potential public uses outside the boundary that might result in demands to allow nonconforming structures or activities or both in the wilderness?

Activities on adjacent private land are agricultural and residential and do not place significant demands on the analysis area. No conflicts would be expected.

3. Is it possible to readily and accurately describe, establish, and recognize boundaries on the ground?

Yes.

4. Do boundaries, conform with terrain or other features that constitute a barrier to prohibited use?

No. About half of the boundary adjoins private property. The other boundaries do not follow features that constitute barriers. Also, a powerline crosses the western part of the analysis area. Illegal off-road vehicle (ORV) use on such rights-of-way has long been a problem for the Forest. However, thick vegetation and wet site conditions generally discourage motorized vehicle use off roads, trails, and rights-of-way.

5. Do boundaries, to the extent practicable, shield the wilderness environment inside the boundary from the sights and sounds of civilization?

The analysis area adjoins the Scenic Area on the north, so sights and sounds of civilization would not be a serious problem on that side. However, the terrain features and private and National Forest System land to the east, south, and west would not exclude sights and sounds of civilization.

6. Do boundaries provide adequate opportunity for access and traveler transfer facilities?

At present, the Lone Star Trail and FDR 229 provide the only access to the analysis area.

Availability.

1. Describe other (nonwilderness) resource demands and uses. What current uses exist?

a. Recreation: The area is popular with bank fishermen, pig hunters, and deer hunters. The Lone Star Hiking Trail is used for hiking and associated dispersed recreation throughout the year.

b. Information on wildlife species, populations, and management needs: Many bird species, and large and small game and nongame mammals common in the Coastal Plain are found in the analysis area. Whitetail deer is the featured species. Many large, old trees in the analysis area are available for wildlife habitat.

c. Water availability and use: Swampy areas, perched water tables, and flooding are common. Winters Bayou is a perennial stream. Water is always available for wildlife. Water from the analysis area and adjacent National Forest land is important to the domestic water supply for metropolitan Houston. There are no sources of potable water in the analysis area.

d. Livestock operations: None.

e. Timber: Excellent sites for tree growth are found throughout the analysis area. Forest types are loblolly pine (33 percent), sweetgum-nutall oak (61 percent), and bottomland hardwood-yellow-pine (6 percent). Because much of the analysis area has Scenic Area status and because roading and logging conditions are difficult, the Forest Service has done little cutting (except as necessary for control of SPB) Timber stands 20 to 30 years old occupy about 18 percent of the analysis area. Stands 50 to 70 years old occupy 44 percent of the analysis area, and stands 70 to 90 years old occupy 38 percent of the analysis area. The 565 acres within the Winters Bayou Scenic Area is classified as unsuited for timber production. The remaining 145 acres are classified as suited for timber production and are included in the Forest's timber base. The 145-acre tract must produce timber if the Forest is to produce the scheduled amount of timber.

f. Minerals: There are no oil and gas operations in the analysis area, but there are several in the surrounding area. A proposal for a well to access reserved minerals in the analysis area was received very recently. No U.S.-owned minerals are leased at present, but an application for lease of the U.S. owned minerals has been received.

g. Cultural resources: Winters Creek is a tributary of the East Fork of the San Jacinto River, one of the four major rivers in the National Forests in Texas. The East Fork of the San Jacinto, and its tributaries, provided the environmental conditions and resources sought by aboriginal inhabitants. Recorded site 41SJ38 is located within the analysis area. It is likely that intensive surveys would find other artifactual remains. The analysis area has been designated as a cultural resource probability zone and must be investigated prior to land-disturbing activities.

Wilderness designation would not conflict with the current or planned management; however, the Antiquities Act of 1906, the National Historic Preservation Act of 1966, or the Archaeological Resource

Protection Act of 1979 would have impact on this area's potential for any type management.

h. Authorized and potential land uses: A powerline right-of-way is authorized. Recently, the power company removed the substation on this line because use had decreased, and it is anticipated that the line itself will be removed as the oil and gas wells play out.

i. Management considerations including fire, insects and diseases, and presence of non-Federal lands: There are no inholdings; however, the analysis area adjoins several privately owned properties.

The incidence of wildfire and common forest diseases has been very low. SPB infestations are always a threat in east Texas, but the analysis area's forest has a large hardwood component, and the presence of this component provides some protection against significant harm to the ecosystem.

There have not been any recorded wildfires in the analysis area. Should a wildfire occur, the flat terrain and wet ground should make suppression relatively easy.

2. What outputs are currently produced or could be produced in the future?

The Sam Houston National Forest is an urban forest and must satisfy an ever-increasing demand for recreational opportunities. The demand for hunting, hiking, birding, wildlife viewing, fishing, and boating will continue to increase. The analysis area has excellent potential to meet part of this demand.

Timber outputs have been obtained primarily through cuttings designed to suppress outbreaks of SPB. A portion of the analysis area is classified as "not suited for timber production" because of its special status. Much of the analysis area is within the Winters Bayou floodplain and would not be available for timber production under the 1987 Forest Plan. The 145 acres outside the Scenic Area, but within the analysis area is included in the Forest's timber base and is needed to supply part of the timber required by the 1987 Forest Plan.

The privately owned minerals will revert to U.S. ownership in January, 1995. The Federally owned minerals are available for exploration and development. Leases of mineral rights in the Scenic Area permit surface occupancy only where there are valid existing rights to such occupancy.

3. Is the analysis area located in such a way that the need for increased water production or additional onsite storage or both is so vital that installation or maintenance of improvements is an obvious and inevitable public necessity?

No. The Bureau of Reclamation studied the feasibility of constructing a reservoir in the San Jacinto River drainage to meet Houston's demand for water. An alternate site in Montgomery County was selected.

4. Would wilderness designation seriously restrict or prevent the application of wildlife management measures of considerable magnitude and importance?

No.

5. Is it a highly mineralized area of such strategic or economic importance and extent that restrictions or controls resulting from wilderness designation would not be in the public interest?

The area is not highly mineralized but is considered to have a high potential for oil and gas occurrence. Oil and gas exploration and production are occurring in the surrounding area.

6. Does the area contain natural phenomena of such unique or outstanding nature that general public access and special development to facilitate public enjoyment should be available?

No.

7. Is the land needed to meet clearly documented resource demands such as demands for timber, mineral production, or developed recreation?

There is an established demand for timber, minerals, and recreation from this general area. Establishment of the analysis area as wilderness would slightly reduce the amount of wood available to industry. If the analysis area is designated a wilderness, mineral production will decrease as existing rights expire and the land is withdrawn from mineral production.

8. Is the land committed through contractual agreements for use, purposed, or activities not in concert with wilderness requirements?

There were no Federal mineral leases as of June, 1992, but a portion of the analysis area is in the process of being leased for minerals. There is also a Special Use Permit for the powerline right-of-way.

Need.

Other wildernesses.

1. What are the locations, sizes, and types of other wilderness in the general vicinity?

The Little Lake Creek Wilderness in Sam Houston National Forest is one of five wilderness areas in the National Forests in Texas. Little Lake Creek Wilderness consists of 3,810 acres. Total wilderness area in Texas is 84,012 acres. There are other wilderness areas in nearby states. See Table 1 (found in the Introduction to the Evaluation of Roadless Areas) for more information about wilderness areas in Texas.

2. How far is it to the closest existing wilderness?

Little Lake Creek Wilderness is approximately 42 miles west of the analysis area.

3. What is the level of use in nearby wilderness? What are the trends in the use of these areas.?

Little Lake Creek Wilderness had an estimated 500 visitor days of recreational use in 1991. Use of Little Lake Creek Wilderness has been increasing slowly. There is increasing demand for recreational use in urban forests in general.

4. Is the population in and around these areas increasing or decreasing? How quickly is it increasing or decreasing?

The population of Texas increased by 19.4 percent between 1980 and 1990, and is expected to grow slowly in the future.

The population of metropolitan Dallas and Houston have grown much more rapidly–by 27 percent and 17 percent, respectively from 1980 to 1987. Houston lies about 50 miles southeast of the analysis area.

The population of Deep East Texas, which includes San Jacinto County and the analysis area, increased about 10 percent between 1980 and 1988. The population of Deep East Texas is expected to increase about 50 percent over the next 35 years.

The population of San Jacinto County, in which the analysis area lies, grew from 11,434 in 1980 to 15,169 in 1988 and is projected to increase to about 33,000 by 2025. Adjacent Harris County has 2.8 million inhabitants and is the third largest county in the United States.

Nonwilderness lands.

Are there opportunities for unconfined and primitive recreation on nonwilderness areas in the vicinity? If so, where?

Big Creek Scenic Area, an area known as the Big Woods, and portions of the Lone Star Hiking Trail near the San Jacinto River offer such opportunities. Generally, the Sam Houston National Forest is broken by roads and other facilities, and the frequency of use is high. Therefore, social encounters are frequent, and such encounters limit opportunities for primitive and unconfined recreation. The Forest contains 82,348 acres of nonwilderness land suitable for semiprimitive or primitive recreational use.

Habitat needs.

1. Are biotic species in the analysis area competing directly with increasing public use and development?

There are no known primary habitats of threatened, endangered, or sensitive species within the analysis area. The analysis area may include some foraging habitat for RCW. The composition and spatial arrangement of vegetation in the analysis area generally does not meet the RCW's habitat requirements.

2. Could their needs be provided for through means other than wilderness designation?

Yes.

3. Is there a need to provide a sanctuary for biotic species that cannot survive in less than primitive surroundings?

None such species are known to be present. Studies of declining populations of neotropical migrant birds may reveal such a need.

Landform and ecosystem preservation.

1. What is the analysis area's landform type based on the Region 8 Soil Resource Inventory (R-8 1977)? Does the area represent a unique landform type that is not represented in any wilderness areas in the general vicinity?

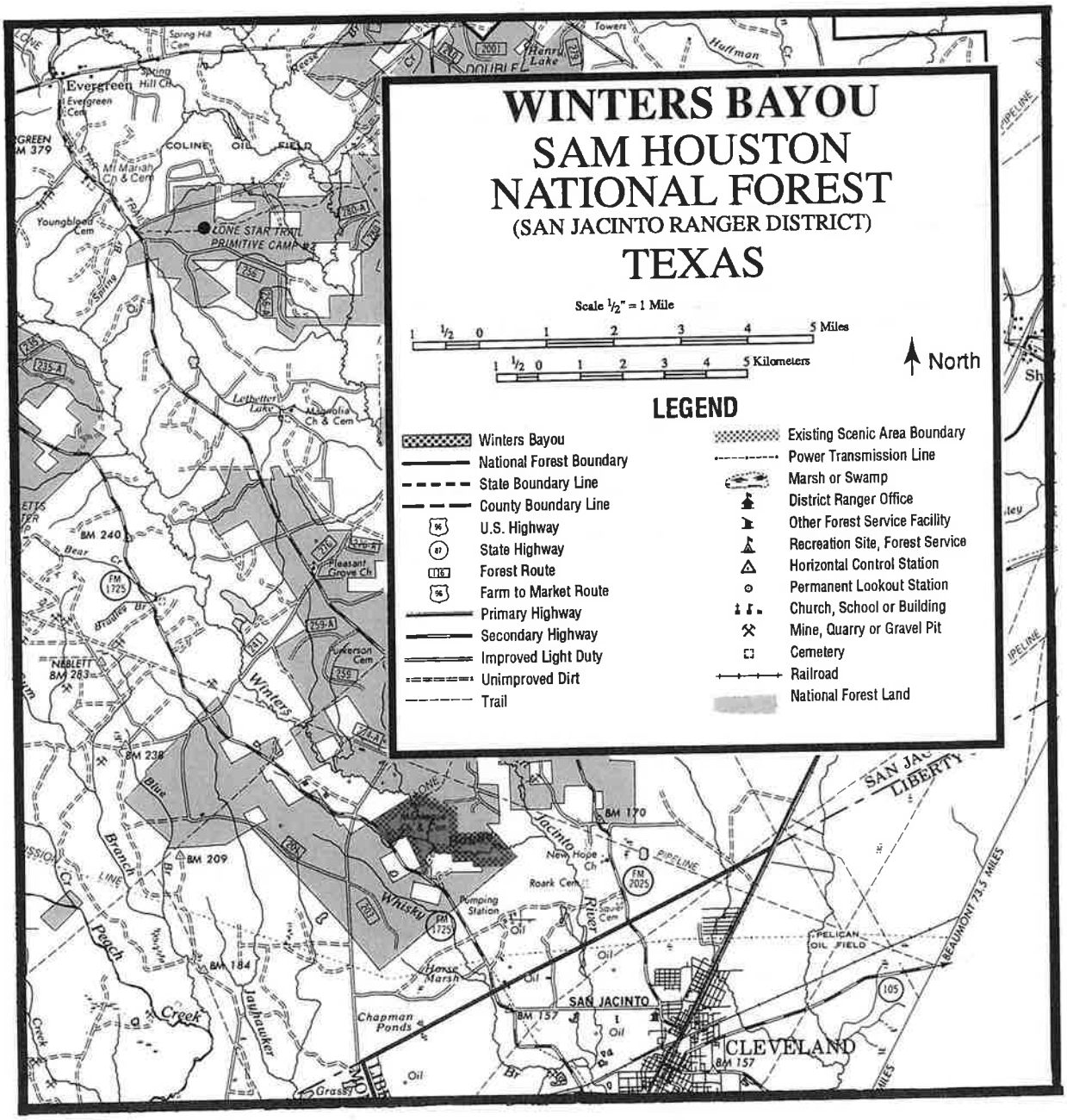
This part of the western Gulf Coastal Plains consists of floodplains, stream and marine terraces, foot slopes, and gently sloping ridgetops. Approximately 60 percent of the analysis area is within the floodplain of Winters Bayou.

The analysis area does not contain or represent a unique landform. These landforms present are represented in existing wilderness areas in Texas.

2. What is the analysis area's ecosystem classification? Does the area represent a unique ecosystem that is not represented in any existing wilderness areas in the general vicinity?

The analysis area's ecosystem is a Texas Natural Heritage Program (TNHP) swamp chestnut oakwillow oak series. This plant community also occurs in the Upland Island Wilderness Area which is located about 70 miles northeast of the analysis area. The analysis area and the 5 designated wilderness areas in the Forest are part of the Southern Mixed Forest ecosystem.

Figure 1 - Winters Bayou



Appendix E

Wild and Scenic Rivers

Introduction

This appendix presents evaluation of the eligibility of certain river and stream segments for inclusion in the National Wild and Scenic River System (NWSRS). The river and stream segments discussed are located in, adjacent to, the National Forests and Grasslands in Texas (NFGT).

This appendix is organized into five sections (I-V) as follows:

Section I	Introduction
Section II	Background and current management of river corridors.
Section III	Wild and Scenic River (WSR) evaluation and designation process.
Section IV	Evaluations, eligibility determinations, and potential classifications for 11 river and stream segments.
Section V	Suitability study responsibilities and protection of the eligible river and stream segments pending legislative action.

USFS Summary for NWSRS Process

Forest Service Manual (FSM) 1924, through Forest Service Handbook (FSH) 1909.12 (Section 8.14), directs that "forest planning address all rivers designated by Congress for study, in the Nationwide River Inventory, or identified as potential Wild and Scenic Rivers by a National Forest, wholly or partially on National Forest System (NFS) land". The planning team should evaluate each river to verify that it satisfies the eligibility criteria presented in Sections 1(b) and 2(b) of the Act. The planning team is to document the finding of eligibility, or no eligibility, and the river's potential classification in the Forest Plan.

As described in FSH 1909.12 - Section 8, Wild and Scenic River evaluation is a three-stage process. The first stage is an assessment of eligibility. This consists of determining whether the river is free-flowing and whether the river possesses natural or cultural features that are judged to be outstandingly remarkable. The second stage is to determine the potential classification of the river; that is, whether it is wild, scenic, recreational, or a combination of the three. The third stage is to determine the suitability of the river as a component of the NWSRS.

A local determination that a river is eligible does not necessarily mean that it will be judged suitable when, in the final stages, it is evaluated from a national perspective. Eligibility evaluations are an initial step in a process that ultimately requires action by Congress to include a river in the NWSRS.

The Forest Service completed the eligibility and classification evaluations contained in this appendix. Suitability evaluations for each of the eligible rivers are to be performed by a combination of State and Federal agencies. Following the suitability evaluations, the State can recommend rivers or streams to Congress for inclusion in the NWSRS. The evaluations presented here are in accordance with the National Wild and Scenic Rivers Act of 1968 (the Act); in response to the Nationwide Rivers Inventory (National Park Service, 1982); and the concerns of the American Rivers Conservation Council.

Table 1 lists the rivers and streams that were studied in detail for NWSRS eligibility.

Background and Current Management of River Segments

Nationwide Rivers Inventory

The Nationwide Rivers Inventory (NRI) (National Park Service 1982) identified two sections of the Neches River for potential designation as Wild and Scenic Rivers. This initial survey was performed in conjunction with local university personnel (Knotts 1978). The first river segment is 180 miles long and stretches from the north end of B.A.

Steinhagen Lake upstream to Lake Palestine. The NRI survey identified outstandingly remarkable recreational, fish, and wildlife values. This river segment forms parts of the boundaries of the Davy Crockett and Angelina National Forests (AMS 1992). The upper part of the segment contains the Big Slough Wilderness. Big Slough is in a U.S. Forest Service (USFS) loop canoe trail. The NRI stated that the segment is an important recreation area and a high-quality recreational waterway, that public boat ramps, USFS campgrounds and numerous sand bars are available for recreational use, and that swimming conditions at sandy beaches are ideal.

Neches River Identified in NRI Process

The NRI inventoried and evaluated all rivers and river segments at least 25 miles long within the lower 48 States (except those already designated as WSR or those under formal study for inclusion in the NWSRS). Rivers and river segments less than 25 miles in length but known to have exceptional potential for recreational use were included. Eligibility was determined on the basis of:

1. the degree to which the river is free-flowing,
2. the degree to which the river and corridor are undeveloped, and
3. the outstanding natural and cultural characteristics of the river and its immediate environment.

Segments that do not meet these eligibility criteria were eliminated from consideration as potential WSR (National Park Service 1982). The Neches River meets the eligibility requirements and was included on the list of significant free-flowing rivers that resulted from the inventory. This listing contains the following narrative description of the Neches:

> "This segment provides habitat for the red-cockaded woodpecker and american alligator, and wintering grounds for the bald eagle, federally listed endangered species *** This segment has good water quality, and heavy rainfall and numerous tributaries provide sufficient water for recreation use *** The river receives significant recreation use by canoeists and fishermen. The upper reaches contain the Big Slough area, which is designated a loop canoe trail by the Forest Service *** It is an area of a wide variety of vegetative types, and is highly scenic. Below Big Slough, the river is very remote and extremely scenic with forests of cypress, oak, sweetgum, and pine. It is an important recreation area, and a quality recreation waterway."

The NRI found that this segment of the Neches has "outstandingly remarkable" scenic, recreational, fish and wildlife values.

Description of the Neches River

The following description of this segment of the Neches River is taken from *Texas Waterways* (Texas Parks and Wildlife Department 1971). With very minor exceptions, this description is still valid today. That report also gives distances between major tributaries, between road crossings, and between access points. A Report on the Physical Characteristics of Rivers, Streams, and Bayous of Texas (Texas Parks and Wildlife Department 1971) gives more detailed information about individual pieces of this segment and about recreational opportunities.

Physical Location - Anderson, Cherokee, Houston, Angelina, Trinity, Polk, Tyler, and Jasper Counties in east Texas.

Length - 178 miles.

Width - Approximately 75 to 150 feet.

Water Quality - The water quality is good, but the river has the characteristic murkiness of east Texas rivers flowing over sand.

Water Flow - The section immediately below Palestine Dam flows only when water is released from the dam. However, heavy rainfall in this area and numerous creeks that feed the river quickly replenish the water supply. There is always sufficient water on the section below State Highway 21 for float trips.

General Land Use - Timber production, dairying, and farming.

Frequency of Road Crossings - There are 14 road crossings, of which 9 are State and U.S. highways and 5 are county roads or farm roads. Most sections of river between road crossings are long enough to provide meaningful outdoor recreation experiences. Road crossings become fewer and farther between on the lower portion of this river segment.

Extent of Development - There is virtually no development on this section because much of the adjacent land is managed by the USFS or owned by one of several large lumber companies. People on the river can see timber management activity in some places, but high steep banks would block such views in most places..

Existing Reservoirs - Lake Palestine is immediately upstream. However, abundant rainfall throughout the year and many creeks that feed the Neches insure that this section will always have an adequate flow of water. B.A. Steinhagen Reservoir is located immediately below this section.

Type of Terrain and Vegetation Character - Gently rolling hills covered with pine and hardwood forests. The trees in the upper part of the segment, where the Neches is fairly narrow, often form a canopy that shades the river. In the lower portion, the river becomes wide, but heavy vegetation and lack of development promote a feeling of isolation.

Unique Features - A 67-mile section from just upstream of State Highway 21 in Houston County to the Trinity County-Polk County line flows along the east side of the Davy Crockett National Forest. The Big Slough designated wilderness, which is contained entirely within the National Forest, is an interesting feature. The Big Slough and Neches River form a loop that the U.S. Forest Service manages as a canoe trail. A 48-mile section of the segment flows beside the Angelina National Forest; a portion of which is the southern boundary of the Upland Island Wilderness. This section of river is just above Highway 69 in Jasper County. One small waterfall is located just above the backwaters of B.A. Steinhagen Reservoir.

Location in Relation to Major Population Centers - The closest metropolitan areas are Lufkin (20 miles away), Tyler (50 miles away), Houston (100 miles away), Ft. Worth and Dallas (150 miles away), and Waco (125 miles away).

General Comments - The Neches River is one of the most scenic waterways in east Texas. It normally has sufficient water for recreational use for most of its length, and its lower section is essentially free-flowing despite the reservoir upstream. The area receives significant recreational use by canoeists and fishermen. The presence of Davy Crockett and Angelina National Forests adjacent to the river and unique features such as Big Slough and a waterfall give this section potential for Scenic River status.

In 1984, Big Slough on the Davy Crockett National Forest and Upland Island on the Angelina National Forest were designated as wilderness. The Neches forms part of the boundary of each of these. In addition, Longleaf Ridge on the Angelina National Forest and Alabama Creek on the Davy Crockett National Forest have been proposed for wilderness status. The Neches also forms part of the boundary of each of these areas. Texas Parks and Wildlife Department (TPWD) has recommended establishment of a Bouton Lake-Neches River Bottoms Special Interest Area along one portion of the river in the Angelina National Forest. The purpose of this proposal is to protect the plant community found there (Orzell 1991). The Texas Committee on Natural Resources has proposed that this same area be established as a research natural area called the Neches River Banks. Monitoring and evaluation under the current Forest Plan indicate that management activities have had little

impact on the quality of the river. Designation of Big Slough as wilderness has affected the Forest Service's ability to maintain a passable canoe trail in Big Slough (AMS 1992).

Studies Identifying Potential Wild and Scenic Rivers

American Rivers

In 1989, American Rivers (Washington, DC) conducted a survey of protected rivers on National Forests to determine how many protected rivers have rare or highly significant biological values (Huntington and Echevereia 1991). State heritage programs were contacted for information about rare species. It was found that rare plants and animals on the portion of the Neches River adjacent to the Davy Crockett National Forest include the hairy-jointed meadow-parsnip, which is listed as critically imperiled in Texas (five or fewer occurrences), and the red-cockaded woodpecker which the U.S. Fish and Wildlife Service has listed endangered. Rare plants and animals on the portion of the Neches adjacent to the Angelina National Forest include the red-cockaded woodpecker, the swamp chestnut oak-willow oak series (rare or uncommon globally and rare or uncommon in Texas), the baldcypress-water tupelo series (rare or uncommon in Texas), and the slender gay-feather (imperiled in the State and rare or uncommon in the State, and the U.S. Fish and Wildlife Service reports that further study will be necessary to determine whether the species should be listed as threatened or endangered).

American Rivers (1991) prepared an Outstanding Rivers List for Texas. The list included the Angelina River, the Neches River, and the Sabine. Two segments of the Angelina River were listed because they had been considered for inclusion in a proposed State rivers system. The section of the Angelina River from Sam Rayburn Dam to B.A. Steinhagen Reservoir contains a small amount of Angelina National Forest land along McGee Bend (AMS 1992). Two segments of the Neches were listed because they had been listed in the Nationwide Rivers Inventory and because they had been proposed for special State designation. The segment from B.A. Steinhagen upstream to Lake Palestine includes small acres of Davy Crockett National Forest land at Big Slough Wilderness, Alabama Creek Wildlife Management Area, Upland Island Wilderness, and a proposed Neches River Banks Research Natural Area (EIS Appendix G).

Texas Natural Heritage Program

The Texas Natural Heritage Program (TNHP) Inventory (Orzell 1991) included the site of Bouton Lake-Neches River Bottoms, which was classified as a loblolly pine-oak series. The TNHP report recommended that this be managed as a special interest area and considered for inclusion in the NWSRS. The same study recommended that McGee Bend (on the

Angelina River south of Sam Rayburn Dam) be designated as a special interest area because it contains sensitive plants and communities.

Texas Parks and Wildlife Department

The Texas Parks and Wildlife Department (1973) proposed three river segments on or near National Forests as specially designated waterways. The river segements proposed were (1) the Angelina River from Douglass to Sam Rayburn Reservoir (66 miles) and from the Sam Rayburn Dam to B.A. Steinhagen Reservoir (24 miles), (2) the Neches River from Lake Palestine to B.A. Steinhagen Reservoir (178 miles), and (3) the Sabine River from Lake Tawakoni Dam to Joaquin (205 miles) and from Toledo Bend Dam to Orange (140 miles). Recreational and related values along these rivers were expected to become more important in the future (TPWD 1991).

Status of a Statewide Rivers Assessment by the State

The Texas Parks and Wildlife Department (TPWD) was contacted (B. Spain, personal communication, July 17, 1991) for information about the State's assessment of rivers. House Bill 1990 (Senate Bill 1205), which would have initiated establishment of a protected river system for Texas, did not pass. The bill included initial recommendations for protected rivers and would have called for a statewide assessment of rivers by TPWD. The assessment would have identified recreational, industrial, environmental, and other benefits to the public. TPWD is not actively studying rivers identified by the Nationwide Rivers Inventory and is not actively identifying rivers for potential Wild and Scenic River status.

The bill, which called for a Texas Protected River System, clearly stated that no rivers would be identified specifically for National Wild and Scenic River status. Some private landowners and industry oppose Wild and Scenic River designation. Industry has been very concerned about protection that could limit future industrial use of Texas rivers. Also, private landowners have become very concerned about State or Federal Government controls over their "rights" along rivers and streams. The State cannot identify or study rivers for federal designation without the participation of the National Park Service and other agencies. Because there is intense opposition to Federal or State designation of rivers, the statewide rivers study is a low priority.

TPWD has stated that they will serve as the lead agency in a comprehensive rivers assessment for Texas. Although the rivers assessment is not a high priority at this time, the TPWD will continue to study rivers and to study endangered species in rivers (and elsewhere) as the budget allows.

Current Situation and Management

Following implementation of the 1987 Forest Land and Resource Management Plan, National Forest System (NFS) land within one-fourth mile of the Neches River were managed to protect the special qualities of the river, especially against effects of timber harvest activities. The 1987 Forest Plan was unclear about the appropriateness of other activities, and it did not state whether the Neches River or any other river or stream segment would be protected as a wild, scenic, or recreational river. However, protection was provided to ensure wild status.

The Neches River corridor is now being managed as a Special Interest Area under the current Forest Plan; no timber cutting is allowed on NFS land within the protected one-quarter mile corridor along the Neches.

The 1987 Forest Plan stated that, *"The potential exists for designation of the Neches River as a segment of the National Wild and Scenic River System of Waterways. A few tracts of U.S. land within the Angelina and Davy Crockett National Forest lie adjacent to or near the river and often provide camping and access points for river users. A formal decision on any future designation for the Neches River hinges on initiation and completion of a study of the river by the State. In order to provide interim protection of public lands potentially important in such a designation, protected status is assigned to all National Forest lands within one-quarter of a mile of the Neches River. This status will continue until a study is completed, and a formal recommendation made by the State of Texas. At that time, the protected status of the affected tracts will be changed to be consistent with study recommendations. If a study is not completed prior to the next planning period, the protected status of the properties will be reconsidered."*

The Neches River Corridor is a 1,165-acre "protective area" in the Angelina and Trinity Ranger Districts, and is one of six special management areas designated in the current Forest Plan. That Plan states that, *"While under protected status, the lands are not available for timber management. Impacting activities necessary to protect U.S. land, and those in support of valid, existing rights may continue. Activities with no impact may continue without new limitations while in protected status. *** For the convenience of river users, the Forest Service will sign U.S. property on the river. Mineral management in the corridor will be the same as in designated scenic areas."* Signing of potential wild, scenic, or recreational rivers is not directed in the FSM. Signing of designated wild, scenic, or recreational rivers is addressed in FSM 2354.42.

The 1987 Forest Plan did not consider any stream or river other than the Neches River for NWSRS designation because only the Neches was both identified on the Nationwide Rivers Inventory and adjacent to USFS land. Congress did not mandate study of any other rivers. Rivers

identified as potential candidates by the State, such as the Angelina, could have been examined; however, this decision would be at the discretion of the Forest Supervisor (NWSRS).

The Forest Plan did not determine the eligibility of the Neches for a special designation and did not determine whether the river might be classified as wild, scenic, recreational, or a combination of the three classifications. The Plan did protect the Neches River Corridor (no timber harvesting is permitted), and the NFS is now managing the one-quarter mile corridor as a special interest area (Management Area 14 in the current Forest Plan). No other rivers were identified as potential candidates for WSR status.

Current Standards and Guidelines for Management of the Neches River Corridor

The Forest Plan refers to management requirements for achieving goals and objectives as standards and guidelines. Forest-wide standards and guidelines apply to all management areas, while some standards and guidelines apply only to individual management areas and are referred to as "management area standards and guidelines." Of the six special management areas, the Neches River Corridor is the only protected river area; all other special management areas are designated scenic areas. Management standards and guidelines for special management areas are listed on page IV-86 of the 1987 Forest Plan. Those that apply to protected areas are listed below:

* Prepare area brochures.

* Eliminate grazing except in the Neches River Corridor.

* Boundaries will be marked in accordance with FSM 2321.23.

* Camping within areas is prohibited, except in the Neches River Corridor.

* Warm-water fishing is allowed.

* Prohibit the collection, removal, or other destruction of native plant species growing within the area.

* See Management Area 5 [General Forest Management Area] for cultural resource standards and guidelines.

* Make appropriate suppression response to all fires at all fire intensity levels, except where study shows a dependency upon fire for plant species survival.

* Evidence of overland vehicle travel for fire suppression and damages resulting will be obliterated or repaired in a manner that allows rapid recovery. Cost will be charged to the fire.

* Modifications of control for insect and disease activities, similar to those used to protect wilderness resources, will also be used for special interest areas.

* Prohibit off-road vehicle (ORV) use.

* Exclude all roads from the area except those supporting a valid existing right.

* Prohibit vegetative management or other practices not required to meet scenic area objectives.

* Harvest only the timber that might occur as the result of natural disaster (insect, fire, windstorm).

* Foot trails may be constructed if they enhance use or protect the natural setting.

* Manage visual quality objective as retention.

* Manage for semi-primitive non-motorized.

* There will be no disposal of special area lands.

* Where 100 percent of the minerals are owned by the U.S., new leases of U.S. mineral rights will be issued, but use of motorized equipment in the area will be prohibited.

* Where less than 100 percent of the minerals are owned by the U.S, appropriate protective measures will be required in the event of proposals to explore and/or develop the minerals.

* Lease action and operating plans will continue appropriate surface protection stipulations.

* New special use authorizations will be limited to support of valid existing rights (access to private property) or may be issued if the proposal is minimally and no reasonable alternative exists.

* Where possible, and with the concurrence of the permittee, existing land-use authorizations will be terminated.

* See Management Area 5 for additional standards and guidelines covering minerals and geology, land uses, landlines, claims, and encroachments.

* Management direction for these areas will be reviewed at least every 5 years.

* Inventory, map, and manage all bogs, seeps, and springs located on the Forests and Grasslands.

Successes and Difficulties in Current Management

The **Neches Ranger District** includes the following tracts of USFS land along the western bank of the Neches River: (1) an approximately two-mile-long corridor along Neches Bluff (Compartment 20); (2) eight miles along Big Slough Wilderness (Compartment 21); and (3) about 1 mile of river corridor along Compartment 26.

The eastern bank of the Neches is owned privately. Parts of the western bank of the Neches are owned privately.

The Big Slough Wilderness includes the Big Slough Canoe Trail, an 8-mile loop. The Neches is popular for canoeing, but access is easy only at the Neches Bluff area. Access at Big Slough Wilderness requires carrying a canoe about one-quarter mile. The wilderness status of Big Slough, which prevents mechanical removal of logs and debris from the canoe trail, reduced recreational opportunities. To alleviate this problem, the District is considering the construction of a small ramp for boats and relocation of the Big Slough canoe route.

The Neches District reported no other difficulties in implementing the special interest area prescription which requires the establishment of a protective corridor one-quarter of a mile in width. The corridor is managed to protect these segments as potential wild, scenic, or recreational areas. The District has identified opportunities for waterfowl habitat enhancement along the Neches; however, the compatibility of this with current management direction has not yet been fully assessed. The small section of protective corridor along Compartment 26 is used by fishermen.

The current Forest Plan states that the Forest Service will sign U.S. property on the river. The protective one-quarter mile corridor is marked (white paint on trees), but no signs are present. The river user would not see the boundary paint from the river.

The **Trinity Ranger District** includes land along 7 miles of the west bank of the Neches River. The Trinity District has received approval from the Forest Supervisor to go ahead with planning and environmental analysis for a green tree reservoir" project. This project involves installing water control devices to trap runoff flowing into the Neches River in order to enhance habitat for waterfowl and provide an overwintering area for migratory birds. Funds have been requested for water

structures to be placed in some culverts and for other control structures, but most of these would be located outside the one-quarter mile protective corridor and would not be visible from the river. (In some places, convenience required that the corridor be more than one-quarter of a mile in width.)

Some of the long-term proposals for the green tree reservoir include a parking lot, hiking trail, observation foot bridge, developments for the handicapped, and other projects of the "Eyes on Wildlife" kind. No difficulties are foreseen in implementing the project within the one-quarter mile protective corridor because the project is not seen as detrimental to the wild or scenic values of the river. The Forest Service is considering the possibility that it might be able to manage the timber within this corridor to benefit recreation and wildlife.

Canoeist do not use the Trinity District section of the Neches extensively, but hunters use the protective corridor. The primary access points are via route 510A and 510B. Route 510A leads to Holly Bluff Campground. There are two tracts of private land (AMS 1992) inside the Alabama Creek Wildlife Management Area. The northernmost of these is within one-quarter mile of the river. There is a rehabilitation camp for wayward boys in this tract and boys who attend the camp often use the forest.

The one-quarter mile protective corridor is marked (trees are marked with white paint), and the U.S. property is marked where it meets the Neches River. The white paint that marks the protective corridor can be seen from each one that provides access to the protective corridor, but the meaning of this marking may not be clear to the typical river user.

The **Angelina Ranger District** includes three USFS tracts of land along the Neches River: (1) a 3-mile segment that forms the southern boundary of the Upland Island Wilderness; (2) a small segment south of Bouton Lake; and (3) a segment south of the Sawmill Hiking Trail (the second and third of these tracts are within Compartment 89).

The special interest area prescription, which requires a one-quarter mile protected corridor is not found to be impractical or difficult to implement. The prescription permits the removal of timber in the event of southern pine beetle (SPB) outbreaks. If the protective corridor did not exist, some timber sales and precommercial thinnings would have been proposed. In one instance, a 1,200-meter prescription for red-cockaded woodpecker (RCW) fell within the one-quarter mile corridor, but managing for the RCW and the protective corridor presented no difficulties.

The southern bank of the Neches is owned privately. There are some housing developments along the south side of the Neches, in the vicinity of Highway 69, and these include houses built along the river.

The river is most popular as a fishing area, and there is some canoe use. There is no direct, developed access to the Neches on Forest Service land, but there are unimproved trails. When the Neches is high, it is possible to put a canoe in at Bouton Lake, but trees would interfere with canoeing. The most direct access is at Highway 69, which cuts across the southwest corner of Upland Island Wilderness.

Signs along Highway 69 identify the Neches River. There are Forest Service signs along the boundary with Upland Island Wilderness, which borders the Neches to the north. The one-quarter mile protective boundary is not marked completely (trees are marked with paint), but the corridor is measured and marked when a timber sale occurs adjacent to the protective corridor. No markings are present along the river for the convenience of the river user.

Wild or Scenic River protection is an issue within the Forest Plan Revision. The issue was first raised in an appeal of the 1987 Forest Plan by the Texas Attorney General's Office. The Attorney General's appeal addressed the status of the entire area visible from the Neches River. Two additional Wild and Scenic River candidates, the Angelina and Sabine Rivers, were brought up during the October-November 1990 scoping period for the Revision of the Plan. It was determined that the eligibility of potential river candidates would be evaluated. This evaluation includes all perennial rivers and streams in addition to the Neches, Angelina, and Sabine Rivers.

The Evaluation and Designation Process

The Act

The eligibility evaluation process is described in the FSH (which generally follows direction from the Act) as follows:

> The Wild and Scenic Rivers Act of 1968 (P.L. 90-542, 81 Stat. 906, as amended: 16 U.S.C. 1271 (Note), 1271-1287, and all subsequent amendments thereof) establishes the National Wild and Scenic Rivers System, designates the rivers included in the System, establishes policy for managing designated rivers, and prescribes a process for designating additions to the system. The Act states "certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values (including ecological values), shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations. "

Potential Wild and Scenic Rivers and Private Land

The FSM (1924.03) states USFS policy regarding evaluation of potential Wild and Scenic Rivers. River studies should be completed as expeditiously as possible, while priority should be given to studying those rivers most threatened by adverse developments and use and those bordered by the greatest proportion of private land. River studies should be conducted in close cooperation with affected Federal and State agencies. Each study is to include a determination of possible State participation in the preservation and administration of the river, if the river is added to the System.

Where an identified river touches only a small part of a National Forest, the lead responsibility for studying the river should rest either with another Federal agency or with the State, whichever has jurisdiction over the larger proportion of the land involved. In this case, use the following approach (FSH 1909.12, section 8.14):

1. The USFS should contact the other Federal agency to determine if or when it plans to study the river as part of its land management planning process. The USFS may invite the agency or State to participate in a joint study for the river.

2. The USFS and other Federal or State agencies should prepare a joint river study report, either as part of the Forest Plan/Environmental Impact Statement (EIS) or as a separate study report.

3. If the responsible agency or State declines to study the river, or if its study schedule does not coincide with forest planning, develop prescriptions in the Forest Plan that provide protection for the river and adjacent lands of the river segment(s) on NFS lands.

4. Where the river segment that extends into the National Forest would make a viable addition to the NWSR System without the remainder of the river, the USFS should proceed to assess the segment's suitability on its own merits.

The Chief's summary of USFS policy regarding private lands within Wild and Scenic River study corridors provides further information (Reply to 1920/2350, July 5, 1991):

> While we are not opposed to including private lands in the river corridors that we recommend for designation, it is important to recognize the role of the States in protecting river values under the NWSRS. Most States have their own river protection legislation and active programs to manage river related activities. Along with the counties and incorporated communities, the States also have land use controls and regulatory powers which the Federal Government does not have. Under Section 2(a)(ii) of the Wild and Scenic Rivers Act,

the States can recommend rivers for inclusion in the NWSRS, and then, if approved by the Secretary of the Interior, have the primary responsibility for management and protection of those rivers.

With this in mind, we urge you to continue working closely and cooperatively with the States toward completing river studies both within and outside of the National Forest boundaries. Where the river corridors are composed primarily of private or State lands, the States should be urged to take a major role in conducting the studies and in future management of the river corridors. The States should also take the initiative to recommend these river segments for inclusion in the NWSRS.

The FSH describes the process for identifying and evaluating potential additions to the NWSRS on NFS lands. The FSH also describes the three-step process of river assessment, which includes determination of eligibility, determination of potential classification, and determination of suitability. Eligibility and potential classification (wild, scenic, recreational, or a combination) must be determined in the Forest Plan. Suitability studies, which involve extensive public involvement and necessitate coordination with landowners, the State, and other agencies can be addressed at a later date.

Rivers are identified for study (for potential inclusion in the System) by several means including: (1) Federal statute that directs Federal agencies to study rivers; (2) identification for study by the Secretary of Agriculture or the Secretary of the Interior; (3) the Nationwide Rivers Inventory (NRI) developed by the National Park Service, U.S. Department of the Interior (1982); and (4) the land management planning process. Consideration should also be given to rivers identified in State river assessments, by other Federal or State agencies, or by private interests (FSH 1909.12, section 8.1).

Assessments for Potential Inclusion in the NWSRS

A river study assesses the eligibility of a river for designation as a unit of the NWSRS and evaluates the potential physical, biological, economic, and social effects of adding the river to the National System. The required contents of the study report are outlined in FSH 1909.12, section 8.33.

The assessment of a river's potential as a WSR should follow a three-step process:

1. **Determination of eligibility.**
2. **Determination of potential classification (wild, scenic, or recreational).**
3. **Determination of suitability.**

The FSH provides the following direction for consideration of potential Wild and Scenic Rivers in the land management planning process (FSH 1909.12, section 8.14):

> Forest planning must address all rivers designated by Congress for study, in the NRI, or identified as a potential WSR by a National Forest, wholly or partially on NFS lands. The planning team should evaluate each river to verify that it meets the eligibility criteria specified in section 1(b) and 2(b) of the Act. Document the finding of eligibility or no eligibility, and the river's potential classification in the Forest Plan (wild, scenic, recreational, or a combination thereof). Beyond this point, there is some latitude in treatment of eligible rivers. The preferred process is to proceed with determining suitability by completing a river study in the Draft Forest Plan. An alternative is to delay the suitability determination on eligible rivers until a subsequent separate study is carried out. If this latter alternative is used the Forest Plan must provide for protection of the river area until a decision is made as to the future use of the river and adjacent lands. Unless the study process would be unduly delayed, subsequent study of eligible rivers may be coordinated with a general Revision of the Forest Plan.

Determination of Eligibility

The determination of eligibility for WSR designation is part of the forest planning process. That process includes specialists' evaluation of identified rivers, consideration of public comments, and a determination of eligibility by the deciding officer. The eligibility study conducted in the Forest Plan is only an inventory of eligible rivers or river segments. If a river is found eligible, its outstanding values must be protected until it is found unsuitable. While coordination and involvement with other agencies is desirable, it is not required for determination of eligibility, as it is in the suitability phase.

The eligibility of a river for the National system is determined by applying the criteria in sections 1(b) and 2(b) of the WSR Act and the supplemental criteria in the United States Department of Agriculture (USDA)-United States Department of the Interior (USDI) Guidelines. Eligibility is based primarily on the study team's professional judgment as to whether the river has outstandingly remarkable values. Therefore, the basis for the judgment should be documented in the Forest Plan and EIS. Each river that is both listed in the Nationwide Rivers Inventory and adjacent to Forest Service land must be determined to be eligible or ineligible in the Forest Plan. Eligibility studies for any other rivers designated in State or private studies are at the discretion of the Forest Supervisor. Determination of eligibility is only appropriate for rivers adjacent to National Forest land.

To be eligible, a river must be free-flowing and, with its adjacent land area, must possess one or more outstandingly remarkable values. To facilitate the determination of eligibility and the possible later determination of river classification, the study team should first divide the river into segments. In defining segment limits, consider such factors as obvious changes in land status or ownership, changes in river character (such as the presence of dams and reservoirs), significant changes in development, or the presence of important resource values (FSH 1909.12, section 8.21 and 8.21a).

The WSR Act defines "free-flowing" as existing or flowing in a natural condition without impoundment, diversion, straightening, rip-rapping, or other modification of the waterway. The existence of low dams, diversion works, or other minor structures at the time any river is proposed for inclusion in the WSR system does not automatically disqualify it for designation, but future construction of such structures is not allowed. The fact that a river segment may flow between large impoundments will not necessarily preclude its designation. Such segments may qualify if conditions within the segment meet the eligibility criteria.

The determination that a river area has outstandingly remarkable values is a professional judgment on the part of the study team. Only one such value is needed for eligibility.

Section 8.32 of FSH 1909.12 provides direction on how to conclude and document studies where the study river is found to be ineligible for inclusion in the system. River studies not mandated by Congress may be discontinued upon a finding of ineligibility in the forest planning process or in a subsequent Wild and Scenic River study. In forest planning, the eligibility assessment documentation will normally be in an appendix to the Plan or the EIS. In other cases, it should be documented in the planning records and an appropriate notification should be sent to interested parties.

Potential Classification

The potential classification of a river is based on the condition of the river and the adjacent land at the time of the study. Eligible river segments are classified as one of the following according to the extent of evidence of human activity:

1. **Wild rivers**–Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted.

2. **Scenic rivers**–Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

3. **Recreational rivers**–Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past. (16 U.S.C. Sec. 1273(b))

The classification is important because it will affect the prescription for the management area that includes the river. For example, the prescription for the protection of a potential wild river will be more stringent than that protection for a recreational river. A prescription that provides for uses that would change the classification of a potential wild river" or scenic river, must be supported by an analysis of the alternatives.

FSH 1909.12, section 8.2 describes developments and activities that are permitted, restricted, or prohibited within the designated river corridor for each classification.

Suitability

The final step in the river assessment is determination of suitability. It is advantageous to determine suitability and make the decision in the Forest Plan. If a decision about a river for which the USFS has primary responsibility is deferred, the Forest Plan must establish a special management area requiring future evaluation. In order to provide realistic protection prescriptions, the Forest Plan must establish the probable classification (wild, scenic, recreational, or a combination thereof).

Some factors to consider in determining suitability are: the characteristics which make the area a worthy addition; the current status of land ownership and use in the area; the reasonable foreseeable potential uses of the land and water and how they would be affected if the area were included in the WSR System; the values that could be eliminated or diminished if the area is not protected as part of the System; public,

State, and local governmental interest in designation of the river; estimated cost of acquiring necessary land; and other issues and concerns identified during the planning process.

It is during suitability studies that alternative management scenarios are considered. The suitability study process involves extensive public involvement and provides opportunity for public review. The suitability study includes whatever additional environmental analysis is needed in order to comply fully with the National Environmental Policy Act (NEPA). For rivers mostly in private ownership, it is best to coordinate suitability studies with the State.

NFGT Eligibility Process for Potential NWSRS Candidates

During April and May of 1992, the Forest Interdisciplinary (ID) Team developed a list of river and stream segments that could be considered in the eligibility study for candidate WSR status. The IDT developed a process and timetable for review of these segments according to USFS Handbook guidelines. It had been determined by the NFGT IDT that the National Park Service (NPS) and TPWD would be included in the initial phase of the eligibility assessment. They would also be consulted during and later be involved in the review of the EIS, which would include the eligibility information. Additional points for consideration were:

* 36 CFR 219 - USFS planning regulations pertaining to wild and scenic river eligibility determination.

* Regulations state that primary landowners (USFS included) are responsible for initiating and overseeing the actions taken to determine eligibility of candidate rivers and streams.

* Once eligibility is established, the Forest Land and Resource Management Plan must provide protection and management in order to maintain the status of the segment in question.

The process and timetable were presented to a group of USFS resource specialists, National Park Service (NPS) representatives, and TPWD representatives at a meeting in Lufkin, Texas on June 8, 1992. Forty stream and river segments on the NFGT were to be considered. TPWD officials discussed the State's concerns and legislative situations to consider during the eligibility evaluation and subsequent public review of the EIS. Concerns related to private and State ownership of water (free-flowing and otherwise) were discussed. These concerns had been accentuated by pending management actions on the San Marcos River in central Texas. *The principle conslusion was that NFGT needs to evaluate all rivers adjacent to or within its administrative jurisdiction.* TPWD stated it would soon develop a group within the Resource Protection Branch to evaluate biology of river systems throughout the State. Coordination of this action with the needs of the NFGT Forest Plan Revision process was discussed.

The NPS personnel raised a number of concerns and considerations at this meeting. It was agreed to consider the east Texas and Louisiana area (West Gulf Coastal Plain) as the area of "regional significance." NPS suggested that NFGT review the Louisiana eligibility determination process so that the procedures followed in Texas would be consistent with thise employed in Lousisiana. The Texas and Louisiana properties would have the same or similar regional significance in terms of natural resource values. The NFGT study team assured the NPS representatives that the State and Federal agencies with responsibility for the resources to be evaluated during the eligibility study would be involved in the study, and that adequate coordination would be done. The team assured the NPS representatives that specific concerns would be addressed before and during the EIS review process.

The meeting produced the following recommendations:

* Eligibility of all perennial streams as rivers on or adjacent to the NFGT properties would be evaluated using a matrix devised by the ID Team.

* River of stream segments above or below NFGT properties would not be evaluated as part of the Forest Plan Revision process.

* A list of all river or stream segments identified as eligible would be sent to NPS and TPWD personnel for review.

* All final river or stream data and review material would be disclosed in the EIS for the Forest Plan Revision.

* Those river or stream segments considered eligible would be included within Management Area 7 & 8 of the Revised Forest Land and Resource Management Plan. The Plan for this management area would include appropriate standards and guidelines to protect and maintain these segments in the eligible status.

Table 2 lists the 40 river or stream segments of 26 rivers and streams that were originally considered. Exhibit 1 continues written descriptions that identify the locations of the 40 segments.

In July and August of 1992, USFS resource specialists gathered all known information on resources that were to be considered in the review process. Any significant features on or adjacent to the segments were documented and recorded. Segments that had identifiable significant features were reviewed in more detail by the IDT. Discussion between NFGT and the Kisatchie National Forest in Louisiana was initiated to ensure consistency in the evaluation process. The two Forests agreed that the significance of natural features would be determined on the basis of those features' significance within the physiographic West Gulf Coastal Plain Region (See Plan Appendix A).

During September of 1992, the IDT continued closely evaluating the segments that appeared to have outstandingly significant features at the regional or national level. Data on flow rates, obstructions, reservoir influence, or other effects that might influence the eligibility of these segments for wild and scenic river status were assembled.

In October of 1992, information and a summary letter were drafted and sent to all cooperating agencies and organizations for a broader review. A scoping letter was mailed to cooperators and selected interested or affected individuals and organizations. The letter described the process up to that time. Others were asked to review the information and give the USFS any additional information they believed relevant. It was pointed out that, "These segments are not necessarily our final determination of eligibility; but based upon response(s), the USFS will proceed to make an eligibility determination for final review."

After response and IDT discussion, the number of river or stream segments to be considered further was reduced to eleven. The Forest Service entered into a Challenge Cost Share agreement under which Stephen F. Austin State University (SFASU) was to gather additional information about the eleven river and stream segments during the summer of 1993. It should be noted that SFASU (Knotts 1978) performed the original inventory used in the NRI by the NPS (1982). Involvement by SFASU provided additional expertise and helped prevent bias.

Eligibility Criteria

To be eligible for designation as a Wild and Scenic river, a river must be free-flowing and possess one or more outstandingly remarkable value. The values can be scenic, recreational, geological, botanical, wildlife, historical or cultural.

The rivers can score from 1 to 4 in each category. Scoring is as follows:

4 Outstandingly remarkable with national significance.

3 Outstandingly remarkable with regional significance.

2 Locally significant with values that are common to the region.

1 Locally common in the Forest with values common in the local area and region.

Outstandingly remarkable features must be river-related and have unique, rare, or exemplary aspects that are significant at the national or regional level. All rivers and streams evaluated here are located within or form boundaries of NFGT.

Scoring

Scenic Values

4 A river qualifies for a score of 4 if the area possesses landforms with unusual or outstanding topographic features or if vegetation, water, and color all contribute to create exemplary visual features. A river could also qualify for a score of 4 if the forest cover is continuous or has unusual patterns or a high degree of diversity. The scenic quality of a river can be increased if the forest is broken by some man-made construction that is culturally significant. The river corridor as a whole will qualify if the scenery and visual attractions are highly diverse over the majority of the corridor.

3 For this score, the forest cover must be continuous and the landscape must have features that are outstanding within the region. Some features for consideration are landform, vegetation, water, and color.

2 Landscape qualities that are only locally significant will qualify a river for a score of 2. In addition, landscape features may be diverse butof kinds common throughout the region.

1 A river corridor will qualify for a low score (1) if it possesses scenic values that are common in the Forest and not outstanding.

Recreational Values

4 To qualify for a score of 4, a river must have outstandingly remarkable qualities that are significant enough to attract visitors from outside the geographic region or State. Recreational uses could include, but are not limited to, sightseeing, wildlife observation, photography, hiking, fishing, hunting, water play, and boating.

3 This score is awarded for river-related recreational opportunities that are unique to the region and that will attract visitors from outside the region and within the State. Recreational uses are not limited to those listed above.

2 Recreational opportunities should be locally significant but common throughout the region.

1 This score is awarded where recreational opportunities are locally common in the forest.

Geological Values

4 To score a 4, the river corridor must possess a rare or textbook example or one-of-a-kind geological feature. The river may also qualify if its geological features are exceptionally diverse.

3 The river corridor should possess geographic features that are unusual, significant, or rare in the region.

2 Geographic features may be significant within the forest but throughout the region.

1 For this score, the geomorphic formations on the river should be locally common in the forest and have no significant features.

Wildlife Values

4 Outstandingly remarkable values include wildlife populations that live in the river corridor because of the presence of the stream itself or the vegetation surrounding the steam. A river may also qualify for a score of 4 if the wildlife habitat in the area is nationally significant or extremely diverse. A river will automatically qualify for a 4 if the habitat in and around the

river is home to Federal or State listed threatened, endangered, or sensitive (TES) species.

3 The river must provide quality habitat that is uncommon in the region or is extremely diverse.

2 Locally significant wildlife values indicate high-quality wildlife habitat that is common throughout the region.

1 Wildlife habitat is not significant in any way and is common throughout the forest.

Botanical and Ecological Values

4 Outstandingly remarkable values require that the forest be continuous with no man-made fragmentation. Plant species of national importance or the presence of TES species can qualify a river for a 4. The river also qualifies if the vegetation is diverse and no exotic or weed species are present.

3 The forest along the stream must be continuous and without any man-made fragmentation, and some uncommon or rare plant species should be present. Some exotic or weed species may be present, but controllable.

2 The forest along the river corridor should be mostly continuous with some fragmentation caused by human activity. Plant communities can be locally significant with some uncontrolled invasions by weed species.

1 The forest area may be highly fragmented or disturbed, and artificial plant communities may be present.

Cultural or Historical Values

4 Cultural or historic sites along the river may have unusual characteristics or have exceptional research or interpretive values of national significance. A river can also qualify for a score of 4 if cultural or historical sites in the area are on or meet the criteria for the National Register of Historic Places (NRHP).

3 Sites that are regionally significant and on the NRHP.

2 Sites meet the criteria the for NRHP and are locally significant. The sites may be of kinds that are unique to local area but common throughout region. Areas not yet evaluated for inclusion on the NRHP can receive a score of 2.

1 Sites that are ineligible for NRHP listing and are common in the Forest or State.

Evaluations of the 11 River and Stream Segments

During the summar of 1993, SFASU evaluated eleven river segments in or near National Forests in Texas for potential eligibility for inclusion in the Wild and Scenic Rivers System. Segments were canoed where possible, but low flow conditions made it necessary to monitor several from stream banks and road crossings. Stretches that were floated were Neches River Segments 1, 2, 3, and 4 and McGee Bend on the Angelina River. Segments that were observed from the bank and road crossings were Cochino Bayou, Attoyac River, Ayish Bayou, Winters Bayou, Henry Lake Branch, and Tarkington Bayou. The evaluations were coordinated with NFGT and District personnel. Neches River segments 1 and 2 were floated with Steve Best (Neches Ranger District Biologist). Teri Jenkins (San Jacinto Ranger District Recreation Planner) inspected Winters Bayou, Henry Lake, and Tarkington Bayou with personnel from SFASU. Coordination regarding the Angelina Ranger District segments was completed through Catherine Albers.

The determination that a river segment passes an eligibility evaluation such as this does not necessarily mean that the segment will meet suitability standards and be added to the Wild and Scenic Rivers System. Table 3 summarizes the eligibility value ratings for each river or stream segment evaluated in the SFASU study.

Angelina National Forest

Attoyac - 6.5 miles. Proclamation boundary to Lagroulle Creek.

The segment of the Attoyac under consideration forms the boundary between Nacogdoches County and San Augustine County. Approximately 6.5 miles of the Attoyac is on National Forest lands. The only access to the Attoyac is at the point where State Highway (SH) 103 meets Sam Rayburn Reservoir.

Values of this segment of the Attoyac are scored as follows:

Scenic Value: 2

The Attoyac is moderately scenic within the USFS lands where there is little to no development. However, the remainder of the bayou is bordered by private lands on which intensive timber management practices may be employed.

Recreational Value: 3

The Attoyac presents many recreational possibilities. Local people use it for hunting, fishing, and boating activities. The Attoyac is navigable by canoe even during the dry summer months. During wet periods, especially in the winter, it floods to the extent that the original channel is difficult to find. This backwater effect resulting from high-water conditions on Sam Rayburn Reservoir is largely unpredictable.

Geological Values: 1

No outstanding or remarkable geological features are present.

Wildlife Values: 2

In places, the Attoyac runs through bottomland hardwoods that provide excellent habitat for deer, duck, and squirrel.

Botanical and Ecological Values: 2

The Attoyac flows almost entirely through floodplain and is surrounded by typical bottomland vegetation dominated by oaks, sweetgum, and other common trees.

Cultural or Historical Values: 3

A regionally significant site containing Paleo-Indian materials has been discovered in Compartment 103 of the Angelina National Forest and has been listed on the NRHP.

Eligibility Determination:

The Attoyac River is eligible for designation under the NWSRS Act. It is free-flowing and has outstandingly remarkable recreational value.

Classification Determination:

Because it satisfies the criteria specified in FSH 1909, Chapter 8, this segment of the river qualifies for inclusion in the System as a *Recreational River*.

Ayish Bayou - 9.5 miles. Proclamation boundary to Sandy Creek.

The Ayish Bayou is located in San Augustine County and forms part of the eastern boundary of the Angelina National Forest. NFS land borders the bayou for a total of approximately 3.5 miles. Access

points are at SH 103 and Farm-to-Market (FM) 83, where the Ayish Bayou becomes the Sam Rayburn Reservoir.

Values of this segment of Ayish Bayou are scored as follows:

Scenic Value: 2

Ayish Bayou presents moderately diverse scenery of a kind common in the region. Man-made features (including clearcuts, power lines, and fences) are visible from the bayou and reduce scenic values.

Recreational Value: 2

Although the bayou holds water and flows in the summer months, it grows too shallow at FM 103 for any type of boating activity. Current recreational uses include hunting and fishing.

Geological Values: 1

The geology of Ayish Bayou is locally common in the forest.

Wildlife Values: 1

The immediate environment supports only wildlife that are locally common.

Botanical and Ecological Values: 1

Vegetation along the bayou is of the common wood southern bottomland hardwood type. Some exotics are present.

Cultural or Historical Values: 1

There are no known areas of historic, prehistoric, or culturally significance along the Ayish Bayou.

Eligibility Determination:

Ayish Bayou is ineligible for designation under the NWSRS Act because it does not exhibit any outstandingly remarkable scenic, recreational, geological, wildlife, botanical, ecological, cultural, or historical values. For this reason, Ayish Bayou will not be studied further for designation under the NWSRS Act.

Angelina River (McGee Bend) - 4.5 miles. Below Sam Rayburn Dam along original channel to diversion channel.

McGee bend is essentially a long backwater slough that drains the area below Sam Rayburn Dam. McGee Bend has a very slight current even when the dam is releasing water. The only access point is to the east of the outflow just below the dam, and it is very difficult.

Values of McGee Bend are scored as follows:

Scenic Value: 2

The scenery of McGee Bend is of a kind common in the region. McGee Bend is moderately polluted, and the pollution detracts from its scenic quality.

Recreational Value: 1

The bend provides excellent fishing, but there are no boat ramps on the bend itself. Canoeists and other boaters can only travel up the slough and return by the same route.

Geologic Values: 1

Few geological formations that are unusual in the region are present.

Wildlife Values: 1

The wildlife species are locally common.

Botanical and Ecological Values: 2

This area has been considered for possible designation as a Research Natural Area because of its botanical features. The TNHP identified the sensitive species slender wake-robin (*Trillium gracile*) in the area. They recommended that the area be managed as a Special Interest Area and that future management should emphasis retention of the area's relative isolation and should allow the trees to mature and become an old-growth, closed-canopy forest.

The SFASU reviewer found that there is some diversity in the largely undisturbed vegetation along the bend. Small grassy islands appear and the bend gradually becomes marshy towards its northern end, where the water is shallower.

Cultural or Historical Values: 1

No historic, prehistoric, or culturally significant sites along McGee Bend are listed on the NRHP.

Eligibility Determination:

The Angelina River (McGee Bend) segment is ineligible for designation under the NWSRS Act because it is not free-flowing and does not exhibit any outstandingly remarkable scenic, recreational, geological, wildlife, botanical, ecological, cultural, of historical values. For this reason, McGee Bend will not be studied further for designation under the NWSRS Act.

Neches River (Segment 3) - 44 miles. U.S. Highway 59 to U.S. Highway 69.

This segment of the river borders Polk, Angelina, Tyler, and Jasper Counties. It has no road crossings and is very isolated. It is from 75 to 150 feet wide and flows through through southern floodplain forest. Although enough water for recreational activities is available during all seasons some log jams and rocky shoal are present. Because this section is isolated and has sand bars that are suitable for overnight camping when water levels are low it is well fitted for recreational use. The most visible works of man include several pipeline crossings, two old railroad grades, and a primitive road that approaches the south side of the river in Tyler County. Much of this stretch of the river is surrounded by broad, flat floodplain that is frequently inundated during winter and spring. Of the segments of the Neches being considered for WSR designation, this is the longest without a developed road crossing.

Four-tenths of a mile of land on the north bank, just west of State Highway 69, is USFS managed. The remainder of the segment is privately owned. Much of the land along this segment of the river is owned by large timber companies. Logging activity is visible along some stretches of the river where companies are harvesting mature hardwood timber. Noise of logging activity was audible along much of the route during the driest part of the summer.

The average flow for the entire Neches River is 2,000 cubic feet per second. Although the water is very turbid, its quality is better than average. The water is of acceptable quality for direct human contact (as in water sports).

Values of Neches River (Segment 3) are scored as follows:

Scenic Value: 2

This river segment is above average in visual resources because it is remote and not crossed by roads. The presence of several pipeline crossings, occasional logging activities, and several areas of accumulated litter detracts from the otherwise pristine nature of the segment. Several old oxbow lakes and bayous add to the area's scenic values.

Recreational Value: 3

This segment of the river ties segments 2 and 4 together, and thus increases recreational opportunities for some users. It is much used for fishing, hunting, and water sports. Many consider it one of the few remaining remote areas for river bottomland hunting and fishing. Hunting pressure is high along the banks during deer season because there are many hunting clubs on private land adjacent to the river. Canoe use is low, it takes 2 days to canoe the segment and because canoeists can camp only on sandbars. Emergency access is only by logging roads and pipelines.

Geological Values: 1

There are no outstanding geologic features along this stretch of the river. However, interesting but common minor features such as sandbars, rocky shoals, and cut-off oxbow lakes are present.

Wildlife Values: 2

Numerous bottomland and wetland wildlife species are found along this segment. Waterfowl are plentiful during the winter months. Adjacent sloughs and oxbows are excellent habitat for herons and egrets.

Botanical and Ecological Values: 1

Bottomland hardwood dominate the river corridor. A few inclusions of pine occur on higher ground.

Cultural or Historical Values: 1

The Fort Teran monument site is located along this segment of the river near U.S. Highway 69.

Eligibility Determination:
The Neches River (Segment 3) is eligible for designation under the NWSRS Act. It is free-flowing and has outstandingly remarkable recreational value.

Classification Determination:

Because it satisfies the criteria specified in FSH 1909, Chapter 8, this segment of the river qualifies for inclusion in the System as a *Recreational River*.

Neches River (Segment 4) - 25 miles. U.S. 69 to B.A. Steinhagen Reservoir.

This portion of the Neches River is 25 miles in length, stretching from U.S. Highway 69 to B.A. Steinhagen Reservoir. If one faces downstream, the land along most of the left bank is in the Angelina National Forest. Most of the right bank is privately owned.

Access to the Neches from U.S. Highway 69 is limited because the road leading from the highway to the river is in poor condition. However, access from Road 255 is excellent, with a semideveloped road leading from 255 to a well-maintained boat ramp.

Current recreational uses include boating, canoeing, and fishing. Because the river is wide and deep, it is well suited for such uses. The Neches corridor is also popular with hikers. Hikers use the Sawmill Hiking Trail, which parallels the river for approximately 3 miles. The segment forms the southern boundary of a portion of Upland Island Wilderness.

Values of this segment of the Neches River are scored as follows:

Scenic Value: 3

This portion of the Neches River is exceptionally scenic because the forest cover is continuous and there are no road crossings. Vegetation along this segment varies from forests of stately bottomland hardwoods to cypress swamp to upland longleaf pine ridges, clearly identifying the natural landforms characteristic of the region. Also, an old railroad bridge spans the river, creating a nostalgic atmosphere and enhancing the river's scenic value.

Recreational Value: 3

The river is used for canoeing, boating, and fishing. Hikers use the Sawmill Hiking Trail, which follows the river for approximately 3 miles. However, access to the river is limited because there are

no road crossings. This section of the river forms the southern boundary for a portion of Upland Island Wilderness.

Geological Values: 2

The geological features along this segment are moderately diverse, ranging from large sandbars to steep, cliff-like slopes. Furthermore, the segment contains a small rocky waterfall, which is highly unusual in the region.

Wildlife Values: 2

A diversity of wildlife is present. Herons, egrets, and many other birds are along the river. Various fish and freshwater mussels are present also.

Botanical and Ecological Values: 2

The vegetation along the river corridor is mostly continuous hardwood forest. There are some areas of mixed pine-hardwood forest.

Cultural Historical Values: 3

Historic and prehistoric sites include two sawmill sites located adjacent to the river. One of these is the Old Aldridge Sawmill site, which is eligible for listing in the NRHP.

Eligibility Determination:

The Neches River (Segment 4) is eligible for designation under the NWSRS Act. It is free-flowing and exhibits outstandingly remarkable scenic, recreational, cultural, and historical values.

Classification Determination:

Because it satisfies the criteria specified in FSH 1909, Chapter 8, this segment of the river qualifies for inclusion in the System as a *Recreational River*.

Davy Crockett National Forest

Cochino Bayou - 4.75 miles. Forest Development Road (FDR) 582 to FDR 511.

The segment of Cochino Bayou under consideration is in Trinity and Houston Counties. The only intersecting roads within the segment are the aforementioned Forest Service roads. The bayou is bordered by NFS land for a total of 3.3 miles. The bayou holds very little

water during the summer months and has an average stream flow of 25 cubic feet per second.

Values of this segment of Cochino Bayou are scored as follows:

Scenic Value: 2

Because most of the bayou is within NFS land, the areas adjacent to the bayou are largely undeveloped. However, there has been indiscriminate dumping at road crossings, bridges, and culverts.

Recreational Value: 2

During the summer months, the bayou does not hold enough water to support any boating activity. In fact, there is little to no flow except after rains, and the bayou's water stands in isolated pools during most of the summer. Recreational activities include squirrel hunting and deer hunting.

Geological Values: 1

There are no outstanding or remarkable geological features along Cochino Bayou.

Wildlife Values: 1

Only locally common wildlife species are present.

Botanical and Ecological Values: 1

The vegetation along the bayou is locally common.

Cultural or Historical Values: 2

There are 17 Indian village sites in Compartment 52 of the Davy Crockett National Forest. It has not been determined whether these sites are eligible for listing on the NRHP. A Caddo Indian village site is located along the bayou, but it is on private land and therefore unavailable for study by the Forest Service.

Eligibility Determination:

Cochino Bayou is ineligible for designation under the NWSRS Act because it does not exhibit any outstandingly remarkable scenic, recreational, geological, wildlife, botanical, ecological, cultural, or historical values. For this reason, Cochino Bayou will not be studied further for designation under the NWSRS Act.

Neches River (Segment 1) - 32 miles. State Highway (SH) 21 to SH 7.

This segment of the Neches forms part of the boundary between Cherokee and Houston Counties and borders the Davy Crockett National Forest for approximately 9.65 miles. The Davy Crockett National Forest is west of the river. The river is free-flowing and very scenic. The river corridor is very varied. The Big Slough canoe loop in the Big Slough Wilderness area adds substantially to this segment's recreational potential.

Values of this river segment are scored as follows:

Scenic Value: 2

In areas, the Neches River is very scenic, has undisturbed vegetation, and gives a feeling of isolation and remoteness from civilization. In privately owned areas, however, the scenery is broken by pollution, camphouses, powerlines, pipelines, dead timber, and clearcuts.

Recreational Value: 3

Current recreational activities include canoeing, hiking, fishing, and hunting. This area is easily accessible and presents many opportunities for recreational use. The Big Slough canoe trail which is adjacent to the Neches could provide river-related recreational access to the Davy Crockett National Forest. However, log jams and brushy growth have largely blocked access to the canoe trail. It is hard to keep the canoe trail clear because the trail is in the Big Slough Wilderness, where motorized equipment cannot be used to clear away obstructions. Roads to the river are few.

Geological Values: 2

Geological features along the Neches are moderately diverse. They include sandy banks and rocky cliffs.

Wildlife Values: 1

Only locally common wildlife species are present.

Botanical and Ecological Values: 2

The vegetation along the Neches River corridor consists of typical bottomland species and a few invading exotics.

Cultural/Historic Values: 2

The segment includes an area that contains three prehistoric sites, one of which may be associated with a fish weir structure. These weir structures were apparently made by placing stones in the river. These sites require additional study before it can be determined whether they are eligible for listing in the NRHP.

Eligibility Determination:

The Neches River (Segment 1) is eligible for designation under the NWSRS Act. It is free-flowing and has outstandingly remarkable recreational value.

Classification Determination:

Because it satisfies the criteria specified in FSH 1909, Chapter 8, the Neches (Segment 1) qualifies for inclusion in the System as a *Recreational River*.

Neches River (Segment 2) - 42 miles. State Highway 7 to U.S. Highway 59.

This very scenic river segment bounds Houston, Angelina, Trinity, and Polk Counties. It has continuous bottomland hardwoods-cypress forest cover and bluffs with various pine species. There are only three road crossings in this 42 mile segment. Although the water is very turbid, the quality of the water is high enough for water-contact sports. The presence of camping facilities in the Davy Crockett National Forest increases recreational opportunities along this segment of the river. However, the water level is reduced during the summer months, and this reduction interferes with some water-related activities.

There are access points at SH 7, SH 94, Holly Bluff campground, and U.S. Highway 59.

Values of this river segment are scored as follows:

Scenic Value: 3

With its continuous forest cover and only three road crossings, Segment 2 of the Neches is naturally remote and highly scenic. However, the remoteness is occasionally disturbed by the car noise from the highways and there is some solid waste pollution in areas. There is very little development along the river. Much of the land on this segment is in private ownership. Hunting and hunting clubs are the traditional land use.

Recreational Value: 2

Local people use the river for canoeing and fishing. However, the river moves slowly and log jams are numerous. There are only four boat ramps on this river segment (at SH 7, SH 94, U.S. 59, and Holly Bluff campground).

Geological Values: 1

Some small rocky cliffs are present in one area, but the segment has no other outstanding geological features.

Wildlife Values: 1

Only locally common wildlife species are present.

Botanical and Ecological Values: 3

The unbroken forest cover provides habitat for a diversity of species in a largely undisturbed environment. Many plant species are present because the area is at the transition from shortleaf-oak-hickory uplands in the north to longleaf pine-little bluestem communities on the rocky Catahoula Formation in the south. These upland communities and the extensive riparian forests along both sides of the river include many unusual plant species (Orzell 1991).

Cultural or Historical Values: 3

The campground of Holly Bluff is a historic site is eligible for listing in the NRHP. Some prehistoric sites are thought to exist along the river corridor. A prehistoric site, 41TN27, is located at Holly Bluff campground. Limited testing has revealed artifacts produced during approximately 6,000 years of human occupation. Another site, 41TN26, is located several miles south of Holly Bluff. This exhibits evidence of discrete occupations over a 4,000-year period. Both prehistoric sites could be eligible for listing in the National Register of Historic Places.

Eligibility Determination:

The Neches River (Segment 2) is eligible for designation under the NWSRS Act. It is free-flowing and exhibits outstandingly remarkable scenic, botanical, cultural, and historical values.

Classification Determination:

Because it satisfies the criteria specified in FSH 1909, Chapter 8, this segment of the river qualifies for inclusion in the System as a *Recreational River*.

Sam Houston National Forest

Henry Lake Branch - 10.5 miles. Proclamation boundary to proclamation boundary.

Henry Lake Branch runs through Henry Lake at the northern end of the segment and merges with Double Lake Branch within the Big Creek Scenic Area to form Big Creek at the south end of the segment. The segment under consideration is located within San Jacinto County and has an average flow rate of 3 cubic feet per second.

The stream can be accessed at FDR 220, FDR 217, and SH 150. Two pipelines intersect Henry Lake Branch.

Values of this river segment are scored as follows:

Scenic Value: 2

The last few miles of the segment flow through the Big Creek Scenic Area and have moderate scenic potential. segment, where it merges with Big Creek. Big Creek Scenic Area is considered an exceptional example of mesic hardwood forest. Except for bridges, there is little development. The bridge at FDR 220 is a low-water bridge, and creates an impoundment.

Recreational Value: 1

In summer, the flow of water is inadequate to support any kind of boating activity. No cutting or log removal is permitted within the Scenic Area, and the impossibility of clearing log jams would make boating very difficult even in the winter months.

Geological Values: 1

The river corridor's geological features are of kinds common in the Forest and region.

Wildlife Values: 1

Only locally common wildlife species are present.

Botanical and Ecological Values: 3

Fragmentation occur only at road and pipeline crossings, and the riparian forest is mostly continuous. Although there is a slight invasion of exotics at road crossings, the slender wake-robin (a sensitive plant) thrives. This area is considered an exceptional example of the Big Thicket environment and was originally designated as a scenic area for that reason.

Cultural or Historical Values: 1

No historic, prehistoric, or culturally significant sites are known to exist along Henry Lake Branch.

Eligibility Determination:

Henry Lake Branch is eligible for designation under the NWSRS Act. It is free-flowing and exhibits some outstandingly remarkable botanical or ecological values.

Classification Determination:

Because it satisfies the criteria in FSH 1909, Chapter 8, this segment of the stream qualifies for inclusion in the System as a *Recreational River*. Scenic Area designation has protected the character of Henry Lake Branch for many years, but WSR designation would provide protection and opportunities for improved management.

Tarkington Bayou - 10.25 miles. From FDR 221 to proclamation boundary.

The segment of Tarkington Bayou under consideration is approximately 10.25 miles long. Seven miles on one bank is on NFS land. The segment is located entirely within San Jacinto County. Tarkington Bayou has an average flow of 10 cubic feet per second.

There are access points at FDR 221, FM 2666, U.S. Highway 59, and the Lone Star Trail, which also crosses Tarkington Bayou within the segment.

Values of the segment are scored as follows:

Scenic Value: 2

The scenery of Tarkington Bayou is of a kind common in the region.

Recreational Value: 2

In summer, Tarkington Bayou holds too little water to support any boating or canoeing activity. Also, there are no established recreational sites along the segment. However, the Lone Star Trail, which runs beside Tarkington Bayou for approximately 4 miles, attracts visitors from more than 100 miles away. Visitors come from as far away as Houston and the Dallas-Ft. Worth area.

Geological Values: 1

There are no outstanding or remarkable geological features in Tarkington Bayou.

Wildlife Values: 1

Only locally common wildlife species are present.

Botanical and Ecological Values: 1

The river corridor supports a riparian forest community of a type common in the region. There is also some invasion by exotics near road crossings.

Cultural or Historical Values: 1

There are no known historic, prehistoric, or culturally significant sites along the bayou.

Eligibility Determination:

Tarkington Bayou is ineligible for designation under the NWSRS Act because it does not exhibit any outstandingly remarkable scenic, recreational, geological, wildlife, botanical, ecological, cultural, or historical values. For this reason, Tarkington Bayou will not be studied further for designation under the NWSRS Act.

Winters Bayou - 26 miles. FM 1375 to East Fork of San Jacinto River.

The NFS segment of Winters Bayou under consideration is located within Montgomery and San Jacinto Counties. About 5.25 miles of

the segment is bordered by USFS land. There are access points at FM 1375, FM 2778, SH 150, FDR 241, and FDR 274. The Lone Star Trail and three pipelines intersect the bayou.

The bayou's average flow rate is 76 cubic feet per second.

Values of the segment are scored as follows:

Scenic Value: 2

A portion of the bayou is adjacent to the Winters Bayou Scenic Area. The hardwood bottomland forest that is present is of a kind common in the region. However, much privately owned land along the bayou has been cleared for agricultural purposes. The bayou has both slow-moving deep pools and faster flowing areas.

Recreational Value: 3

Winters Bayou contains enough water for boating activities year-round, but the progress of boats can be hampered by fallen logs. Public use of natural stream corridors is high in this area, and many people use this segment for activities such as hiking, camping, fishing and swimming.

Geological Values: 1

The bayou has many sandbars and a sandy bottom with some rocks. Maximum width of the bayou is about 50 feet.

Wildlife Values: 2

Most of the wildlife species present are common in the forest, but such species as wood duck, bobcat, and American alligators occur along the bayou.

Botanical and Ecological Values: 2

The river corridor contains some individuals of dwarf palmetto (*Sabal minor*) estimated to be more than 400 years old. Many magnolias of impressive use are present. The TNHP describes this area's vegetation as a degraded bottomland forest. Most of the canopy trees exhibit severe tornado and southern pine beetle damage. The TNHP believes that the area will recover after many years.

Cultural or Historical Values: 1

The bayou contains no known historic, prehistoric, or culturally significant sites.

Eligibility Determination:

Winters Bayou is eligible for designation under the NWSRS Act. It is free-flowing and has outstandingly remarkable recreational value.

Classification Determination:

Because it satisfies the criteria in FSH 1909, Chapter 8, this segment of the stream qualifies for inclusion in the System as a *Recreational River*.

Summary of River or Stream Segments Eligible for Inclusion in NWSRS

In summary, the Neches River (Segments 1, 2, 3, and 4),the Attoyac River, Henry Lake Branch, and Winters Bayou are eligible for designation under the NWSRS Act. The potential classification for all segments is Recreational River (table 4).

Suitability Study Responsibilities and Protection Pending Legislative Action

The determination of suitability is the final step in the river assessment process. The suitability determination for these river segments is deferred and will be conducted in cooperation with the State, which has jurisdiction over and responsibility for the study and for recommending that Congress designate rivers as WSR's. The Revised Forest Plan will include provisions that will insure that future suitability determinations are not jeopardized. The Forest Plan will also document the protection to be provided pending the suitability determination and legislative direction.

The TPWD (the State agency responsible for river management) is not actively studying rivers identified in the Nationwide Rivers Inventory or actively working to identify rivers for Wild and Scenic River designation. A failed bill that would have established a Texas Protected River System clearly stated that no rivers would be identified specifically for National Wild and Scenic River status. There is considerable opposition by private landowners and industry toward Wild and Scenic River designation. Industry has been very concerned about protection that would limit future industrial use of rivers in Texas. Also, private landowners are very concerned about the possibility that the State or Federal Government will tell them what they can do on their rivers. In order for the State to identify or study rivers for Federal designation, the National Park Service and other agencies would have to be involved. However, because there is intense opposition to Federal or State designation of rivers, the Statewide Rivers Study is not a high priority at this time.

The Forest Plan will include protective provisions that will insure the integrity of the eligible river segments. These segments will be monitored for changes or conditions that cause concerns during the life of the Plan (10 to 15 years) or until a suitability study determines whether they should be recommended for inclusion in the WSR system. At the end of the Forest Plan's life, or during the next revision of the Plan, these eligible segments will be reviewed and a decision will again be made on their future protection and management.

EXHIBIT 1

Narrative Summary of River and Stream Segments Evaluated for Wild and Scenic River Eligibility by National Forest and Grassland Units

Angelina National Forest

Angelina River

Segment 1 - (1.7 miles). Northwest boundary of the forest to the Southern Pacific railroad right-of-way.

Segment 2 - (1.6 miles). Southern Pacific Railroad right-of-way to Sam Rayburn Reservoir.

Segment 3 (McGee Bend) - (4.5 miles). From below the east end of Sam Rayburn Dam along the original river channel to the intersection with the Angelina River diversion channel.

Segment 4 - (0.8 miles). Diversion channel segment from the west end of Sam Rayburn Dam downstream to the intersection with the McGee Bend loop.

Segment 5 - (7.1 miles). From the south end of the diversion channel downstream to the forest boundary.

Attoyac River

(6.5 miles). From the forest boundary to Lagroulle Creek at Sam Rayburn Reservoir.

Ayish Bayou

(9.5 miles). From the forest boundary south to Sandy Creek and Sam Rayburn Reservoir.

Neches River

Segment 3-(44.0 miles). From U.S. Highway 59 to U.S. Highway 69.

Segment 4-(25.0 miles). From U.S. Highway 69 to B.A. Steinhagen Reservoir.

Davy Crockett National Forest

Hickory Creek

Segment 1-(0.8 miles). From the forest boundary to Farm-to-Market (FM) 227.

Segment 2-(6.5 miles). FM 227 to Neches River.

Cochino Bayou

Segment 1-(4.8 miles). Forest Development Road (FDR) 582 to FDR 511. The portion west of FDR 582 is considered intermittent and is not adjacent to NFS land.

	Segment 2 - (3.0 miles). From FDR 511 east to the Neches River.
Piney Creek	Segment 1 - (5.3 miles). From FM 358 to State Highway (SH) 94.
	Segment 2 - (6.0 miles). From SH 94 south to FM 2262.
	Segment 3 - (1.0 miles). From FM 2262 south to proclamation boundary. Portion north of FM 358 is considered intermittent
Caney Creek	(3.0 miles). Begins approximately at FDR 522 C and goes to the Forest boundary.
Neches River	Segment 1 - (32.0 miles). From SH 21 to SH 7.
	Segment 2 - (42.0 miles). From SH 7 to U.S. Highway 59.

Sam Houston National Forest

Henry Lake Branch	(10.5 miles). From the forest boundary to the forest boundary. Spring fed branch.
Tarkington Bayou	(10.3 miles). From FDR 221 to the forest boundary.
Winters Bayou	(26.0 miles). From FM 1375 southeast to the East Fork of the San Jacinto River.
East Fork San Jacinto River	Segment 1 - (16.0 miles). From the road crossing at Maple Hill Church southeasterly to SH 150.
	Segment 2 - (21.0 miles). From SH 150 southerly to the FS boundary.
Clear Creek	(2.5 miles). From SH 150 to East Fork San Jacinto River.
Caney Creek	(3.3 miles). From FM 1375 to Lake Conroe.
West Fork San Jacinto River	(3.0 miles). From the forest boundary to Lake Conroe.
Harmon Creek	(3.0 miles). From U.S. Highway 190 to the State Fish Hatchery.

Sabine National Forest

Big Sandy Creek	(6.4 miles). From the forest boundary north and east to Toledo Bend Reservoir.
Sabine River	(94.0 miles). From the north forest boundary downstream to the south forest boundary. Entirely impounded by Toledo Bend Reservoir.

LBJ National Grasslands

Pringle Creek	(4.0 miles). From the forest boundary to Big Sandy Creek.
Cottonwood Creek	Segment 1 - (3.5 miles). From Grosset Road to Cottonwood Lake.
	Segment 2 - (2.0 miles). From Cottonwood Lake to Denton Creek.
Rush Creek	(3.0 miles). From the flood-control structure at the forest boundary to Denton Creek.

Caddo National Grasslands

Red River	(0.3 miles). From the forest boundary to the forest boundary.
Coffee Mill Creek	(4.0 miles). From the forest boundary to Lake Coffeemill.
Spoonamore Creek	(3.0 miles). From Unit 2 on Bois D'Arc Unit to Coffeemill Lake.
Bois D'Arc	Segment 1 - (3.8 miles). From the south forest boundary north to the end of the channelized stream bed at approximately the point of intersection of U.S. property and private land near State Road 919.
	Segment 2 - (25.0 miles). From State Road 919 or the end of the channelized section to the north forest boundary.
North Sulphur River	(6.5 miles). From forest to forest boundary.

Table 1. Rivers and streams considered for eligibility and potential classification

	Length Mi.	NFS land one bank Mi.	NFS land other bank Mi.	Free-flowing	Eligible	Potential class.
Angelina NF						
Attoyac River	6.5	3.0	3.5	Yes	Yes	Rec*
Ayish Bayou	9.5	1.0	2.5	Yes	No	None
Angelina River (McGee Bend)	4.5	4.0	0.0	No	No	None
Neches River, Segment 3	44.0	0.4	0.0	Yes	Yes	Rec
Neches River, Segment 4	25.0	8.8	0.0	Yes	Yes	Rec
Davy Crockett NF						
Cochino Bayou	4.8	0.3	3.0	Yes	No	None
Neches River, Segment 1	32.0	9.7	0.0	Yes	Yes	Rec
Neches River, Segment 2	42.0	5.7	0.0	Yes	Yes	Rec
Sam Houston NF						
Henry Lake Branch	10.5	0.0	5.0	Yes	Yes	Rec
Tarkington Bayou	10.3	0.0	7.0	Yes	No	None
Winters Bayou	26.0	2.3	3.0	Yes	Yes	Rec

*Recreational

Table 2. Rivers/Streams Originally Considered

	Length Mi.	NFS land one bank Mi.	NFS land other bank Mi.	Free-flowing	Studies*	Future evaluation
Angelina NF						
Angelina River, Seg. 1	1.7	1.7	0.0	Yes	AR,TPW	
Angelina River, Seg. 2	1.6	1.0	0.6	No	AR,TPW	
Angelina River, Seg. 3 (McGee Bend)	4.5	4.0	0.0	No	AR, TNH, TPW	Yes
Angelina River, Seg. 4	0.8	0.0	0.0	No	AR,TPW	
Angelina River, Seg. 5	7.1	1.9	0.0	Yes	AR,TPW	
Attoyac River	6.5	3.0	3.5	Yes		Yes
Ayish Bayou	9.5	1.0	2.5	Yes		Yes
Neches River, Seg. 1 (3)	44.0	0.4	0.0	Yes	NRI,AR, TPW	Yes
Neches River, Seg. 2 (4)	25.0	8.8	0.0	Yes	NRI,AR, TNH,TPW	Yes
Davy Crockett NF						
Hickory Creek, Seg. 1	0.8	0.8	0.0	Yes		
Hickory Creek, Seg. 2	6.5	0.8	0.0	Yes		
Cochino Bayou, Seg. 1	4.8	0.3	3.0	Yes		Yes
Cochino Bayou, Seg. 2	3.0	0.0	0.0	Yes		
Piney Creek, Seg. 1	5.3	0.0	2.0	Yes		
Piney Creek, Seg. 2	6.0	0.0	5.0	Yes		
Piney Creek, Seg. 3	1.0	0.0	1.0	Yes		
Caney Creek	5.3	0.0	2.0	Yes		
Neches River, Seg. 1 (1)	32.0	9.7	0.0	Yes	NRI,AR, TPW	Yes
Neches River, Seg. 2 (2)	42.0	5.7	0.0	Yes	NRI,AR, TPW	Yes
Sam Houston NF						
Henry Lake Branch	10.5	0.0	5.0	Yes		Yes
Tarkington Branch	10.3	0.0	7.0	Yes		Yes
Winters Bayou	26.0	2.3	3.0	Yes		Yes
East Fork San Jacinto, Seg. 1	16.0	0.0	0.8	Yes		
East Fork San Jacinto, Seg. 2	21.0	3.0	4.0	Yes		
Clear Creek	2.5	0.0	1.8	Yes		
Caney Creek	3.3	0.0	3.0	Yes		
West Fork San Jacinto	3.0	0.5	2.2	Yes		
Harmon Creek	3.0	0.0	2.8	Yes		

	Length Mi.	NFS land one bank Mi.	NFS land other bank Mi.	Free-flowing	Studies*	Future evaluation
Sabine NF						
Big Sandy Creek	6.4	2.7	4.8	Yes		
Sabine River	94.0	0.0	0.0	No	AR,TPW	
LBJ NG						
Pringle Creek	4.0	0.3	0.5	Yes		
Cottonwood Creek, Seg. 1	3.5	0.0	2.0	Yes		
Cottonwood Creek, Seg. 2	2.0	0.0	0.2	Yes		
Rush Creek	3.0	0.0	2.8	Yes		
Caddo NG						
Red River	0.3	0.3	0.0	Yes		
Coffee Mill Creek	4.0	0.0	2.0	Yes		
Spoonamore Creek	3.0	0.0	0.8	Yes		
Bois D'Arc Creek, Seg. 1	3.8	0.0	2.1	No		
Bois D'Arc Creek, Seg. 2	25.0	0.0	6.6	Yes		
North Sulphur River	6.5	0.3	0.0	No		

* Studies on which NRI selection was based

Table 3. Eligibility criteria value ratings for selected segments

	Scenic	Recreational	Geological	Wildlife	Botanical or ecological	Cultural or Historical
Angelina NF						
Attoyac River	2	3	1	2	2	3
Ayish Bayou	2	2	1	1	1	1
Angelina River (McGee Bend)	2	1	1	1	2	1
Neches River, Segment 3	2	3	1	2	1	1
Neches River, Segment 4	3	3	2	2	2	3
Davy Crockett NF						
Cochino Bayou	2	2	1	1	1	2
Neches River, Segment 1	2	2	2	1	2	3
Neches River, Segment 2	3	2	1	1	3	3
Sam Houston NF						
Henry Lake Branch	2	2	1	1	3	1
Tarkington Bayou	2	2	1	1	1	1
Winters Bayou	2	3	1	2	2	1

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Appendix F

Management Indicators

Introduction

Management indicator species (MIS) have been used by the USFS since initial implementation of the 1976 National Forest Management Act (NFMA). These MIS have been used to assess the effects of management on habitats and ecosystems. Recent changes have been directed in the USFS manual to change the term from "management indicator species", so that ecological communities, as well as species, can be used as indicators of forest health. The new terminology is now management indicators (MI).

Background

The 1987 Forest Plan identified nine MIS. These nine species by grouping are summarized as follows:

DEMAND SPECIES - Species that are commonly hunted, included: (1) white-tailed deer; (2) eastern wild turkey; (3) bobwhite quail; (4) gray squirrel; and (5) fox squirrel.

HABITAT SPECIFIC SPECIES - Species that reflected a habitat or successional stage of the forest included: (1) yellow breasted chat (early successional stages); (2) eastern bluebird (early successional stages); (3) Red-cockaded Woodpecker (mature upland pine forest); and (4) pileated woodpecker (mature forests).

ENDANGERED OR THREATENED SPECIES - Species listed by the USFWS as endangered or threatened. In the 1987 Plan only the red-cockaded woodpecker or RCW was identified in this category.

These MIS became an issue during litigation and continued during scoping for 1987 Plan revision process. Major points of the MIS issue involved concerns that selected MIS were too general or difficult to monitor. Monitoring and evaluation of the 1987 Plan also indicated that better definition of the monitoring direction for selected MIS was needed. The MIS paper within the NFGT AMS document (1992) proposed a complete review of the MIS selection process and perhaps add to the existing list to ensure all communities and recently identified endangered or threatened species were fully considered.

Since the 1987 Plan, direct population monitoring has been limited to endangered and threatened species and major game species, through cooperation with the Texas Parks and Wildlife Department. Models

have been developed for some management indicators to evaluate habitat on certain areas of the forest; but these track capability rather than presence.

Management Indicator Development and Selection Process Summary

The USFS planning regulations clearly state the planning objective as it pertains to Fish and Wildlife resources. The current version planning regulations pertaining to Fish and Wildlife resources and direction for management indicators is found in the July 1, 1988 Code of Federal Regulations 36 CFR 219.19. The summary of this information can be found in Exhibit A. In brief these regulations state:

> **219.19 Fish and wildlife habitat shall be managed to maintain viable populations of existing native and desired non-native vertebrate species in the planning area....**
>
> **(a) and establish objectives for the maintenance and improvement of habitat of management indicator species....**
>
> **219.20(1)[Management indicator species],...** vertebrate and/or invertebrate on the area, shall be identified for planning because they are believed to indicate the effects of management activities**....and the reasons for their selection will be stated....**
>
> **219.20(7)Critical habitat for threatened and endangered species will be identified, and measures will be prescribed to prevent the destruction or adverse modification of such habitat.....**

In previous guidance, it is important to note that the emphasis was placed on key wildlife species, primarily game, T&E, or recreational oriented species. The current Federal Regulations 36 CFR 219.20 (1) further require that wildlife species being considered as Management Indicator Species (MIS) consider the following groupings:

a. Endangered and threatened plant and animal species identified on State and Federal lists...

b. Species with special habitat needs that may be influenced significantly by planned management programs; Species commonly hunted, fished for, or trapped.

c. Non-game species of special interest.

d. Additional plant or animal species whose population changes could indicate effects of forest management activities on other species of selected major biological communities or on water quality.

Federal Register Regulations also require that:

219.20 (6) Population trends of the management indicator species will be monitored and the relationships to habitat changes determined.

With only minor changes the current planning regulations pertaining to Management Indicator Species have changed very little since the approval of the 1987 NFGT Plan.

Proposed Changes to the Planning Regulations to Consider

The Federal Register proposed rules 6525, published on February 15, 1991 had specific changes that addressed the consideration, selection, management, and monitoring of Management Indicator Species. Much of this language can be reviewed in detail in Exhibit E of this document.

The two main points of this proposed regulation change that concern Management Indicator Species are reflected as:

(1) The change does not portray management indicators as ecological indicators;

(2) Expands management indicators to include biological communities and special habitats – NOT JUST INDIVIDUAL SPECIES.

The major considerations different from the previous 36 CFR 219.20 (1) regulations are as follows:

Threatened and Endangered only appear to reflect federally endangered species.

Maintenance of viable populations and ensuring the conservation of sensitive species would require an assessment of potential impacts only for those species designated by the Forest Plan and occurring on the Regional Forester's Sensitive Species list. Not all other species whose long term persistence is not perceived to be at risk.

Protection of rare or unique biological communities would recognize communities and not just individual species.

Provide Habitat Capability for selected population levels of species whose viability is not at particular risk.

Identification and monitoring of Management Indicators–essential to the previous four points–requires monitoring "relative to the goals, objectives, standards and guidelines established in the Forest Plan." The key is to flexibility of what and how it is monitored. This means population numbers or habitat conditions could

be monitored—This allows the SPECIES or the COMMUNITY to be monitored.

The overall thrust of the planning regulation change in reference to management indicators indicates the need to look at the entire community and ecosystem response to management practices. The importance of this change is so significant that the Forest Service Manual (FSM 2600) has been amended as of July, 1991 to reflect these needed changes for the management indicators in the planning process.

Forest Service Manual Regulations for Management Indicators

The current FSM direction for Management Indicators was amended on July 19, 1991. The new direction reflects the changes that were identified in the proposed planning regulation changes the previous February. FSM 2621 pertaining to the definition, selection, conservation strategies, habitat capability analysis, standards, guidelines, objectives, monitoring, and evaluation can be found in it's entirety in Exhibit C of this document. The following guidance pertaining to the selection process is as follows:

2621.1 Selection of Management Indicators.

Select management indicators for a forest plan or project that best represent the issues, concerns, and opportunities to support recovery of Federally-listed species, provide continued viability of sensitive species, and enhance management of wildlife and fish for commercial, recreational, scientific, subsistence, or aesthetic values or uses. Management indicators representing overall objectives for wildlife, fish, and plants may include species, groups of species with similar habitat relationships, or habitats that are of high concern.

In selecting management indicators, meet the following requirements:

1. Involve State wildlife and fish agencies, other Federal agencies, and appropriate experts from universities and private organizations.

2. Select Federally-listed endangered or threatened species as management indicators if the forest or project plan potentially impacts those species, or if opportunities exist to enhance recovery efforts. Consider for selection all sensitive species in the plan or project area (FSM 2672). Also, consider for selection those species in demand for recreational, commercial, or subsistence use; and indicators representing special habitats, habitat components, or plant and animal communities.

3. Select ecological indicators (species or groups) only if scientific evidence exists confirming that measurable changes

in these species or groups would indicate trends in the abundance of other species or conditions of biological communities they are selected to represent.

4. Document, in the permanent planning records for a forest plan or project-level plan, the rationale, assumptions, and procedures used in selecting management indicators.

5. Document, within the forest or project plan, how management indicators collectively address issues, concerns, and opportunities for meeting overall wildlife and fish, including endangered, threatened, and sensitive species goals for the plan or project area.

Since 1987, many more PETS species exist on the NFGT. The many vertebrate species considered in the 1987 Forest Plan will have to be reconsidered, as well as the additional plant and animal species that occur on the Regional Forester's Sensitive Species list. A summary of the mammal, bird, reptile, amphibian, and fish species considered in the 1987 Forest Plan is in Exhibit D.

Selection Process for 1994 Plan Revision

To ensure all major forest habitats and associated species were considered in this process, a thorough review and selection methodology was directed. Species as well as assemblages were considered as potential management indicators. In order to fully validate the MI review and selection process, an additional review of available habitats and conditions was developed. This development of habitat criteria utilized and paralleled the developing USFS Ecological Classification System (Plan Appendix A) and Plant Community Characterization (EIS Appendix H).

From the ECS and plant community information it was determined that the NFGT was composed of five old-growth forest and wildlife habitat types or working groups identified as : (1) Xeric and Dry-Mesic Oak Pine Forests; (2) Upland Longleaf Pine Forests; (3) River Flood Plains, Streamsides, and Bottomland Hardwood Forests; (4) Mesic Hardwood Forest (Beech-Magnolia); and (5) Bay Forest (Plan Appendix I). The Upland Longleaf Forest group can be subdivided into 3 subcommunities: (2a) Beech-Magnolia; (2b) Bay Forest; and (2c) Oak Barrens (EIS Appendix - H).

The implementing regulations for NFMA directs the management of wildlife habitats to "maintain viable populations of existing native and desired non-native vertebrate species in the planning area." The National Forest Management Act further requires each Forest to identify management indicator species (MIS) through the planning process and to establish objectives to maintain and improve the habitats of these indicator species.

Step 1

The first step in the MI selection process was to develop a long list of plant and animal species and their habitat associations that occur on the NFGT. This step ensured no species, group, assemblage, or guild was left out of the decision process. A group of USFS specialists was formed to develop this long list of species and communities. The list development included the review of all vertebrate, invertebrate, vascular and non-vascular plant species (both terrestrial and aquatic) that could potentially occur on the NFGT. This review included published literature, contacts with many natural resource professionals, and USFS records. The following references were the basis for this development:

Reference Material for Long List

1) Chaney, A.H., 1982. *Key to the Vertebrates of Texas.* Caesar Kleberg Institute, Texas A&I University, Kingsville, Texas.
Listed 139 mammals, 202 reptiles, 67 amphibians, and 173 freshwater fish.

2) Dixon, J.R., 1987. *Amphibians and Reptiles of Texas.* Texas A&M University Press, College Station, Texas.
Listed 204 species (283 Taxa, sub-species, etc.).

3) Hamel, P.B., 1992. *Land Manager's Guide to the Birds of the South.* The Nature Conservancy and USFS, TNC, Chapel Hill, North Carolina.

4) Hatch, S.L., N.G. Kancheepuram, and L.E. Brown, 1990. *Checklist of the Vascular Plants of Texas.* Texas Agricultural Experimental Station, Texas A&M University, College Station, Texas.
Listed 4,834 species of vascular plants.

5) Hubbs, C., R.J. Edwards, and G.P. Garrett, 1991. *An Annotated Checklist of the Freshwater Fishes of Texas, The Keys to Identification of Species.* Texas Journal of Science, Suppl. Vol 43, #4.
Listed 247 species of Freshwater Fish.

6) Neck, R.W., 1984. *Restricted and Declining Nonmarine Molluscs of Texas.* Technical Series #34, Texas Parks and Wildlife, Austin, Texas.

7) Nixon, E.S. and J.G. Kell, 1991. *Ferns and Herbaceous Flowering Plants of East Texas.* In Draft Stephen F. Austin University, Nacogdoches, Texas.
Listed 34 non-flowering, 640 monocots, 1195 dicots, and 346 woody species.

8) Schmidley, D.J., 1983. *Texas Mammals East of the Balcones Fault Zone.* Texas A&M University Press, College Station, Texas.
Listed 162 species (139 of which are Terrestrial).

9) Sciscenti, J.V., 1975. *Environmental/Cultural Resources Within the Trinity River Basin.* U.S. Army Corps of Engineers, Fort Worth, Texas. Listed over 1000 Invertebrates.

10) Williams, J.D., M.L. Warren, K.S. Cummings, J.L. Harris, and R.J. Neves, 1992. *Conservation Statues of Freshwater Mussels of the U.S. and Canada.* Fisheries Vol 18, #9.

The long list is a compendium of information from these documents and is contained in the process records files of the NFGT MI working group. This long list and the information and literature on which it was derived was the basis for further refinement of the MI process.

The long list was further scrutinized to determine viability concerns for species occurring or potentially occurring on NFGT. From the long list 139 species and 9 plant communities were identified as a viability concern. These species and communities are found in Plan Appendix D. This viability concern indicates that the range or population status of these species or communities could be at risk; and that closer scrutiny of management oriented alternatives of the NFGT Plan revision should be considered. The other species and communities, as reviewed, are not considered dependent on NFGT lands for population viability.

Step 2

The long list and the list of 139 species and 9 communities was then compared to the original list of animal species that was developed for the 1987 Plan. Since the 1987 Plan MIS process did not identify plant species, this area of the review process received added scrutiny. The long list of species was then reduced by the USFS group to a listing of species that were: A) directly known to occur on the NFGT; B) species which where appeared to be viability concerns; C) species that could potentially occur on the NFGT; and D) those that would be affected directly or indirectly by management actions of the NFGT.

These lists were submitted to biologists, botanists, ecologists, and other scientists to identify any errors, omissions, or recommendations. Several working group meetings were held in 1992 and 1993 to review and discuss these species and plant community lists. One recommendation that was virtually unanimous, directed the cross-referencing of species that were habitat or community specific. It was decided to use the USFS R8 Plant Community Characterization to standardize terminology (EIS Appendix I) and utilize the developing ECS (Plan Appendix A) descriptions to identify range - habitat relationships.

The fauna and flora that occur within communities of the National Forest and Grasslands of Texas can be classified into two general groups: (1) habitat generalist, and (2)habitat specialist. The habitat specialist because of their specific habitat requirements are good indicators

of effects of management activities. A species list of native habitat specialists was generated with the rationale that habitat specialist are most likely to be affected by management activities occurring on the National Forests in Texas.

Step 3

In addition to the nine MIS species identified in the 1987 Plan, a new list was generated to supplement these species. The list is composed of several Federally listed species, Regional sensitive species, and neo-tropical birds. These species will become the feedback mechanism that will indicate the degree to which fauna and flora goals are being met and whether or not adjustment of the Forest Plan is necessary.

Altogether 57 species, communities, or habitat conditions have been selected as MI to represent the habitat needs for the fauna and flora present on the National Forests and Grasslands of Texas (Exhibit E). The MI are considered representative of other species with similar habitat requirements for life and reproduction. By managing for viable populations of MI and their associated habitat, viability risks for other species found in the same habitat are reduced.

These species by habitat groups as follows were selected as MIS for the NFGT. The selection of these species used the following criteria:

1. Species is included in the Federal, State or Regional list. A neo-tropical bird (identified as easily monitored and an ecological indicator).

2. Species with special habitat needs that may be influenced significantly by planned management programs.

3. Species whose population changes are believed to indicate effects of management activities on other species of a major biological community or on water quality.

4. Represent a particular component of an ecosystem or special habitat in short supply.

5. Are sensitive to changes in their habitat.

6. React to change in a manner that is easily detectable and measurable.

The list contains species and groups of species that can indicate either habitat or ecological conditions or both. In some cases, the difference is the level or scale of measurement. The affected environments selected represent those components of the environments that are critical to an ecosystem, those in short supply, or those that are highly susceptible to

change when management is applied. Six species are listed because of public demands huntable wildlife. These species supply the measurement for commodity wildlife that is to be maintained.

Step 4

Between the DEIS and Plan, coordination between NFGT personnel, USFS research personnel, Texas Parks and Wildlife biologists and U.S. Fish and Wildlife Service biologists identified refinements in the Management Indicator Species and Communities list that was proposed in the DEIS. Additional comments from the public were also incorporated, discussed and infused into the MIS review & list during this process. Some of the comments received and discussion points included the following:

The number of MIS and monitoring effort is too ambitious.

Use of species specific MI's appears to go against EM.

MIS should emphasize habitat monitoring NOT species.

Why use species that conflict with management emphasis; such as dwarf salamader in frequently burned longleaf pine.

Develop clearer direction for snag development by seral stage and forest type; existing direction is arbitrary.

These issues were all incorporated into the final MIS table that will be utilized by the NFGT. As monitoring of these species, habitats and procedures develops during Plan implementation, revisions of the MIS table may be needed. Any MIS revision will be fully documented in the annual Monitoring and Evaluation process and Plan amendments proposed as needed.

EXHIBIT A

USFS Planning Regulations (1988) for MI's

**** 219.19 Fish and wildlife resource.**

Fish and wildlife habitat shall be managed to maintain viable populations of existing native and desired non-native vertebrate species in the planning area. For planning purposes, a viable population shall be regarded as one which has the estimated numbers and distribution of reproductive individuals to insure its continued existence is well distributed in the planning area. In order to insure that viable populations will be maintained, habitat must be provided to support, at least, a minimum number of reproductive individuals and that habitat must be well distributed so that those individuals can interact with others in the planning area.

(a) Each alternative shall establish objectives for the maintenance and improvement of habitat for management indicator species selected under paragraph (g)(1) of this section, to the degree consistent with overall multiple use objectives of the alternative. To meet this goal, management planning for the fish and wildlife resource shall meet the requirements set forth in paragraphs (a)(1) through (a)(7) of this section.

**** 219.20**

(1) In order to estimate the effects of each alternative on fish and wildlife populations, certain vertebrate and/or invertebrate species present in the area shall be identified and selected as management indicator species and the reasons for their selection will be stated. These species shall be selected because their population changes are believed to indicate the effects of management activities. In the selection of management indicator species, the following categories shall be represented where appropriate:

> Endangered and threatened plant and animal species identified on State and Federal lists for the planning area;
>
> Species with special habitat needs that may be influenced significantly by planned management programs species commonly hunted, fished, or trapped;
>
> Non-game species of special interest;
>
> Additional plant or animal species selected because their population changes are believed to indicate the effects of management activities on other species of selected major biological communities or on water quality.

On the basis of available scientific information, the interdisciplinary team shall estimate the effects of changes in vegetation type, timber age classes, community composition, rotation age, and yearlong suitability of habitat related to mobility of management indicator species. Where appropriate, measures to mitigate adverse effects shall be prescribed.

(2) Planning alternatives shall be stated and evaluated in terms of both amount and quality of habitat and of animal population trends of the management indicator species.

(3) Biologists from State fish and wildlife agencies and other Federal agencies shall be consulted in order to coordinate planning for fish and wildlife, including opportunities for the reintroduction of extirpated species.

(4) Access and dispersal problems of hunting, fishing, and other visitor uses shall be considered.

(5) The effects of pest and fire management on fish and wildlife populations shall be considered.

(6) Population trends of the management indicator species will be monitored and relationships to habitat changes determined. This monitoring will be done in cooperation with State fish and wildlife agencies, to the extent practicable.

(7) Habitat determined to be critical for threatened and endangered species shall be identified, and measures shall be prescribed to prevent the destruction or adverse modification of such habitat. Objectives shall be determined for threatened and endangered species that shall provide for, where possible, their removal from listing as threatened and endangered species through appropriate conservation measures, including the designation of special areas to meet the protection and management needs of such species.

EXHIBIT B

Proposed Planning Regulations for MI's

Federal Register / Vol. 56, No. 32 / Friday, February 15, 1991 / Proposed Rules 6525

Section 219.40 Integrated resource management.

This section would contain specific requirements for resource management. The provisions of this section are responsive to requirements of NFMA and do not attempt to encompass all of the laws, regulations, and Executive orders under which National Forests are managed. Integration of all such requirements would be beyond the reasonable scope of any one regulation and are unnecessary to repeat since compliance is already mandatory.

In contrast to the existing regulation which contained individual sections for each resource, all resource direction is integrated into one section. This in part is intended to reaffirm a strong commitment to the concepts of integrated resource management and an ecosystem approach to planning. Although such a restructuring is somewhat symbolic in nature, it represents an endorsement of these fundamental concepts and their important role in forest planning.

The opening paragraph would describe the purpose of this section as providing for an integrated, ecosystem approach to management and ensuring environmental protection and maintenance of the long-term productivity of the land. Paragraph (a) would direct that plans provide for integrated management and coordination of all resource uses and values on a multiple-use sustained-yield basis. It would provide a listing of various uses and values to be considered, in addition to providing for various support needs such as development and maintenance of infrastructure and land ownership.

These two paragraphs would establish the foundation for a fully integrated forest plan which provides direction for all resource uses and values. These provisions, in conjunction with the requirements of *219.33(a), would assure that plans will address all resource uses and values through establishment of forest-wide multiple use goals and objectives, forest-wide standards and guidelines, and management area prescriptions. As a result forest plans would describe how all resources will be managed to achieve a desired future condition of the forest in addition to establishing standards and guidelines for environmental protection to assure the long-term productivity and sustainability of resources while the goals and objectives are being achieved.

In contrast to the existing regulation, this section does not define goals and objectives for specific resources nor prescribe requirements for how each resource will be evaluated during revision or amendment. Although direction of this nature may have been appropriate for guiding development of initial forest plans, it is not as relevant when revision is "need for change" based rather than a "zero" based effort. Any adjustments needed to the goals and objectives of a forest plan would be evident through monitoring and evaluation and included when identifying the "need to change" a forest plan as part of the revision process (**219.36(c)(1)). Similarly, the type and degree of analysis needed for evaluating each resource will vary depending on what aspects of the forest plan have been identified as needing change.

Where analytical guidance is appropriate for various resource evaluations, appropriate directives will be issued in the Forest Service directives system.

Paragraph (b) describes how the diversity provision of NFMA (Sec.6(g)(3)(B)) will be achieved. This paragraph provides for diversity by defining four key resource requirements; conservation of threatened and endangered species, maintenance of viable populations by identifying and ensuring the conservation of sensitive species, protection of rare or unique biological communities, and providing the habitat capability to support populations of species at selected levels for commercial, recreational, scientific, subsistence, or aesthetic values. A fifth procedural provision supports these four resource requirements by requiring that management indicators be selected and monitored. Management indicators would include species or communities reflective of the four associated resource requirements.

* The first requirement, conservation of threatened or endangered species, based on provisions of the Endangered Species Act of 1973.

* The second requirement, maintenance of viable populations by identifying and ensuring the conservation of sensitive species, would require an assessment of potential impacts to species viability only for sensitive species. This is intended to focus viability evaluations on species whose viability is a concern rather than evaluating other species whose long-term persistence is not perceived to be at risk. Sensitive species would be designated in the forest plan by the Regional Forester for each forest planning area.

* The third requirement, protection of rare or unique biological communities, would recognize that diversity is reflected by communities and not just individual species.

* The fourth requirement, providing habitat capability for selected population levels of various species, is designed so that the forest plan determines the desired population levels of those species whose viability is not at particular risk. This determination would occur within the context of forest-wide multiple-use goals and objectives.

* The fifth requirement, identification and monitoring of management indicators, is an essential procedural provision in support of the previous four resource requirements. By requiring monitoring of management indicators, there is a systematic means of assessing the achievement of the four resource requirements. By requiring monitoring "relative to the goals, objectives, and standards and guidelines established in the forest plan", flexibility is provided as to what is being monitored and how it is monitored. Depending upon how the goals, objectives, and standards and guidelines in the forest plan are described, either population numbers or habitat conditions could be monitored. This is intended to allow monitoring requirements to be suited to the nature of the species or community in question.

The concept of management indicators in this paragraph varies from the concept of management indicator species as described in the existing regulation (**219.19(a)(1)). First, this section does not portray management indicators to be ecological indicators. The concept of ecological indicators assumes that changes to an individual species provides a valid reflection of changes to the welfare of a group of associated species. As evidenced by the "Keystone Report" ("Biological Diversity on Federal Lands–Report of a Keystone Policy Dialogue") and as discussed in a report of the Critique of Land Management Planning, "National Forest Planning Under RPA/NFMA: What Needs Fixing?" (Volume 11, p.33-35), there is diminishing scientific support for this concept.

Secondly, this paragraph expands management indicators to include biological communities and special habitats rather than being limited to only individual species. This recognizes the important role of biological communities in providing diversity and the ecological contributions of various structural elements within those communities.

EXHIBIT C

FSM 2621 Regulations

2620.5 Definitions.

1. Management Indicators. Plant and animal species, communities, or special habitats selected for emphasis in planning, and which are monitored during forest plan implementation in order to assess the effects of management activities on their populations and the populations of other species with similar habitat needs which they may represent.

2. Ecological Indicators. Plant or animal species, communities, or special habitats with a narrow range of ecological tolerance. Such indicators are selected for emphasis and monitored during forest plan implementation because their presence and relative abundance serve as a barometer of ecological conditions within a management unit.

2621 MANAGEMENT INDICATORS

2621.1 Selection of Management Indicators.

Select management indicators for a forest plan or project that best represent the issues, concerns, and opportunities to support recovery of Federally-listed species, provide continued viability of sensitive species, and enhance management of wildlife and fish for commercial, recreational, scientific, subsistence, or aesthetic values or uses. Management indicators representing overall objectives for wildlife, fish, and plants may include species, groups of species with similar habitat relationships, or habitats that are of high concern.

In selecting management indicators, meet the following requirements:

1. Involve State wildlife and fish agencies, other Federal agencies, and appropriate experts from universities and private organizations.

2. Select Federally-listed endangered or threatened species as management indicators if the forest or project plan potentially impacts those species, or if opportunities exist to enhance recovery efforts. Consider for selection all sensitive species in the plan or project area (FSM 2672). Also, consider for selection those species in demand for recreational, commercial, or subsistence use; and indicators representing special habitats, habitat components, or plant and animal communities.

3. Select ecological indicators (species or groups) only if scientific evidence exists confirming that measurable changes in these species or groups would indicate trends in the abundance of other species or conditions of biological communities they are selected to represent.