



U.S. Fish & Wildlife Service

Caddo Lake National Wildlife Refuge

*Annual
Environmental Assessment*

September 2000

FINAL ENVIRONMENTAL ASSESSMENT

**FOR PROPOSED ESTABLISHMENT OF
THE CADDO LAKE NATIONAL WILDLIFE REFUGE THROUGH MANAGEMENT
AGREEMENT OR TRANSFER OF
LONGHORN ARMY AMMUNITION PLANT FROM THE
DEPARTMENT OF THE ARMY TO THE DEPARTMENT OF THE INTERIOR, U.S.
FISH AND WILDLIFE SERVICE:
HARRISON COUNTY, TEXAS**

September 22, 2000



**U.S. FISH AND WILDLIFE SERVICE
P.O. BOX 1306
ALBUQUERQUE, NEW MEXICO 87103**



United States Department of the Interior

FISH AND WILDLIFE SERVICE

P.O. Box 1306

Albuquerque, New Mexico 87103

In Reply Refer To:
R2/NWRS

JAN 22 2001

Dear Reader:

Enclosed is the Final Environmental Assessment and Decision Document "For Proposed Establishment of the Caddo Lake National Wildlife Refuge through Management Agreement or Transfer of Longhorn Army Ammunition Plant from the Department of the Army to the Department of the Interior, U.S. Fish and Wildlife Service: Harrison County, Texas."

This document incorporates comments made at a public meeting held at the Caddo Lake State Park on August 11, 2000, and those made by reviewers of the August 3, 2000, Draft Environmental Assessment. All comments or letters received prior to the publication of the Final Environmental Assessment were considered.

Thank you for your interest in and comments on this project.

Sincerely,


Acting Regional Chief,
National Wildlife Refuge System

Enclosure

UNITED STATES FISH AND WILDLIFE SERVICE

ENVIRONMENTAL ACTION STATEMENT

Within the spirit and intent of the Council on Environmental Quality's regulations for implementing the National Environmental Policy Act (NEPA) and other statutes, orders, and policies that protect fish and wildlife resources, I have established the following administrative record and have determined that the action of accepting secondary jurisdiction of an overlay refuge and/or the transfer of primary jurisdiction by the U. S. Fish and Wildlife Service from the U. S. Army at the 8500 acre Longhorn Army Ammunition Plant and the subsequent establishment of the Caddo Lake National Wildlife Refuge in Harrison County, Texas:

- is a categorical exclusion as provided by 516 DM 2 Appendix 1, and 516 DM 6, Appendix 1. No further NEPA documentation will therefore be made.

- XX - is found not to have significant environmental effects as determined by the attached Environmental Assessment and Finding of No Significant Impact.

- is found to have significant effects and, therefore, further consideration of this action will require a Notice of Intent to be published in the Federal Register announcing the decision to prepare an Environmental Impact Statement.

- is not approved because of unacceptable environmental damage, or violation of Fish and Wildlife Service mandates, policy, regulations or procedures.

- is an emergency situation within the context of 40 CFR 1506.11. Only those actions necessary to control the immediate impacts of the emergency will be taken. Other related actions remain subject to NEPA review.

Other supporting documents: Final Conceptual Management Plan (attached).

(1) <u>J. Neal</u> Originator	<u>9/21/00</u> Date	(2) <u>[Signature]</u> NEPA Coordinator	<u>9/24/00</u> Date
(3) <u>Tom Ciccone</u> Regional Chief, NWRS	<u>9/21/00</u> Date	(4) <u>[Signature]</u> Deputy Regional Director	<u>9/22/00</u> Date
		<u>[Signature]</u> Regional Director	<u>9/22/00</u> Date

FINDING OF NO SIGNIFICANT IMPACT

**Final Environmental Assessment for
Proposed Acceptance/Transfer of Longhorn Army Ammunition Plant
From the Department of the Army
To the Department of the Interior, U. S. Fish and Wildlife Service:
Harrison County, Texas
And the Establishment of the Caddo Lake National Wildlife Refuge**

To: All Interested Governmental Agencies, Organizations, and Individuals

In the proposed agency action, as outlined in the attached Final Environmental Assessment and Conceptual Management Plan, the Service proposes to accept secondary jurisdiction as an overlay refuge and/or transfer primary jurisdiction from the U. S. Army on a maximum of 8,500 acres of the Longhorn Army Ammunition Plant (LHAAP) in Harrison County, Texas.

The draft Environmental Assessment was published on August 11, 2000. The 30-day comment period ended on September 11, 2000. A public meeting/open house was held on August 21, 2000 in Karnack, Texas at the Caddo Lake State Park. The Final Environmental Assessment has incorporated comments received on the Environmental Assessment via written comments and through verbal statements at the public meeting/open house. This proposal was coordinated with the State of Texas Clearinghouse in the Governor's Office, the offices of Senators Phil Gramm and Kay Bailey Hutchinson and Congressman Max Sandlin, State Senator Bill Ratliff, State Congressman Paul Sadler, Harrison County Judge Rodney Gillstrap, County Commissioner James Mooney and the Commissioner's Court, Texas Parks and Wildlife Department, The State Historic Preservation Office, Texas Natural Resource Conservation Commission, Department of the Army and the U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, and the General Services Administration - Greater Southwest Region. The Service also has closely coordinated with local citizens, the "Friends of Longhorn", and Caddo Lake Institute.

Four alternatives were considered on the acceptance of lands within the LHAAP:

- 1) No action (Alternative A) – no acceptance of an overlay or transfer of lands from the Army to the Service would occur and the Army would continue efforts to dispose of the LHAAP to other public agencies or to private interests.
- 2) Accept secondary jurisdiction of an overlay refuge and/or transfer of primary jurisdiction on a maximum of 8,500 acres of the LHAAP (Alternative B – Preferred Alternative) – accept transfer of up to 7172 acres in overlay status in the short-term and possibly other lands up to 8500 acres in the long-term; later transfer of these or any lands up to a maximum of 8,500 acres would only be accepted if the lands were certified as clean of contaminants by the Army with concurrence by the U. S. Environmental Protection Agency; only buildings

sought by the Service and accepted and/or transferred are included in this alternative.

- 3) Accept in overlay status a smaller refuge without any future transfer of primary jurisdiction (Alternative C) – establish an overlay refuge on the highest quality bottomlands and buffer areas only; most of the area is currently leased by Caddo Lake Institute from the Army, and the Service would accept the overlay subject to the lease.
- 4) Transfer all or portion of the LHAAP immediately (Alternative D) – assume primary jurisdiction without a subsequent overlay for all or part of LHAAP; assume immediate management responsibility for natural resources, but also responsibility for building on any lands transferred and possible contaminant liability.

The environmental consequences for each of the above Alternative were investigated and addressed in the EA.

Based on the analysis contained in the EA, I recommend the Agency implement Alternative B (Preferred Alternative) and accept in overlay status and/or transfer up to a maximum of 8500 acres of the LHAAP from the Army.

I recommend this Alternative for the following reasons:

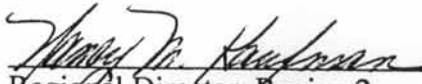
- Provides conservation of the old growth bottomland hardwood forest and associated wetlands of Harrison Bayou and Caddo Lake, designated as Ramsar Wetlands of International Significance.
- Provides an opportunity for the management and restoration of the upland habitats.
- Provides for protection of the migratory bird resources including neotropical migrants.
- Provides for the protection of cultural resources.
- Protects the Service from assuming liability for any contaminants resulting from the actions of the Army or its operator contractors.
- Assures that the Service will assume no financial responsibility for buildings it does not want and cannot utilize.

This alternative may not produce the greatest economic benefits of the possible alternatives. Either the No Action Alternative or Alternative C might allow more economic development in the area.


No mitigation proposals were initiated as part of the proposed action. The proposed project complies with Executive Orders 11988, 11990, and 12828 dealing with Floodplain Management, Protection of Wetlands, and Environmental Justice, respectively. The EA also incorporates by reference a Memorandum of Agreement between the Army, Caddo Lake Institute, and the Service; separate Memorandums of Understanding between Caddo Lake Institute and the Army and between Caddo Lake

Institute and the Service; and a Comprehensive Management Plan, all of which are Appendices to the EA.

Based on a review and evaluation of the information contained in the EA and supporting documents, I have determined that the approval of the Preferred Alternative is not deemed to constitute a major federal action which would significantly affect the quality of the human environment within the meaning of Section 192 (2) (C) of the National Environmental Policy Act (NEPA). Therefore, the preparation of an Environmental Impact Statement (EIS) is not required. The proposed project becomes effective after the signing of this FONSI and the subsequent signing of a Cooperative Agreement between the Army, Caddo Lake Institute, and the Service providing the mechanism for establishing an overlay refuge and any subsequent transfers.



Regional Director, Region 2
U. S. Fish and Wildlife Service



Date

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I. PURPOSE OF THE PROPOSED ACTION AND NEED FOR PROJECT

A. Proposed Action Project Overview

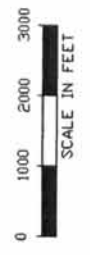
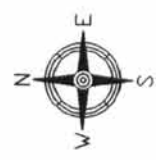
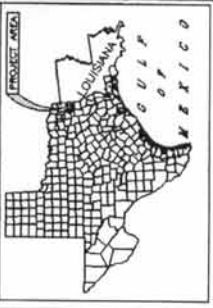
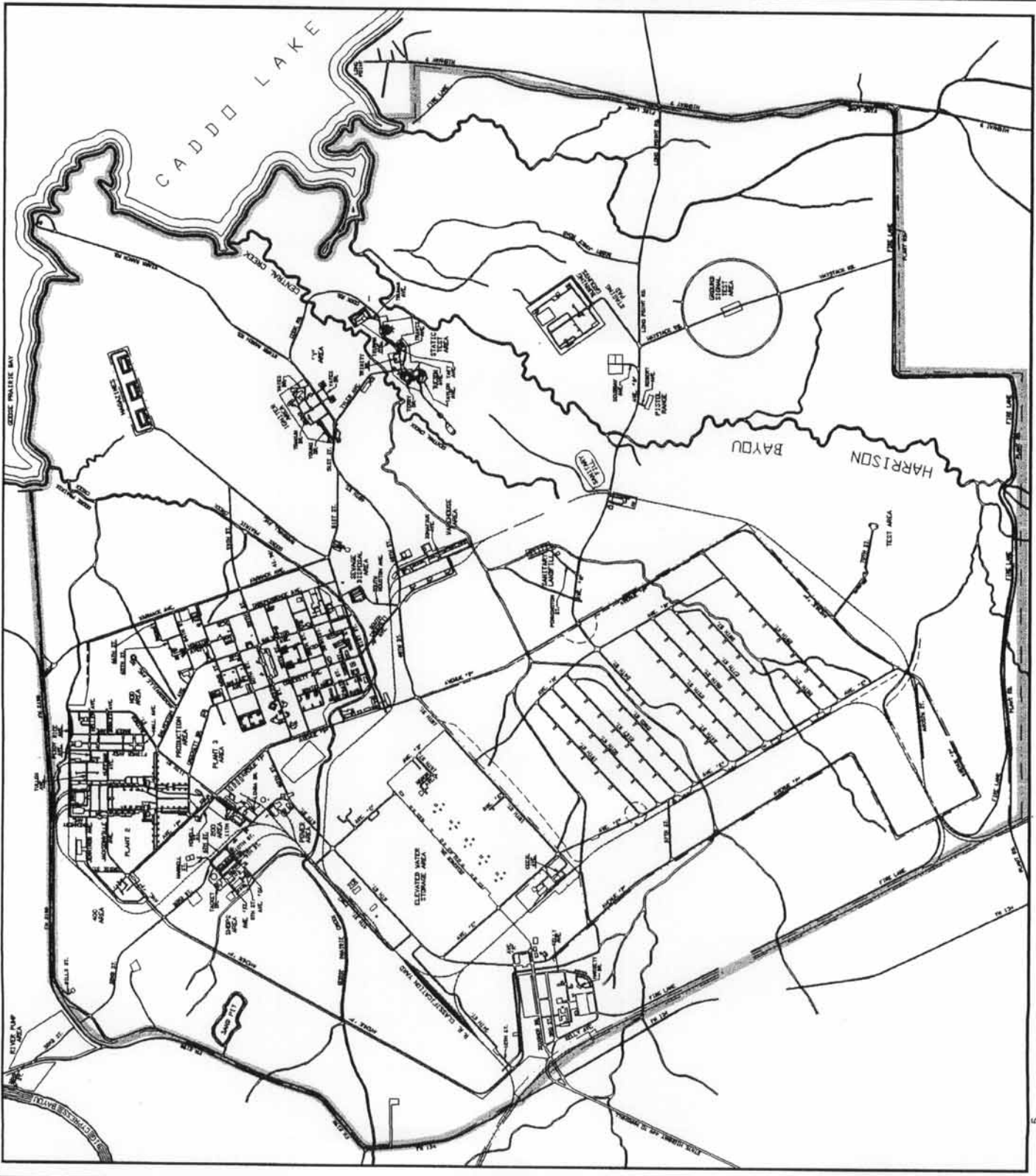
The U. S. Fish and Wildlife Service (Service) proposes to enter into a memorandum of agreement establishing Caddo Lake National Wildlife Refuge as an overlay refuge with the Department of the Army (Army) to permit the Service to conduct natural resource management and conservation activities on portions of approximately 8,500 acres of Longhorn Army Ammunition Plant (LHAAP). The Service also proposes to accept the transfer of primary jurisdiction, custody, accountability and control and/or assume secondary jurisdiction in overlay refuge status of up to approximately 8,500 acre of the LHAAP from the Department of the Army (Army). The assumption of jurisdictional responsibilities will then allow the Service to engage in natural resource management and conservation efforts on LHAAP. The transfer and/or assumption of jurisdictional responsibilities for any of these lands to the Service will result in the establishment of the Caddo Lake National Wildlife Refuge (CLNWR).

Initially the Service would acquire lands as an "overlay". Under an overlay refuge concept, the Service would obtain rights to the management of natural resources at the LHAAP; including restoration, enhancement, and conservation of wildlife species and associated habitats and public use of the site. The Service would consequently obtain "secondary jurisdiction" on the agreed upon assumed lands subject to the Army's "primary jurisdiction". After assuming secondary jurisdiction of any property at LHAAP, the Service may transfer lands into primary jurisdiction after consultation with the Army. This will only occur after the Army has prepared an "Environmental Condition of Property" (ECOP) attesting that the land is "...suitable for reuse as a wildlife refuge..." and the U.S. Environmental Protection Agency (EPA) concurs with such a designation as specified in a Memorandum of Agreement (MOA), provided as Appendix A. No lands will transfer to the Service without agreement by the Service and completion of the ECOP.

B. Project Location

The LHAAP lies within Harrison County, Texas in the unincorporated village of Karnack (Figure 1) and is adjacent to the approximately 8,000 acre Caddo Lake State Park and Wildlife Management Area (Figure 2). The project area is in northeastern Texas; along its eastern boundary, the LHAAP is only a little over 3 miles from the Louisiana state line and 25 miles from the City of Shreveport. The site is approximately 15 miles from the city of Marshall and from the city of Jefferson, both in Texas.

FIGURE 1.
LONGHORN ARMY AMMUNITION PLANT AND VICINITY: HARRISON COUNTY, TEXAS



C. Purpose and Need for Action

Refuge Purpose – This proposal is designed to protect one of the highest quality old-growth bottomland hardwood forests in the southeastern United States, and associated wetlands. The assumption of overlay status and/or transfer of jurisdiction from the Army to the Service will include these habitats within the National Wildlife Refuge System (NWRS). The establishment of CLNWR will assist in the achievement of protection of habitats that support fish and wildlife resources under the authority of section 667b of the Fish and Wildlife Coordination Act of 1934, as amended. Once established, the official purpose statement will be:

The CLNWR "...shall be administered by him [Secretary of the Interior] directly or in accordance with cooperative agreements...and in accordance with such rules and regulations for the conservation, maintenance, and management of wildlife, resources thereof, and its habitat thereon..." 16 U.S.C. 664 (Fish and Wildlife Coordination Act of 1934).

Protection of Bottomland Hardwood Forests & Wetlands – The proposed action would result in the protection of bottomland hardwood forests located along Harrison Bayou, a tributary to Caddo Lake. Additionally, the proposed action would promote protection and conservation of important wetlands along the shore of Caddo Lake. These wetlands are part of a Ramsar Wetland of International Significance, established in October of 1993. Caddo Lake (including Harrison Bayou) is only one of 15 such designated wetlands in the United States and the only such site in Texas. Caddo Lake also has been designated by the Service as a Resource Category 1 under mitigation guidelines and because of its Ramsar designation.

Protection of Migratory Bird Resources – Finally, another goal of the proposed action is the protection and management of migratory and resident waterfowl and neotropical migratory birds associated with these wetlands.

Conservation, Protection, Enhancement and Restoration of Habitat and Wildlife Populations – The Services management of the natural resources on the lands comprising LHAAP would concentrate on the conservation, protection, enhancement, and restoration of bottomland hardwood forests, waterfowl and neotropical migratory birds, several species of state and federal concern, upland habitats dominated by managed pine forests, and other plants and wildlife species found on the site. This proposal meets the Service mandate for the conservation of declining wetlands habitats, including bottomland hardwood forests, and the restoration and enhancement of biodiversity on wetland and upland habitats which have both been designated as priorities by the Land Acquisition Committee of the Arkansas-Red River Ecosystem Team and the full Team. The site also is within and furthers the goals of the Lower Mississippi Valley Joint Venture of the North American Waterfowl Management Plan.

Facilities Purpose and Use -- The Service in coordination with the Army and other partners will designate what buildings and facilities it will accept; no other buildings will be assumed by the Service. Some buildings will likely be used for administrative and maintenance purposes, and others may have use for environmental education purposes.

These possibilities will be investigated and developed by the Service and the Caddo Lake Institute (CLI), a non-profit, non-governmental organization. These uses would conform to and support the Service's environmental education goals of the National Wildlife Refuge System Improvement Act of 1997.

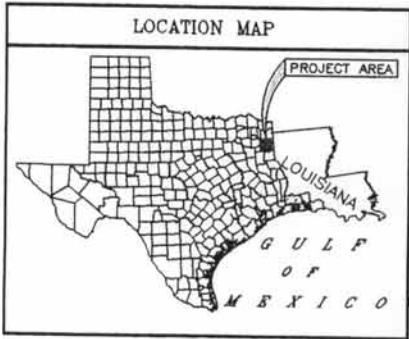
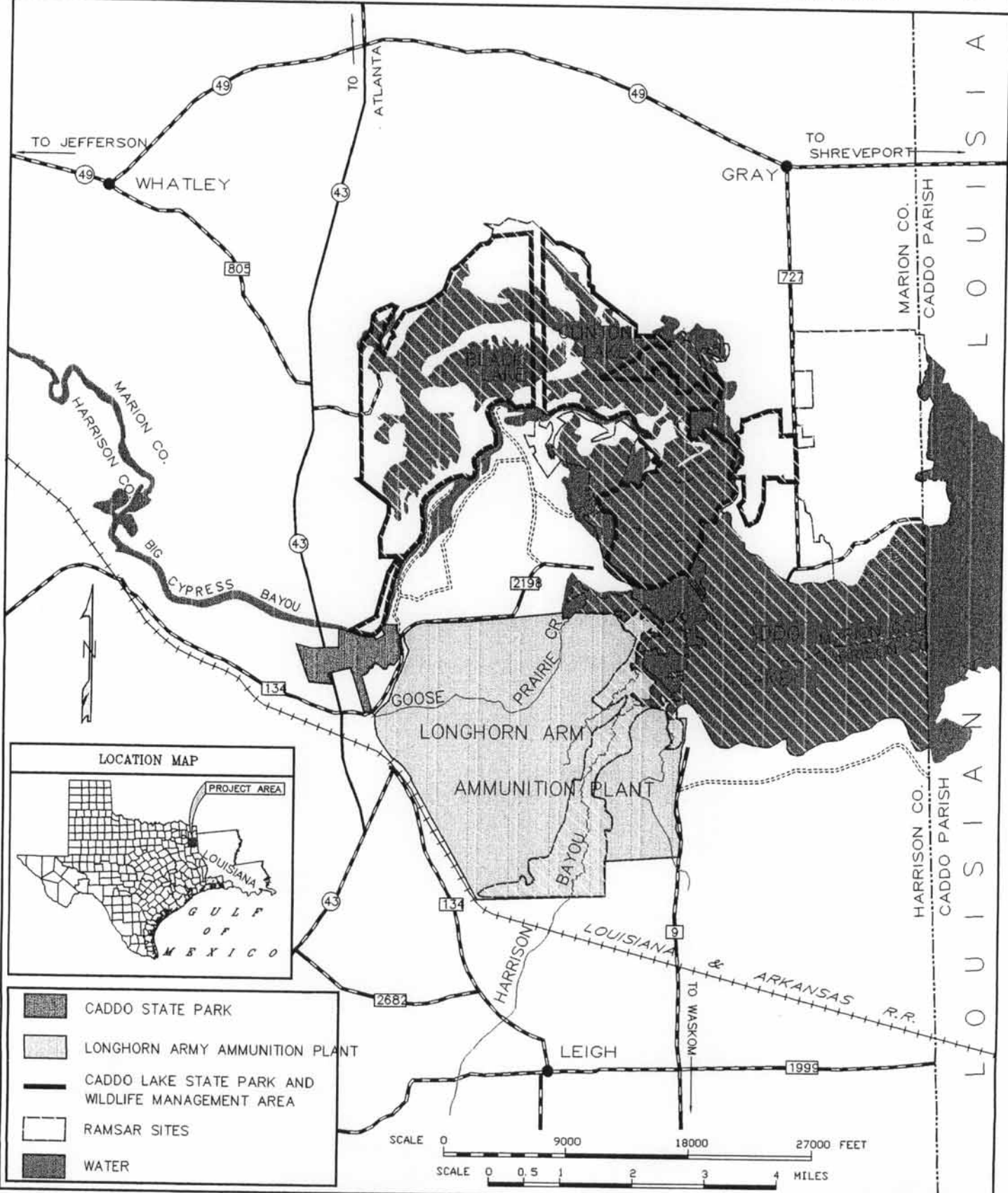
D. Purpose of Environmental Assessment (EA)






This EA is designed to:

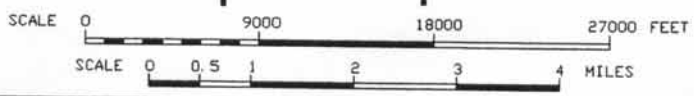
- meet Service requirements under the National Environmental Policy Act (NEPA) of 1969, as amended (see Appendix B),
- meet other necessary land acquisition oriented legal and policy compliance requirements prior to implementation of this proposal; and
- assist in outlining stewardship needs and resource conservation priorities and options within the project area.

This document does not address other ongoing activities by the Service, the Army, or other entities in the project area for which compliance has already been met or that will be met in future documents.

FIGURE 2.
 LONGHORN ARMY AMMUNITION PLANT, CADDO LAKE STATE PARK AND
 WILDLIFE MANAGEMENT AREA AND RAMSAR WETLANDS



-  CADDO STATE PARK
-  LONGHORN ARMY AMMUNITION PLANT
-  CADDO LAKE STATE PARK AND WILDLIFE MANAGEMENT AREA
-  RAMSAR SITES
-  WATER



E. Project Detail

Method of Transfer and Jurisdictional Responsibilities

Implementation of an overlay refuge and any future transfer of lands comprising LHAAP to and/or accepted in overlay status by the Service from the Army will be determined under guidelines established within the MOA signed by representatives of the Service, Army and CLI on May 22, 2000 (Appendix A). The Army and the Service in subsequent documents will identify lands designated for refuge overlay status and/or primary jurisdiction by the Service.

Remediation, Cleanup, Acceptance and Transfer of Lands/Facilities

The Army would remain fully responsible for cleanup and remediation of all contaminants, now known or later discovered, which have been caused by the Army or its operator contractors.

The Service may accept or transfer any lands certified to be free of all hazardous substances and petroleum products or their derivatives at levels that could be harmful to human health or the environment. As mentioned earlier (see section A above), this certification will be based on the ECOP prepared by the Army with concurrence by the EPA in coordination with state authorities as provided in section 120(h) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, as amended. Under the MOA, all areas within the LHAAP have been placed in one of seven categories, based on levels of contamination, under the authority of section 120(h) of CERCLA and the Community Environmental Response Facilitation Act (CERFA) of 1992 (106 Statute 2174) that amended section 120(h) of CERCLA (see Appendix A):

- Category 1 – no storage or disposal of hazardous substances or petroleum products known;
- Category 2 – storage of hazardous substances has occurred, but no release has been documented;
- Category 3 – storage and release of hazardous substances has occurred, but in concentrations or of a type that do not require removal or remediation;
- Category 4 – storage and release of hazardous substances has occurred, and cleanup and remediation of the site has been accomplished ;
- Category 5 – storage and release of hazardous materials has occurred, and required cleanup and remediation has begun but has not been completed;
- Category 6 – storage and release of hazardous materials has occurred, but no cleanup or remediation has been initiated; and,
- Category 7 – areas that have not been evaluated or require additional evaluation.

Characterization of specific areas within these categories is ongoing, and changes in classification will occur as additional studies are conducted.

Legal Authorities and Conceptual Management Plan (CMP)

The Service's management of natural resources on LHAAP lands covered by the overlay refuge would be authorized by a cooperative agreement with the Army under the authority of 16 U.S.C. 661, the Fish and Wildlife Coordination Act of 1934. At a suitable time and following the removal or remediation of contamination, the Service would accept certain lands from the Army under the authority of section 667b of the Fish and Wildlife Coordination Act of 1934, as amended. Lands within the overlay refuge or under primary jurisdiction would be managed under authority of the National Wildlife Refuge System Administration Act of 1966 and the National Wildlife Refuge System Improvement Act of 1997. For more details on these and other Federal laws and regulations related to the protection of fish and wildlife resources see Appendix B. A preliminary Conceptual Management Plan (CMP) to provide a framework for present and future management is included as Appendix C. The Service will prepare a separate Comprehensive Conservation Plan (CCP) at a later date. A separate environmental assessment for the CCP will be prepared in accordance with National Environmental Policy Act of 1969 and will be distributed to the public.

Memorandum of Understanding, September 15, 1999

Prior to the MOA dated May 22, 2000, the Service and CLI executed a MOU (Appendix D, dated September 15, 1999). This separate agreement specifies how the Service and CLI will cooperate to provide protection of natural resources at the LHAAP and to facilitate an agreement that would bring the LHAAP into the NWRS.

In the MOU, CLI agreed as follows:

- “(2) To authorize eventual, mutually-agreeable amendments to the current in-holding lease {i.e. the Harrison Bayou lease} between CLI and the U. S. Army at LAAP {i.e. LHAAP}, so as to permit CLI to continue its lease and rental revenues, by releasing the ‘upper Harrison Bayou habitat lands’ in exchange for the addition to the lease of those portions of the 120 – 130 acre ‘Administrative Area’ which are not presently leased to CLI”
- “(3) To seek completion of CLI’S ‘Longhorn Consortium’ (of other non-governmental organizations, agency, and academic groups), which is intended to permit CLI to identify, in consultation with FWS, sub-leases and sub-lessees for LAAP {i.e. LHAAP} lands which will advance the above common objectives of the parties. These Consortium proposals may include assistance with proposals for funding from private and public sources, as well as leases with the U.S. Army, or sub-leases with CLI for the assumption of use and responsibility for certain LAAP {i.e. LHAAP} buildings, lands, or areas, where such leases or sub-leases will have the practical effect of resolving potential obstacles to transfer of LAAP {i.e. LHAAP} to FWS.”

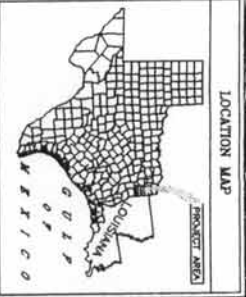
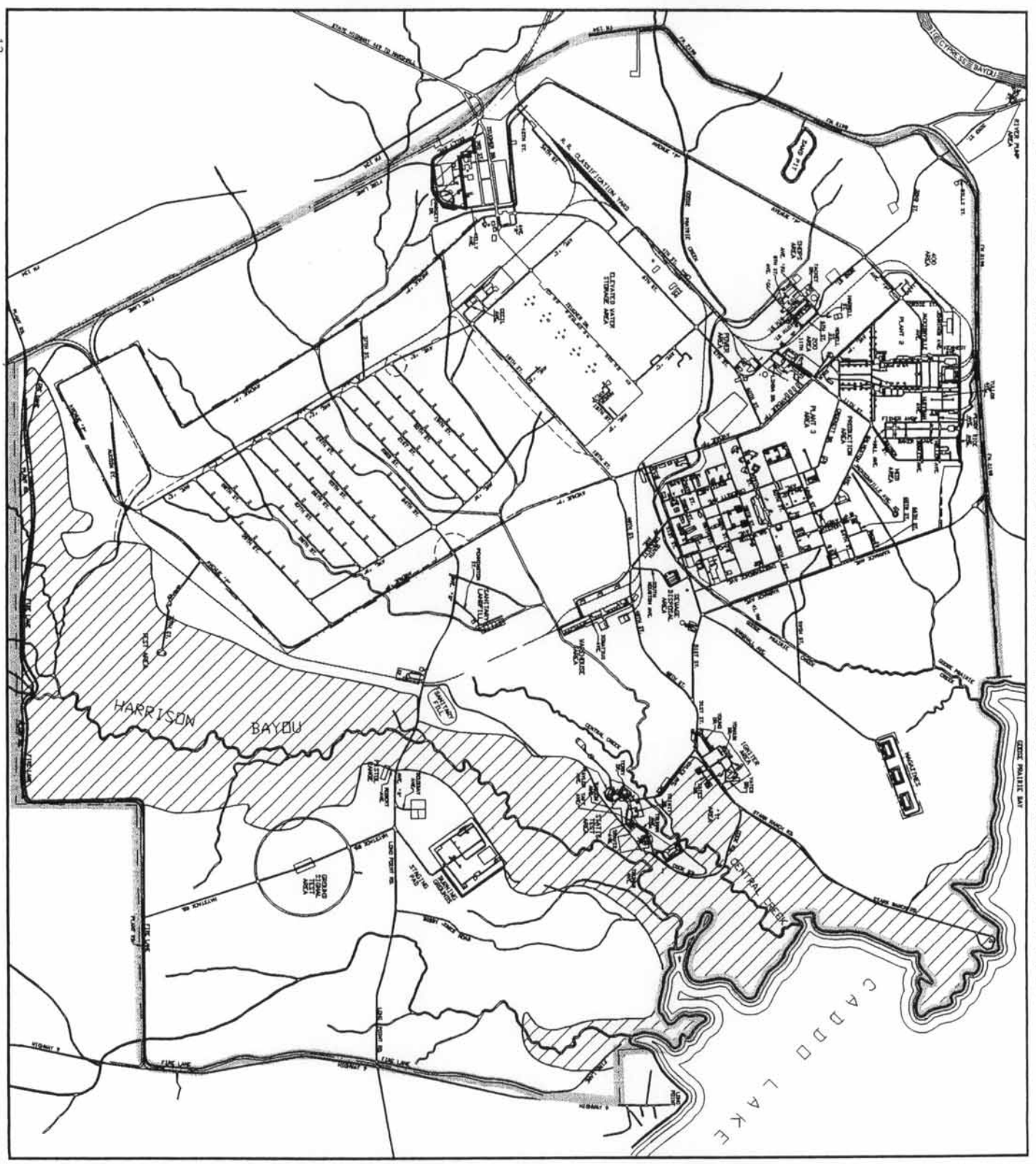
The Service agreed as follows:

- “(1) To continue its support for an amendment, described above, to the present lease between CLI and the Army, which would substitute at the appropriate time, in the lease, lands and buildings in the Administrative Area of LHAAP for old growth habitat area in the upper Harrison Bayou portions of the lease.”
- “(2) To support, as appropriate, leases between CLI and the Army, or sub-leases by CLI, for the assumption of use and responsibility for certain LHAAP buildings, lands, or areas, where such leases or sub-leases will have the practical effect of resolving potential obstacles to transfer of LHAAP to FWS.”

MOA: Refuge Management Subject to Caddo Lake Institute Leases

The Service’s management of natural resources on any lands within the project area, whether pursuant to an overlay agreement with the Army or pursuant to a transfer, will also be subject to a 30-year lease negotiated and signed by CLI with the Army in 1996 and 1999. The lease encompasses two separate parcels of approximately 1,395 acres, comprising Harrison Bayou and Starr Ranch, and 15 acres within the “Administrative Area” (Figure 3). The lease agreement allows CLI to engage in environmental and natural resource education, scientific research, and natural and cultural area conservation and protection.

FIGURE 3.
CADDO LAKE INSTITUTE LEASES AT LONGHORN ARMY AMMUNITION PLANT



LEGEND
LONGHORN ARMY AMMUNITION PLANT
INSTITUTE LEASE



MOA Establishes Transition Managers Group (TMG)

CLI, the Service, and the Army are the present parties to the MOA and also compose the Transition Managers Group (TMG). The TMG will:

- coordinate the operational activities of parties to the MOA and develop work plans,
- develop site-specific resolutions to problems,
- refine a scoping agreement that outlines the terms of assumption and/or transfer,
- develop a restoration and reuse plan
- identify buildings and roads for use or abandonment,
- develop options on assumption and/or transfer strategies, and
- develop options on security and public use issues.

Longhorn Consortium

Caddo Lake Institute will actively seek to recruit participants in the Longhorn Consortium (Consortium) to develop an acceptable and executable plan for the reuse of existing LHAAP structures and facilities. A key goal of any such plan shall be the privately funded restoration of LHAAP structures and facilities, including, as necessary, work required for Asbestos Containing Materials (ACM) or other substance abatement. Participants in the Consortium may include, but not be limited to, local schools, colleges and universities, private enterprises, non-profit organizations, and local citizens.

Title to Remain with United States: Mineral Estate Managed by Bureau of Land Management

Title to the land would not transfer from the U. S. Government. The mineral estate will remain under the control of the U. S. Government, administered by the U. S. Department of the Interior's Bureau of Land Management (BLM). Almost all of the mineral estate is presently leased under regulations established by the Army and the BLM. A small amount of the surface estate that could not be leased for various programmatic reasons will be subject to future conditions imposed by the agency having primary jurisdiction in conjunction with the BLM. The same would be true for terminated or expired leases.

The Service would seek to retain all water rights associated with the LHAAP. The water rights retained would be sufficient to meet refuge management objectives.

Compliance with Historic Preservation Mandates

The Service will comply with section 106 of the National Historic Preservation Act (see Appendix B) by consulting the State Historic Preservation Officer (SHPO) regarding the protection of any cultural resource sites located on the LHAAP. The Service will consult knowledgeable individuals and organizations, the Caddo Tribe of Oklahoma and the Harrison County Historical Society, on information regarding cultural resources. The Service will work with the Harrison County Historical Society, the SHPO, the Caddo Tribe, the Army, CLI, and others to protect and interpret cultural resources at the

LHAAP. The Service also is obligated to protect any resources on, or eligible to be on, the National Register of Historic Places; this includes sites whose eligibility has not been determined.

CERCLA (Superfund) Requirements

Portions of the site are contaminated. The Army (or its operator contractors) remains liable for any contaminant cleanup now known or later discovered that resulted from actions of the Army or its contractors under CERCLA and an existing section 120 Federal Facilities Agreement (FFA) between Army, EPA, and the Texas Natural Resource Conservation Commission (TNRCC) (U. S. EPA and Department of the Army 1991). Additional surveys will be conducted by the Service prior to acceptance of any lands from the Army. The EPA has provided further assurances that it will consider the Army responsible for any contamination caused by the Army or its operator – contractors as required under CERCLA and the FFA.

F. Background

The Army established the LHAAP in October of 1942 to produce 2,4,6 trinitrotoluene (TNT), and the production of TNT continued through the close of World War II. The land was acquired from a number of private landowners including T. J. Taylor, the father of Lady Bird Johnson. Pyrotechnic devices, including photoflash bombs and ammunition tracers, were produced during the early years of the Cold War and the Korean War. The most recent operations at the plant concentrated on compounding pyrotechnic and propellant mixtures. The LHAAP served as one of two sites for the demolition of Pershing I and II rocket motors in compliance with the Intermediate-Range Nuclear Force (INF) Treaty. The plant became excess to the Army's needs in July of 1997. The Service expressed an interest in LHAAP in response to a Preliminary Notice of Availability of Excess Property from the General Services Administration (GSA) on April 17, 1998.

Investigations of environmental contaminant at LHAAP commenced in 1986, and cleanup began in 1987. The LHAAP was placed on the National Priority List (NPL) under CERCLA on August 9, 1990. The Federal Facilities Act (FFA) took effect on December 30, 1991. This agreement specifies the remedial actions that must be conducted on sites already identified, and other sites that may be identified later. The FFA commits the Army to continued cleanup and remediation actions. To date, \$50 million has been authorized for cleanup; it is estimated that \$48,275,000 more will be required to clean and restore the site. Cleanup is expected to continue at least until 2014.

More than 400 buildings exist at the site. A contractor has been hired and is presently recycling personal real property from the LHAAP. Another contractor hired specifically to demolish unsafe structures has removed approximately 20 buildings from the site.

G. Project Development and Relationship to Past Action and Other Proposals

A Preliminary Project Proposal (PPP) was completed and sent to the Director of the Service for approval on December 8, 1998. The Director approved the PPP on

September 3, 1999. The PPP approves the initiation of an overlay refuge created via an agreement with the Army that transfers primary jurisdiction in stages. The PPP also requires that the Service will not assume any contaminant liability or ownership of any buildings not specifically requested by the Service.

An environmental assessment (EA) and Finding of No Significant Impact (FONSI) was issued by the Army in October of 1996 for the lease of portions of LHAAP to CLI (U. S. Army 1996). The Army issued a Categorical Exclusion and Record of Environmental Consideration (REC) in August of 1999 for the additional land leased by CLI (U. S. Army 1999). The Army and the Army Corps of Engineers also have produced many documents dealing with contaminant and remedial actions for cleanup. A number of public hearings and meetings have been held to inform the public about cleanup procedures and schedules.

II. SCOPING AND PUBLIC PARTICIPATION

The Service has coordinated (and will continue to do so in the future) with various local, municipal, county, State, and other Federal Agencies as well as with civic groups and individuals. Elected officials at the local, State, and Federal level were briefed prior to the release of the EA. This draft EA was circulated for a 30-day comment period.

A public meeting and open house to solicit comments on the draft EA was held on August 21, 2000, at Caddo Lake State Park Recreation Hall in Karnack, Texas. All comments received at the public meeting and via letters, faxes, and email during the comment period were considered. This final EA incorporates comments to the draft EA.

The draft Environmental Assessment (EA) was published on August 11, 2000. The 30-day comment period on the draft EA ended on September 11, 2000. A total of 64 letters were received on the draft EA; 59 letters supported Alternative B, two letters supported either Alternative B or C, two letters did not express a preference, and one letter was opposed to any Service involvement at the LHAAP because of possible impacts on future economic development. A public meeting/open house was held on August 21, 2000 at Caddo Lake State Park Recreation Hall in Karnack, Texas. A total of 42 people attended the meeting and fourteen people spoke during the public meeting. All speakers and questioners at the meeting and open house expressed support for some Service involvement at Longhorn. One speaker favored Alternative C to allow economic development on the LHAAP outside of the overlay area.

The Army has published a number of environmental documents dealing with the cleanup of contaminants during the last decade. Many public meetings have been held and continue to be held to update the public on the cleanup process.

III. PROTECTION ALTERNATIVES

A reasonable range of alternatives to this project was considered in the planning process. This set of alternatives assessed represents the feasible alternatives that are available to the Service.

The alternatives considered include: (A) No Action; (B) Establishment of Caddo Lake NWR on a maximum of 8,500 acres of the Longhorn Army Ammunition Plant as an Overlay Refuge and/or Primary Jurisdiction Refuge (Preferred Alternative), (C) Establishment of Caddo Lake NWR on a Portion of the Longhorn Army Ammunition Plant as an Overlay Refuge only; (D) Establishment of Caddo Lake NWR through Immediate Transfer. Under all of the alternatives described, Federal laws and regulation would apply.

A. No Action (Alternative A)

Under this option, a National Wildlife Refuge would not be established either as an overlay unit or as a transfer. The Army would continue to have full management authority at the LHAAP in the short-term. Any public use would be at the discretion of the Army. The site would be subject to the CLI leases along Harrison Bayou and Starr Ranch (1395 acres) for 26 years and 15 acres within the Administrative Area for 30 years.

The area would be available for transfer to another Federal agency, a State or local agency (i.e. Harrison County), or private interests, if no agency expressed an interest in the LHAAP. GSA would continue efforts to dispose of the property at the request of the Army. The Army has made it clear they will seek to dispose of the LHAAP because of budget concerns.

B. Establishment of Caddo Lake NWR on a Maximum of 8,500 Acres of the Longhorn Army Ammunition Plant as an Overlay Refuge and/or Primary Jurisdiction Refuge (Alternative B - Preferred Alternative)

The Service would establish the Caddo Lake National Wildlife Refuge initially as an overlay refuge on the LHAAP. As areas within the LHAAP are determined to be clean and are cleared for disposal by the Army, the Service may transfer the areas after concurrence by EPA. Concurrence by the TMG will be needed prior to the designation of overlay refuge areas or the transfer of primary jurisdiction to the Service (see Chapter 1, section E for a discussion of the TMG).

The Army would retain primary jurisdiction of all areas within the overlay refuge to allow continuation of Army purposes including but not limited to CERCLA related cleanup and associated risk management responsibilities. The management of natural resources and control of compatible wildlife-dependent public uses would be the responsibility of the Service in consultation with the Army and CLI on lands they lease. Natural resource management strategies would focus on benefiting migratory birds and protection of bottomland hardwood forests and other plant communities at the LHAAP. Any lands transferred to the Service by the Army would become the responsibility of the Service,

although the Army would retain sole responsibility for any obligations related to contaminants present on the date of transfer or related directly or indirectly to Army activities. Any buildings or lands not taken by the Service after clearance for disposal will be available for transfer and management by other agencies, organizations, or private entities.

C. Establishment of Caddo Lake NWR on a Portion of the Longhorn Army Ammunition Plant as an Overlay Refuge Only (Alternative C)

Under this option, only the sites of highest ecological quality would be protected as an overlay refuge. This would include the entire CLI lease, except the 12 acre Administrative Areas and buffer areas. None of the area would be transferred to the Service for primary jurisdiction. Only those areas presently known to be free of contaminants and without buildings of interest to the Service would be included in this overlay refuge. Concurrence by the Army and the Service would be needed prior to the designation of these overlay areas. A likely overlay refuge under this alternative is portrayed in Figure 4. Any lands not placed in an overlay status would be eligible for disposal by the Army and GSA.

The lands designated as an overlay would continue to be administered by the Army under its primary jurisdiction. The management of natural resources would be the responsibility of the Service in consultation with the Army and CLI on lands that it leases. Very limited or no public use would be anticipated under this option. Natural resource management would be limited to the protection of migratory birds and bottomland hardwood forests and associated wetlands.

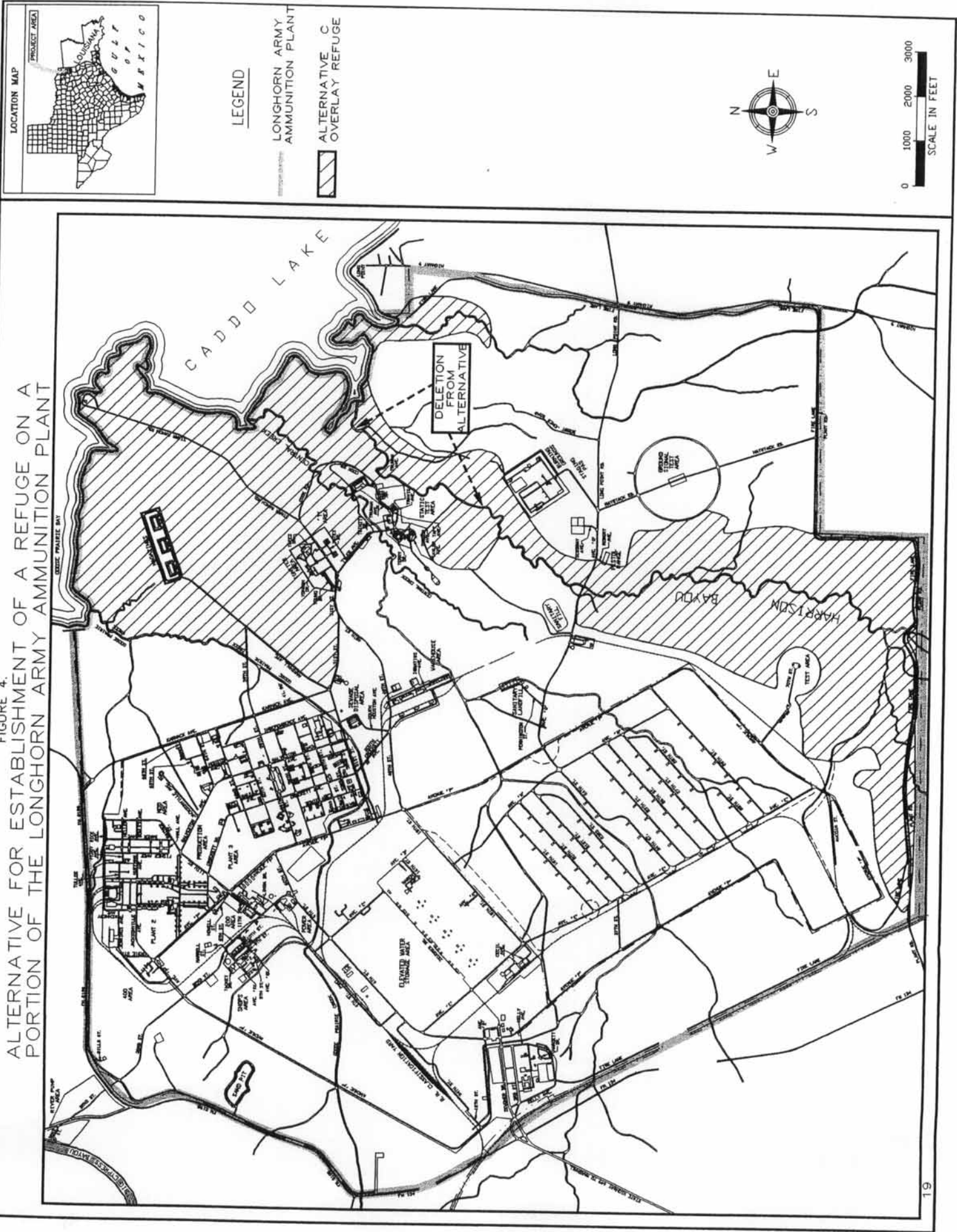
D. Establishment of Caddo Lake NWR Through Immediate Transfer (Alternative D)

This alternative would result in immediate transfer of the LHAAP from the Army to the Service. Several options within the scope of this alternative are possible:

- (1) Transfer of the entire LHAAP,
- (2) Transfer of all areas except those sites known to be contaminated,
- (3) Transfer of all areas except those deemed contaminated and without buildings with asbestos containing materials (ACM), or
- (4) Transfer of only those areas not known to be contaminated or without any buildings, except those requested by the Service.

Under any of these options, the Service would assume immediate control of any transferred property and buildings. The Army has stated that it has the responsibility for cleanup of contaminated areas regardless of who controls the property; however, the Service may be at some risk of liability after a transfer. If the entire area was not transferred to the Service, remaining areas within the LHAAP would remain under the control of the Army. Eventually the areas not transferred to the Service would be subject to disposal to another agency or private entity (see Alternative A).

FIGURE 4.
 ALTERNATIVE FOR ESTABLISHMENT OF A REFUGE ON A
 PORTION OF THE LONGHORN ARMY AMMUNITION PLANT



IV. AFFECTED ENVIRONMENT

A. Climate

The project area lies within the southeastern part of the U. S. and is part of the humid sedimentary plains (Ingold and Hardy no date). The eastern third of Texas has a Subtropical Humid climate noted for warm summers with frequent summer droughts and mild, wet winters (Larkin and Bomar 1983, Carr 1967).

The average annual temperature (1951-1980) is approximately 64° F (Larkin and Bomar 1983) with an average monthly low of 52.7° F and an average monthly high of 76.0° F in Marshall (Bomar 1983). The lowest temperature on record for Marshall was 0° F (January 11, 1982) and the highest was 110° F (August 13, 1962) (Dolezel and Lane 1997). The first killing frost is around November 15, and the last killing frost is approximately March 15 for a frost-free period of 240 days (Ingold and Hardy no date).

The total average annual precipitation for Marshall is 46.41 inches (Bomar 1983). The wettest portion of the year is in the winter and spring. The heaviest single day rainfall was 6.95 inches (December 3, 1982) (Dolezel and Lane 1997). Thunderstorms occur on an average of 44 days each year (Dolezel and Lane 1997). Almost all of the precipitation is rain with snowfall and ice storms being fairly rare.

The average relative humidity at midday is 55 percent; the average at dawn is about 80 percent (Dolezel and Lane 1997). The average gross lake surface evaporation rate (1950-1979) is approximately 49 inches (Larkin and Bomar 1983). The prevailing wind is from the south; the wind is strongest in the spring, averaging about 13 miles per hour (Dolezel and Lane 1997).

B. Air Quality

The project site is situated in a rural environment, and overall air quality is considered good. Fugitive dust from unpaved roads may be a localized problem during periods of drought and high winds. Development in the Shreveport-Bossier City area and the Tyler-Longview areas are presenting some problems in the area, usually in the summer and fall.

Ground-level ozone is the air pollutant of most concern in eastern Texas (TNRCC 2000); ozone is a photochemical oxidant, and the main component of smog at ground level. High concentrations of ozone cause damage to human health, vegetation, and many common materials. Ozone levels are considered "unhealthful" and exceed the National Ambient Air Quality Standard when they reach 125 parts per billion (ppb) under a one-hour standard or 85 ppb under the eight-hour standard. The Tyler/Longview/Marshall metropolitan area (including the LHAAP) is a "flexible attainment" area for the one-hour average. Since 1997 this metropolitan area has exceeded the one-hour average eight times at the Longview sampling location (142 ppb maximum) and once at the Tyler airport (127 ppb maximum). During the same period the eight-hour daily average has been exceeded eight times at Longview (110 ppb maximum), nine times at Tyler (99 ppb maximum), and three times at the Marshall sampling location (the Cypress River airport near Jefferson) (93 ppb maximum).

C. Physiography, Geology, and Soils

Physiography

The LHAAP lies within the Western Gulf Coastal Plain physiographic area, and topography at the site ranges from nearly level to steep. Several streams and drainages dissect the area. Elevation varies from approximately 170 feet above mean sea level (msl) on the shore of Caddo Lake near Starr Ranch to 335 feet msl in the northwest corner of the LHAAP at the Hayner Cemetery.

Geology

The parent geological material consists of largely unconsolidated, sandy, loamy, and clayey sediments of Eocene, Pleistocene, and recent origin (Dolezel and Lane 1997). On the LHAAP, Eocene deposits are of the Wilcox group composed mostly of silty and sandy clays with local sand beds (Bureau of Economic Geology 1965). Deposits of the Wilcox group underlie almost all of the LHAAP with the exception of the streambeds. Small outcroppings of Eocene-aged Reklaw group deposits are found along the extreme northeast portion of the site adjacent to Farm Road 2198. Recent alluvial flood plain deposits underlie the streambeds, including Harrison Bayou.

Soils

In eastern Texas, soils are primarily acidic and light-colored of the East Texas Timberlands Land Resources Area (Dolezel and Lane 1997; Godfrey et al. 1977). East Texas largely has undulating to rolling soils with loamy or sandy surface layers and reddish, mottled, clayey subsoil of the Bowie-Kirvin-Troup soil association (Godfrey et al. 1977).

The soils at the LHAAP were formed primarily under forests. Soils in the uplands are light colored with a loamy or sandy surface layer, and in the bottomlands are loamy or clayey (Dolezel and Lane 1997).

Fourteen soil map units have been identified at the LHAAP: Cypress clayey loam, submerged; Eastwood very fine sandy loam, 1-5 percent slopes; Eastwood very fine sandy loam, 5-20 percent slopes; Eron-Cart complex, 0-2 percent slopes; Guyton-Cart complex, 0-1 percent slopes; Iuka fine sandy loam, frequently flooded; Latex fine sandy loam, 1-3 percent slopes; Metcalf-Cart complex, 0-2 percent slopes; Meth fine sandy loam, 1-3 percent slopes; Sardis-Mathiston Complex, frequently flooded; Scottsville very fine sandy loam, 0-2 percent slopes; Socagee silty clay, frequently flooded; Wolfpen loamy fine sand, 2-5 percent slopes; and Wolfpen loamy fine sand, 8-15 percent slopes. The soils vary from well drained, supporting pines with a site index (the height a particular tree species will grow in 50 years on a particular soil type) of up to 110 feet for loblolly pines (*Pinus taeda*), to very poorly drained soils supporting bottomland hardwoods and cypress.

D. Minerals

The LHAAP occurs within the Sabine Uplift, a semicircular area of Wilcox outcrop, and is an area of known oil, gas, and lignite reserves. Sand, gravel, ironstone, and clay also are mined in Harrison County.

One seam of near-surface lignite does occur to the south and west of Karnack and adjacent to the Sabine River in south-central Harrison County. In the 1980's, potential power plants were being considered in the southern part of the county and at Karnack. The only existing mine in the county is at Darco in the southern part of Harrison County (Kaiser et al. 1980, Kaiser 1985). No recent proposals for other mines are known. No data are available on the presence of lignite under the site.

Oil and gas production occurs in Harrison County (St. Clair et al. 1981). One producing well exists on the LHAAP, and another well is presently being drilled on site. The government mineral resources at the LHAAP are under the jurisdiction of the U. S. Bureau of Land Management.

E. Water Resources

The Carrizo-Wilcox Aquifer occurs under the entire Cypress River Basin, including the entire project area. Wells in this aquifer yield up to 900 gallons per minute (gpm), and wells producing up to 200 gpm are not unusual. The water generally is of high quality with less than 500 milligrams per liter of total dissolved solids (Texas Water Development Board 1984).

The site lies within the Cypress River Basin and drains into Caddo Lake then via Twelvemile Bayou downstream of the Caddo Lake weir and into the Red River near Shreveport. Other major tributaries to Caddo Lake near the LHAAP are Little Cypress Bayou and Black Cypress Bayou that merge with Big Cypress near the city of Jefferson. Big Cypress, just upstream of Jefferson with flows largely dependent on releases from Lake O' the Pines, has a average annual runoff of 496,000 acre-feet; the highest daily mean is 4500 cubic feet per second, and the lowest daily mean is 0, based on data from water years 1958-1999 (Gandara et al. 2000). Two wells presently support remaining personnel and activities at LHAAP.

The LHAAP drains to the northeast into Caddo Lake via four streams: Saunders Branch of Martin Creek, draining approximately 11 percent of the site; Central Creek, draining about 29 percent of the site; Goose Prairie Creek, draining 30 percent of the site; and Harrison Bayou, draining approximately 30 percent of the area. Big Cypress Bayou joins

Caddo Lake just upstream (northwest) of the LHAAP (Texas Department of Health 1999). Prior to the closing of the LHAAP, water for the site was obtained from Big Cypress Bayou.

Goose Prairie and Harrison Bayou have varying levels of pollutants flowing from landfills and other contaminated sites at LHAAP. A number of substances including Royal Demolition Explosives (RDX), trichloroethylene, bromodichloromethane,

chloroform, dibromochloromethane, cis-1,2-dichloroethene, vinyl chloride, and perchlorate occur in waters at the LHAAP in concentrations that exceed drinking water standards and/or their respective carcinogenic risk evaluation guidelines. A suspected laboratory contaminant, methylene chloride, is the only pollutant from Saunders Branch. Central Creek has not been sampled. However, there is no data to date to suggest these pollutants are migrating into Caddo Lake in quantities that will impact human health (Texas Department of Health 1999). Additional sampling of Saunders Branch and initial sampling of Caddo Lake and Central Creek may occur in the future and issues of ecological risk need to be addressed.

Caddo Lake is one of five east Texas lakes (one of many in the southeast) that has a fish consumption advisory by the Texas Department of Health because of high methylmercury concentrations in largemouth bass and freshwater drum. This is thought to originate from atmospheric deposition by non-point sources, principally lignite-fired power plants. Caddo Lake provides optimum conditions for the conversion of mercury to methylmercury and its subsequent biomagnification up the food chain in fish (Texas Department of Health 1999). Caddo Lake is the only large (approximately 25,000 surface acres) naturally formed lake in Texas and one of the largest in the south.

The Army has a permit (No. 4005) from the Texas Water Commission (now the TNRCC) for an annual diversion of 39, 523 acre-feet (ac-ft) of surface water for municipal and industrial use at the LHAAP from Big Cypress Bayou and Caddo Lake. The permit sets a maximum diversion rate of 54.49 cubic feet per second (24,500 gallons per minute) and requires the return flow be discharged at three points along the perimeter of Caddo Lake. These water rights will remain with the U.S. Government. The Army also has drilled two wells that presently supply all drinking water at the LHAAP.

F. Biological Resources

Vegetation

The LHAAP is located within the Upper West Gulf Coastal Plain Ecoregion as delineated by The Nature Conservancy (Weakley et al. 2000). It also is identified as being part of the South Central Arkansas Subsection of the Middle Coastal Plains, Western Section of the Southern Mixed Forest Province of the Subtropical Division of the Humid Temperate Domain (Keys et al. 1995). Generally, eastern Texas and western Louisiana are simply referred to as the Pineywoods vegetational area (Gould 1975). Unless otherwise noted plant species nomenclature will follow Hatch et al. (1990).

On the adjacent 480 acre Caddo Lake State Park, 194 species of plants have been identified representing 53 families (Hine and Nixon no date). Hine (1996) identified 117 woody plants and 335 herbaceous species from the approximately 8,000 acre Caddo Lake State Park and Wildlife Management Area. In an early, cursory survey of the plants of Harrison Bayou (within the LHAAP) and adjacent shoreline on Caddo Lake, 77 woody species and 76 herbaceous species were identified (Nixon and Hicks 1977).

A total of 11 plant community types have been tentatively identified at the LHAAP (listed from wettest to driest): water; bald cypress swamp; shrub/shrub woodland;

bottomland hardwood flat forests; bottomland hardwood slope forests; mixed pine-hardwood forests; managed pine forests; young, regenerating pine thickets; grasslands; upland hardwood forests; and urban/developed lands and bare soil (Nixon and Hicks 1977, Walker and Brantley 1977, Campo 1986, Cloud 1995, Sheffield 1995, Liu et al. 1996, Fleet and Whiting 1997, Van Kley and Hine 1998, Walker et al. 1998). Dominant vegetation for each of these community types are listed in Table 1.

Harrison Bayou has been identified as a unique natural area in a number of studies including Walker and Brantley (1977) and Walker et al. (1998). Approximately 300 acres of Harrison Bayou within the LHAAP are old growth. This old-growth stand adjoins another 2000 acres of bottomland hardwood which were partially harvested or clearcut in the early 1900's (Walker et al. 1998). It is believed that these "old growth" forests came into existence after the destruction in 1873 of the "Great Raft" on the Red River that formed Caddo Lake (refer to section G, Local and Site-Specific History: Caddo Lake for a discussion of the Great Raft). At least two trees along Harrison Bayou in the LHAAP are listed as state champion trees by the Texas Forest Service, a water hickory (*Carya aquatica*) and a blueberry hawthorne (*Crataegus brachyacantha*). Other large trees that are nearly champions include two individual overcup oaks, two flowering dogwoods (*Cornus florida*), an eastern redbud (*Cercis canadensis*), and a smooth sumac (*Rhus glabra*) (Walker et al. 1998). Some bald cypress trees in Caddo Lake have been determined to be nearly 500 years old (U. S. Geological Survey no date).

Special Concern Plant Species

Several species of limited range occur within the general vicinity of the project area. The southern lady slipper's orchid (*Cypripedium kentuckiense*) and the golden wave tickseed (*Coreopsis intermedia*) are known to occur in the general vicinity of Caddo Lake although neither species is known from the LHAAP. In addition, the Texas Trillium (*Trillium Pussillum* var. *texanum*), an endemic, may occur at or near the LHAAP (Texas Parks and Wildlife personal communication, 2000). No federal threatened or endangered plant species are known to occur in the area or on the project site.

Animals

Telfair and Frentress (1996a) have listed 55 species of mammals from Caddo Lake State Park and Wildlife Management Area including 10 species of bats, 11 carnivores, and 20 rodents. Kroll (1977) lists 48 species of mammals as potentially occurring along Harrison Bayou. Fleet and Whiting (1997) trapped 10 species of mammals during limited sampling for rodents and shrews. Mammal diversity was highest in upland pine areas and abundance was greatest in the mixed pine-hardwood areas (Daniel and Fleet 1999). Small mammals were most abundant in forests with the largest amount and depth of leaf litter and the highest amount of ground cover (Daniel and Fleet 1999). Common species include the southern short-tailed shrew (*Blarina brevicauda*), white and/or cotton mice (*Peromyscus* spp.), marsh rice rats (*Ochrotomys nuttalli*), nine-banded armadillo (*Dasypus novencinctus*), eastern gray squirrel (*Sciurus carolinensis*), beaver (*Castor canadensis*), coyote (*Canis latrans*), and white-tailed deer (*Odocoileus virginianus*).

Kroll (1977) lists 224 species of birds as potentially occurring at Harrison Bayou. Fleet and Whiting (1997) observed 77 species during the winter and spring over two years. The highest diversity and total number of wintering and breeding birds occurred in the bottomlands with pure pine forests having the least. Mixed pine hardwood and slope hardwoods were intermediate in values; mixed pine hardwood forests were second only to bottomlands in total abundance, but had the highest number of species and second lowest number of individuals (to pure pine forests). The greatest diversity and abundance of birds occurred in areas with increased canopy openings, but the total number of species was positively related to increased crown closure (Daniel and Fleet 1999). Telfair and Frentress (1996b) listed 213 species for Caddo Lake State Park and Wildlife Management Area. Based on literature and specimen records, Ingold (1995) lists 313 for the Caddo Lake Watershed in Texas and Louisiana. The Northeast Texas Field Ornithologists have conducted Christmas bird counts the last five years and have recorded between 97 and 112 species and over 58,000 individual birds during these counts (Metzler 1999). This group has listed 137 species at Longhorn based on very limited studies at the LHAAP. Metzler (2000) lists 233 species documented from Caddo Lake since 1980; another eight species have been recorded at Caddo prior to 1980 and are likely to be seen again.

Common species recorded on the site include the Acadian flycatcher (*Empidonax virescens*), northern cardinal (*Cardinalis cardinalis*), red-eyed vireo (*Vireo olivaceus*), white-eyed vireo (*Vireo griseus*), Carolina wren (*Thryothorus ludovicianus*), blue-gray gnatcatcher (*Poliophtila caerulea*), pine warbler (*Dendroica pinus*), tufted titmouse (*Parus bicolor*), barred owl (*Strix varia*), great blue heron (*Ardea herodias*), turkey vulture (*Cathartes aura*), black vulture (*Coragyps aura*), and wood duck (*Aix sponsa*).

Kroll (1977) lists 22 species of amphibians and 46 species of reptiles as potentially occurring along Harrison Bayou. Telfair and Frentress (1996c) list 29 amphibian species and 60 reptile species as potentially occurring at Caddo Lake State Park and Wildlife Management Area. Hardy (1995) lists 31 species of amphibians and 62 of reptiles as occurring in the Caddo Lake Watershed of Texas and Louisiana. Fleet and Whiting (1997) and Fleet and Autrey (1999) collected a total of 17 species of amphibians (6 species of salamanders and 11 of frogs) and 28 species of reptiles (5 turtles, 4 lizards, and 19 snakes) from the LHAAP during 1996-1997. Frogs and toads represented over 56 percent of the total number of reptiles and amphibians (herptiles) captured; turtles and lizards were poorly represented, however. The largest number of species of each class of herptiles were found in bottomland habitats (four species of lizards were found in each habitat type). The largest number of individuals of salamanders, frogs and toads, and lizards were found in the slope hardwoods; the most individual snakes were found in the bottomlands.

Common species include the marbled salamander (*Ambystoma opaca*), cricket frog (*Acris crepitans*), green frog (*Rana clamitans*), Gulf Coast toad (*Bufo valliceps*), red-eared slider (*Trachemys scripta*), green anole (*Anolis carolinensis*), five-lined skink (*Eumeces fasciatus*), broadhead skink (*Eumeces laticeps*), ground skink (*Scincella lateralis*), ribbon snake (*Thamnophis proximus*), broad-banded water snake (*Nerodia fasciata*), and cottonmouth (*Agkistrodon piscivorus*).

Table 1. PLANT COMMUNITY TYPES AND DOMINANT SPECIES OF THE LONGHORN ARMY AMMUNITION PLANT.

1. Water

American lotus (<i>Nelumbo lutea</i>)	fragrant waterlily (<i>Nymphaea odorata</i>)
spatterdock (<i>Nuphar luteum</i>)	water hyacinth (<i>Eichornia crassipes</i>) *
2. Bald Cypress Swamp

bald cypress (<i>Taxodium distichum</i>)
--
3. Shrub/Scrub Woodland

water elm (<i>Planera aquatica</i>)	swamp privet (<i>Forestiera acuminata</i>)
---------------------------------------	--
4. Bottomland Hardwood Flat Forest

overcup oak (<i>Quercus lyrata</i>)	bald cypress (<i>Taxodium distichum</i>)
willow oak (<i>Quercus phellos</i>)	water oak (<i>Quercus nigra</i>)
5. Bottomland Hardwood Slope Forests

cherrybark oak (<i>Quercus pagoda</i>) #	sweetgum (<i>Liquidambar styraciflua</i>)
water oak (<i>Quercus nigra</i>)	southern red oak (<i>Quercus falcata</i>)
6. Mixed Pine – Hardwood or Hardwood – Pine Forests

sweetgum (<i>Liquidambar styraciflua</i>)	winged elm (<i>Ulmus alata</i>)
loblolly pine (<i>Pinus taeda</i>)	southern red oak (<i>Quercus falcata</i>)
7. Managed Pine Forests

loblolly pine (<i>Pinus taeda</i>)

8. Young, Regenerating Pine Thickets

loblolly pine (<i>Pinus taeda</i>)

9. Grasslands

little bluestem (<i>Schizachrium scoparium</i>)
broomsedge bluestem (<i>Andropogon virginicus</i>)
10. Upland Hardwood Forests

post oak (<i>Quercus stellata</i>)	blackjack oak (<i>Quercus marilandica</i>)
black hickory (<i>Carya texana</i>)	
11. Urban/Developed Land and Bare Soil

no dominants or various invading species
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* Non-native Species

Nomenclature in Hine 1996

Caddo Lake supports perhaps the most diverse fish fauna in the state of Texas. The dean of Texas ichthyology, Dr. Clark Hubbs, has identified the Cypress Basin as being the least modified aquatic habitat of any river system in the State in recent times. Kroll (1977) lists 93 fish species of potential occurrence in the Harrison Bayou area. Telfair and Ryan (1996) list 92 species as occurring at Caddo Lake State Park and Wildlife Management Area.

Caddo Lake supports an excellent sport fishery for largemouth and spotted bass (*Micropterus salmoides*, *M. punctulatus*), white and black crappie (*Pomoxis annularis*, *P. nigromaculatus*), white and yellow bass (*Morone chrysops*, *M. mississippiensis*), bluegill (*Lepomis macrochirus*), redear sunfish (*Lepomis microlophus*), warmouth (*Lepomis gulosus*), and channel and flathead catfish (*Ictalurus punctatus*, *Pylodictis olivaris*) (Ryan and Janssen 1992). In addition Caddo Lake supports the best sport fishery for the chain pickerel (*Esox niger*) in Texas. Common nongame species include the spotted and longnose gar (*Lepisosteus oculatus*, *L. osseus*), gizzard shad (*Dorosoma cepedianum*), grass pickerel (*Esox americanus*), ironcolor shiner (*Notropis chalybaeus*), weed shiner (*N. texanus*), blacktail shiner (*Cyprinella venusta*), spotted sucker (*Minytrema melanops*), pirate perch (*Aphredoderus sayanus*), blackstripe topminnow (*Fundulus notatus*), western mosquitofish (*Gambusia affinis*), and brook silverside (*Labidesthes sicculus*).

Freshwater mussels have had a prominent role in the history of Caddo Lake. Around the beginning of the 20th Century, a flourishing fresh water pearl industry began at Caddo. After the destruction of the Great Raft in 1873, water levels in Caddo declined; extensive fresh water mussel beds were exposed and were exploited until the weir was constructed in Mooringsport, Louisiana in 1914, and the beds were flooded again (Dahmer 1988). A recent survey by the U. S. Army Corps of Engineers (1994) documented 21 species from the lower Cypress Creek Basin. The most common species were *Plecotus dombeyanus* and the introduced Asian clam (*Corbicula fluminea*). The U. S. Geological Survey (2000) lists 50 species of butterflies for Harrison County.

Special Concern Animal Species

A total of 23 animal species of concern are located or potentially located on the LHAAP and adjacent Caddo Lake. They include seven species of fish, no amphibians, six species of reptiles, six species of birds, and four species of mammals. These are listed in Table 2.

While not specifically present on the smaller streams of the LHAAP, the following have been collected from Caddo Lake and/or larger streams of the lower Cypress Basin: the shovelnose sturgeon (*Scaphirynchus platorynchus*) and paddlefish (*Polydon spathula*).

The status of the remainder of the special concern fish species on the LHAAP is unknown at present; these species are smaller species that may occur on the streams at the project area.

Table 2. ANIMAL SPECIES OF SPECIAL CONCERN FROM LONGHORN ARMY AMMUNITION PLANT AND CADDO LAKE.

Mammals

Rafinesque's big-eared bat (*Corynorhinus rafinesquii*)
Southeastern myotis (*Myotis austroriparius*)
Louisiana black bear (*Ursus americanus luteolus*) #
Plains spotted skunk (*Spilogale pautorius interrupta*)

Birds

Bald eagle (*Haliaeetus leucocephalus*) # *
Peregrine falcon (*Falco peregrinus*) # *
Wood stork (*Mycteria americana*) *
White-faced ibis (*Plegadis chihi*) *
Bachman's sparrow (*Aimophila aestivalis*) *
Henslow's sparrow (*Ammodramus henslowii*)

Reptiles

Alligator snapping turtle (*Macrolemys temminckii*) *
Texas horned lizard (*Phrynosoma cornutum*)
Northern scarlet snake (*Cemophora coccinea copei*)
Louisiana pine snake (*Pituophis melanoleucus ruthveni*)
Canebrake or timber rattlesnake (*Crotalis horridus atricaudatus*) *
Texas garter snake (*Thamnophis sirtalis annectens*)

Amphibians

None

Fish

Shovelnose sturgeon (*Scaphirynchus platorynchus*) *
Paddlefish (*Polydon spathula*) *
Taillight shiner (*Notropis maculata*)
Ironcolor shiner (*Notropis chalybaeus*) *
Bluehead shiner (*Pteronotropis hubbsi*)
Creek chubsucker (*Erimyzon oblongus*)
Blackside darter (*Percina maculata*) *

Federally listed threatened or endangered species

* Known to occur on Caddo Lake and/or the Longhorn Army Ammunition Plant

The alligator snapping turtle (*Macrolemys temminckii*) and canebrake or timber rattlesnake are known to occur on the LHAAP. All six species of birds have been recorded from Caddo Lake and/or the LHAAP. None of the mammal species on the list are known recently from Caddo or the LHAAP.

Three of the species listed in Table 2 are federally listed species. The bald eagle (*Haliaeetus leucocephalus*), recorded from the LHAAP and Caddo, and the peregrine falcon (*Falco peregrinus*), known historically as a migrant on Caddo Lake, are both in the process of being removed from the federal list by the Service. The Louisiana blackbear (*Ursus americanus luteolus*) formerly occurred in the area and is now expanding its range into eastern Texas. There are several recent reports of bears from the Caddo Lake area. A determination of no effect has been issued regarding the impact of the proposal on Federally listed species.

G. Archaeology and History

Regional Archaeology

Native Americans settled in northeastern Texas and northwestern Louisiana around 12,000 years ago during the Paleo-Indian Period and existed as mobile hunters-gatherers and foragers (Perttula and Nelson 1999, Cliff et al. 1996). Like the preceding Period, Archaic Period (from about 7000 to 200 B. C.) knowledge of the indigenous culture is sparse because of the lack of intact, existing remains. During the earliest portion of this Period, there were believed to be small, widely dispersed occupation sites reflecting high group mobility and poorly defined territories (Story 1985). These small groups may have had a general subsistence economy (Cliff et al. 1996). During the middle portion of the Period, there appeared to be an increase diversity of tools and foods used, including an increased use of abundant forest plant and animal resources. In the last part of this Period, there was an increase in the number of more widely distributed, occupied sites with a degree of sedentary occupation (Cliff et al. 1996).

Beginning about 1200 years ago in what is sometimes referred to as the Early Ceramic Period, the art of ceramics was established, and the sophisticated culture of the Caddo tribe occupied portions of four states. These people were characterized by complex, socially ranked societies with well-planned civic-ceremonial centers (Story 1990, Perttula 1992, Perttula and Nelson 1999). The Caddos were traders, horticulturists, and hunters that lived in grass and cane covered huts housed in dispersed villages. The Caddos also were temple and burial mound builders; these mounds were the ceremonial and religious residences of important priests and chiefs (Perttula 1995). The Caddo developed long-distance trade routes for bison hides, salt, bois d'arc (*Maclura pomifera*) bows, and copper and stone artifacts.

At the time of sustained European contact with the Caddos in the late 1600's, several thousand people lived around the Red River and central east Texas (near Nacogdoches) (Perttula and Nelson 1999). Epidemics caused by European induced diseases greatly

reduced the Caddo's population between 1691 and 1816 (Ewers 1973). Jean Louis Berlandier, a French naturalist, estimated that only about 300 families remained in 1828 (Ewers 1969).

The Caddos existed in northeast Texas until 1842. Northeast Texas also had been settled in recent times by the Alabama-Coushatta tribe. The Caddos were relocated to a reservation on the Brazos in 1855 and then to Oklahoma in 1859. The Alabama-Coushatta living in northeast Texas left this area about the same time as the Caddos and rejoined members of their tribe in southeast Texas and western Louisiana (Perttula and Nelson 1999).

Local and Site-Specific Archaeology

At least four significant sites of Caddoan or Kadohadacho culture have been located on Caddo Lake. This includes a large dispersed village known as Timber Hill or Sha'chadinnih (the Caddo name) which is a source of the Caddoan origin myth (Bagur 1992; McCrocklin 1992; Mark Parsons, personal communication cited in Perttula and Nelson 1999). Based on maps at the Texas General Land Office, there were other Caddo villages located in Harrison County although these have not been documented in the field (Bob Skiles, personal communication cited in Perttula and Nelson 1999).

A total of 4,342 acres of the LHAAP have been archaeologically surveyed to date; 2,135 acres have been classified by the National Park Service as disturbed Cliff et al. (1996) noted that 32 sites have been recorded on the LHAAP: seven prehistoric sites, four sites with both prehistoric and historic components, and 21 historic sites (farmsteads and trash dumps, two cemeteries (a third cemetery is reported to be on the site, but has not been documented), a boat landing/ fishing station, and a ranch house). The eligibility for inclusion of those sites in the NRHP is unknown at present. In addition, 24 pre-installation historic era sites were identified from archival research, but not field verified. Two of the sites were recommended for inclusion in the National Register of Historic Places (NRHP). Nine sites will need additional research before any recommendations are made regarding NRHP status, but these sites must be protected until their status is ascertained. Twenty-one of these sites were considered to be ineligible for NHRP status.

Gadus et al. (1998) identified an additional 10 sites (7 historic and 3 prehistoric); 2 previously documented sites were resurveyed. Based on these studies, three prehistoric (including one listed in Cliff et al. (1996) as unknown) and one historic site were recommended as being potentially eligible for listing in the NRHP. The remaining seven sites (including one listed by Cliff et al. (1996) as ineligible) are considered to be ineligible for NRHP listing.

Perttula and Nelson (1999) identified an additional 14 sites in areas leased to Caddo Lake Institute. Two previously identified sites that were rechecked and a new site may contain prehistoric remains. Based on preliminary studies, all three of these sites are believed to be Caddoan habitation sites. Two sites are being recommended for inclusion in the NRHP (Perttula and Nelson 1999); Cliff et al. (1996) previously recommended one of these sites and Gadus et al. (1998) recommended the other site also. Perttula and Nelson (1999) also placed 16 other sites (including one site, Starr Ranch, listed by Cliff et al.

(1996) as ineligible) into an "undetermined" category justifying protection pending further investigation on the NRHP status.

In summary, three sites have been recommended for inclusion in the NRPA (one by two investigators), four sites have been recommended for "potential eligibility" in the NRPA (one of these sites has been recommended by a later investigator), 23 sites are of unknown or undetermined status (one of these has been listed as eligible by a later investigator) and 31 sites are listed as ineligible (one of these is listed as undetermined by a later investigator).

Regional History

The Spanish were the first Europeans to explore the area beginning with the expedition of Hernando de Soto in 1541 followed by Tonti (Hackney 1966) and Don Domingo Teran de los Rios (Swanton 1946). La Salle surveyed the area around 1685. A succession of French explorers and traders traversed the area beginning with Pierre Le Moyne d'Iberville and Benard de La Harpe. The French maintained close ties to the Kadohadacho until Louisiana was ceded to Spain in 1762. The Spanish resumed their mission work at that time. Settlers from the newly formed United States began to expand into the area in the early 1800's which was the beginning of the end for the Caddos in eastern Texas and western Oklahoma. The Caddo Tribe eventually was forced to relocate to Oklahoma in 1859.

Local and Site-Specific History: Caddo Lake

Many stories exist regarding the formation of Caddo Lake, the only, large naturally formed lake in Texas. One legend states that the Caddos believe the Lake was formed by a huge flood which would have destroyed a Caddo village had they not moved to higher ground just before the flood. Caddo Lake is said to have been formed by the New Madrid earthquake in 1812. Reelfoot Lake in Tennessee and Kentucky was formed by the quake. It is now known that Caddo was created in the late 1700's or early 1800's as a result of a huge logjam, reported to be over 100 miles long and stretching from Natchitoches to Shreveport on the Red River (Dahmer 1988, Parent 1990). This logjam, known as the Great Raft, consisted of a solid mass of trees and other debris resulting from the sloughing of the bank of the Red River upstream of the area.

Caddo Lake was originally part of a larger lake over 20 miles long and 8 miles wide known as Soda Lake, which also included the present day Cross Lake at Shreveport and the now extinct Clear, Shiftail, and Soda Lakes (U. S. Army Corps of Engineers, no date; Dahmer 1988). The backed up portions of the Black Cypress, Big Cypress, and Little Cypress Rivers produced Fairy (or the corrupted Ferry) Lake, now known as Caddo Lake (Dahmer 1988).

The first efforts to clear the Great Raft occurred in 1836 by Captain Henry Shreve, after whom Shreveport was named, of the U. S. Army Corps of Engineers, but the Raft reformed (Parent 1966). Steamboat captains established a trade route through Caddo Lake and then up Big Cypress Bayou to the city of Jefferson that became Texas' second most important port; only Galveston had a greater volume of trade in the mid 1800's.

Port Caddo was established on Caddo Lake in 1836 and also became an important port of trade and landing for steamboats (Cliff et al. 1966). Port Caddo became the hub of Harrison County, named for Jonas Harrison – an early legislator, that was created from a division of Shelby County in 1839 (Cliff et al. 1966: Harrison County Historical Society, Personal Communication, 2000).

Some of the earliest settlers to Caddo Lake were Harriet and Robert Potter who settled on the northern shore of Caddo Lake in Cass County (now Marion County) in an area now called Potter's Point (Dahmer 1988). Robert Potter was an elected member of the House of Commons of North Carolina, and then a member of the U. S. House of Representatives from North Carolina. After coming to Texas, he became the Secretary of the Navy for the Republic of Texas and later signed the Texas Declaration of Independence. Despite being a brilliant statesman and politician, Robert Potter was a scoundrel in his private life (Dahmer 1988). After playing an important role in Texas' war for independence from Mexico, Robert and Harriet settled on Caddo Lake. Part of the attachment seemed to be that Caddo was a no-man's land considered to be "Neutral Ground", claimed by both the Republic of Texas and the United States. As such it became a lawless area that was eventually the subject of a dispute between two rival groups known as the "Regulators" and the "Moderators". The "Regulators" were originally established to control the lawlessness in the area, but their vigilante tactics led to the formation of the "Moderators" who attempted to combat the excesses of the "Regulators". Robert Potter ran afoul of the "Regulators" and drowned in Caddo Lake after being shot by a group of "Regulators" (Dahmer 1988). The story of the Potters is told in a novel about Harriet Potter called *Love Is A Wild Assault* by Elithe Hamilton Kirkland.

Despite having failed in a previous attempt, Captain Henry Shreve again broke up the Great Raft in 1874, and this time the effort was successful. As a result the Lake began to drain and steamboat shipping ceased along Caddo and Big Cypress Bayou.

The oil boom began in the early 20th Century with the discovery of a major field in the Mooringsport – Oil City area, and this eventually led to the construction of a weir on Twelvemile Bayou in 1914 (Dahmer 1988). The petroleum industry suggested the construction of a weir because they were unable to put in wells in the swampy, marshy area of the former Caddo Lake. The first drilling activity over water was done by the conventional cable rig, but then drilling shifted to the rotary rock drill that was developed by what later was to be called the Hughes Tool Company of Houston, owned by Howard Hughes.

Local and Site-Specific History: Longhorn Army Ammunition Plant

In general, the first permanent Euro-American settlers to the area and the site were cotton planters, and the majority of the land grantees can be classified culturally as Anglo-Americans (Cliff et al. 1966). A total of 21 land patents were established in the area of the LHAAP between 1842 and 1911 (Peter and Stiles-Hanson 1990). Some of the earliest families settling on the site were the Starrs, Thorns, Sawyers, Coxes, and Hynsons. A major portion of the area was in the Day Land and Cattle Company and Starr Hunting and Fishing Club.

During the late 19th and early 20th Century, small landowners and tenant farmers populated most of the area. The Hope family were among the early settlers in the area, and two Hope family cemeteries are located on the LHAAP. The Hopes arrived at the present site of the LHAAP in 1845; a home was constructed on the site and existed on the LHAAP until it was removed in 1941. (Robert Cargill, personal communication, 2000, Cargill, 1976). The Hayner cemetery also is located within the LHAAP (Gaither 1999); the Hayners were related to the Hopes. Other cemeteries may be located on the site also. T. J. Taylor II, father of Claudia Atwood Taylor (who later married Lyndon B. Johnson and is better known as Lady Bird), was an important business and political figure in the local area for the first half of the 20th Century. The largest portion of the present day LHAAP was owned by the Taylor family. Over 75 families, mostly tenant farmers, were living on the LHAAP when the government purchased the area (Gaither 1999).

The announcement of the establishment of the LHAAP was made on December 15, 1941. Construction and operation was contracted to the Monsanto Chemical Company based on standard plans developed for the Ordinance Department by E. I. Du Pont de Nemours and Company and specifically adapted for the LHAAP by the Ford, Bacon, and Davis architect-engineering firm.

The construction of the LHAAP was begun in February 1942; the primary purpose of the facility was the production of TNT (trinitrotoluene) and production began in mid-October of 1942. Construction began on a second plant designed to produce propellant fuel, but construction was not completed by the end of the war in 1945. The plant was placed on standby at war's end (Gaither 1999).

In 1952 the plant was reactivated as a result of the Korean War. The facility now was contracted to the Universal Match Corporation, and a portion of the second plant was renovated to produce pyrotechnic ammunition. This portion of the plant again was placed on standby in 1956. This plant was reactivated in the mid-1960's to produce pyrotechnic illumination devices during the Vietnam War; this unit continued to operate until the 1980's although at a much reduced capacity (Gaither 1999).

In 1953 the Thiokol Corporation began renovation of another part of the second plant to produce solid propellant rocket fuel. Rocket motors were loaded and external fins were placed on the motors before being shipped to other facilities for final assembly (Gaither 1999). This unit was operational on a discontinuous basis until 1979.

One of the most significant activities of the LHAAP began in 1988 with the first destruction of the Pershing rocket motors under the Intermediate-Range Nuclear Forces (INF) treaty with the Soviet Union. The LHAAP was one of two facilities where the motors were destroyed. A ceremony to mark the destruction of the first missile motor was held at the LHAAP and was attended by then Vice President George Bush and a number of Soviet dignitaries (Gaither 1999). The LHAAP was closed in July 1997.

A total of 374 Cold War related resources of unknown/potential eligibility for the NRHP remain to be inventoried and evaluated. A draft report dealing with all post 1946 properties has been prepared and is currently being reviewed by the SHPO. Properties constructed or utilized during the period of the Cold War does not necessarily make the property Cold War related for NRHP consideration (U.S. Army COE, personal

communication, 2000). A total of 189 architectural resources, constructed between 1942-1946, are ineligible for the NRHP (Cliff et al. 1996).

H. Land Use

Historically the region has been used as farmland, for livestock production, and timber harvesting. Cotton was one of the major crops until the 20th Century. More recently the area has supported livestock and hay production, mineral extraction, and nursery plant production in greenhouses.

The LHAAP was used as a hunting and fishing club, ranch, for tenant farming, and for homesteads until purchased by the government. An aerial photograph from the late 1940's shows that most of the plant not occupied by buildings for TNT and propellant production was not forested except along Harrison Bayou. Today most of the site has mature timber or young, regenerating stands of pines except for the landfills and borrow pits and areas with buildings.

I. Socioeconomics

Harrison County occupies 899 square miles; Marshall is the county seat and largest city with a population of 23,451 (1992 data). Other cities and villages in the county include Diana, Elysian Fields, Hallsville, Harleton, Karnack, Nesbitt, Scottsville, Uncertain, and Waskom. Karnack and Uncertain are the towns located adjacent to the LHAAP. The population of Uncertain is 199; Karnack is unincorporated. The total population within one mile of the LHAAP boundaries is estimated to be 769 people and the population density is estimated to range from 0-2,590 per square mile (Texas Department of Health 1999). All figures are from the Bureau of the Census unless otherwise noted.

Harrison County had a total population of 57,483 and an estimated 1997 population of 59,687 for a 3.8 percent change since 1990. The County is 69.5 percent white, 29.7 percent black, and 2.7 percent Hispanic; within one mile of the site, 65.3 percent of the population is white, 32.9 percent is black, and 0.8 percent is Hispanic. The county has 12.2 births and 10.1 deaths per thousand population. During the fall of 1994-1995, the public school enrollment was 12,639, and 70.4 percent of the County's population over 25 are high school graduates. Students near the LHAAP in Karnack and Uncertain attend high school and elementary school at Karnack. Executive Order 12898 on Environmental Justice has been considered and is not pertinent to the proposed project.

The civilian labor force (1966 data) for Harrison County is 28,250, and the current unemployment rate is 5.7 percent for the Longview-Marshall Metropolitan Statistical Area (Texas Workforce Commission data for August, 2000). In 1996, 19.5 percent of the population lived below the poverty level with 27.9 percent of people under 18 under the poverty level. In 1991, approximately 2,000 people worked at the LHAAP, and in 1999 approximately 33 people worked on site (Texas Department of Health 1999).

In 1992 Harrison County had 4 mining establishments with \$67 million in receipts and 220 jobs, 84 manufacturing establishments with \$1,532 million in receipts and 6,500 jobs, 73 wholesale establishments with \$190 million in sales and 490 jobs, 263 retail

establishments with \$283 million in sales and 2,627 jobs, and 235 service establishments with \$85 million in receipts and 1,578 jobs. There were 1107 farms totaling 214,495 acres with a median size of 194 acres. In 1990 the following number of people by job type were employed in Harrison County: agriculture and forestry - 461; mining - 713; construction - 1791; manufacturing - 4910; transportation - 990; communications - 808; wholesale trade - 1017, retail trade - 4029; finance, insurance, and real estate - 956, business, repair, personal, entertainment, and recreational services - 1670; public administration - 645; health services - 1491; educational services - 1939; and other professional and related services - 1420.

The major recreational pursuits are fishing and other water related activities on Caddo and other lakes; hunting; visiting historic sites and plantation homes; attendance at various festivals including Stagecoach Days, Fire Ant Festival, and Wonderland of Lights; ecotourism; and viewing the performing arts (Dallas Morning News 1995).

V. ENVIRONMENTAL CONSEQUENCES

This section evaluates the environmental consequences of each of the alternatives described in Chapter III, Protection Alternatives.

A. No Action (Alternative A)

Under this option, a National Wildlife Refuge would not be established either as an overlay unit or for primary jurisdiction. The Army would continue to exercise control over the area until disposal to some other entity could be arranged. The Caddo Lake Institute lease would continue on two tracts (see Figure 3) for the remainder of their term.

Physical Environment

If the Army does not transfer the site to the Service and disposal continues, it is possible that the State of Texas could acquire the site for use as a State Park or wildlife management area. In this case, conservation of resources would occur under State laws, policies and guidelines. However, if the State does not acquire the site for conservation purposes, it is likely private interests could develop the site. Under this option, some forms of development could subject lands at the LHAAP and adjacent areas to air quality degradation. Development could result in an increased amount of erosion and soil loss that also might result in declining water quality. Mineral resources will be extracted over most of the area under any scenario since these resources will continue to be leased through the U.S. Government and the Bureau of Land Management.

Biological Resources

Under the no action option, ultimately the LHAAP could be subject to timber harvest on the entire site, and the site possibly converted to other uses unless a conservation entity assumes the site. This could cause the irretrievable loss of old growth forests with associated wildlife species along Harrison Bayou. Even if timber harvesting were continued on a sustainable basis, it is likely that the majority of the site would be managed on a short rotation (a harvest cycle of 40 years or less) as a pine monoculture using herbicides instead of fire, further degrading the ecosystem. For the term of the CLI lease on the 1,395 acres (i.e. another 26 years), no timber harvesting would be allowed on this area, but would be possible after the expiration of the lease.

Within this alternative, if the State of Texas does not acquire the site for conservation purposes, management of the natural resources would not likely be oriented toward the perpetuation of biodiversity. Without strategic habitat management, exotic species would continue to increase at the LHAAP. Losses in populations of species of special concern would likely occur. Only if a conservation entity such as a private non-profit corporation or an agency such as Texas Parks and Wildlife Department protected the site would the LHAAP be conserved or enhanced.

Archaeological and Historical Resources

If the area was sold to private interests, it is not likely that the archaeological and historical resources would receive the protection they are now receiving under the existing jurisdiction of the Army or under potential Service management unless specific easements or covenants were utilized to protect the sites. Areas within the CLI leases would receive protection for the remainder of the lease term. In addition no interpretation of the cultural resources would be likely under private ownership, as would be possible under Service management. Permanent protection by a conservation entity would insure conservation of the site, but is not considered likely at present.

If the State of Texas acquired the site, conservation of cultural resources would occur.

Land Use and Socioeconomics

Under the no action alternative, potential economic returns might be greater from private ownership of the LHAAP. Land use of the site undoubtedly would change under this option. Department of Defense employment at the LHAAP will continue to decline. However, recycling efforts by contractors to the Army will continue under any scenario. Employment and local spending by Army contractors charged with the cleanup of contaminants also will continue under any option. CLI might initiate some reuse of the 15-acre administrative area under its lease, but some clients might require a longer commitment of time before establishing an operation at the site.

If the State of Texas acquired the site, it is possible that development as a park might result in economic benefits associated with outdoor recreational uses for the locality.

B. Establishment of Caddo Lake NWR on a Maximum of 8,500 Acres of the Longhorn Army Ammunition Plant as an Overlay Refuge and/or Primary Jurisdiction Refuge (Alternative B – Preferred Alternative)

Under this option, the Service would eventually assume jurisdiction in an overlay status and/or through primary jurisdiction for a portion or eventually all of the LHAAP, and establish the Caddo Lake National Wildlife Refuge at LHAAP. As areas within the LHAAP are declared by the Army with concurrence by the EPA, to be clean, transfer can be made to the Service. With the approval of the Service, lands would first be placed in an overlay status with the Service receiving secondary jurisdiction for the management of natural resources and for compatible wildlife-dependent public use. Some lands could be later transferred from the overlay status into a primary jurisdiction status with the Service.

Physical Environment

Establishment of an overlay refuge would preserve the status quo air quality in the local vicinity. Soil erosion and subsequent degradation of water quality would be minimized. Mineral extraction would not be significantly impacted in the short-term except perhaps

where oil and gas drilling sites might be located. Almost all of the LHAAP is presently leased for oil and gas exploration, and these leases will continue to be honored for their tenure.

Biological Resources

Under this option, protection of the biological resources would be given priority under Service management. The Service has trust responsibilities for migratory birds and endangered species that must be considered in any management scheme. The Service also has the responsibility for managing natural resources to benefit biodiversity. Public use for the enjoyment of wildlife resources will be established in the future. The Service also must manage the area under the dictates of the National Wildlife Refuge Improvement Act of 1997. Management will require consultation with the Army and CLI through mechanisms established by the TMG as dictated by the MOA. Protection of the area in secondary or primary jurisdiction will permit management of a portion of or the entire site and allow buffers for the most sensitive areas.

Archaeological and Historical Resources

Under the overlay refuge/primary jurisdiction alternative, the cultural resources of the entire LHAAP will receive protection as specified under the National Historical Preservation Act, as amended and the Archaeological Resources Protection Act. The SHPO can advise and comment to the Service on proposed actions and offer recommendations. The Service must comply with all applicable laws and regulations dealing with the protection and upkeep of cultural resources. Any Native American remains will be subject to the Native American Graves Protection and Repatriation Act of 1990. Under this option, interpretation of the archaeological and historic resources is possible in the future. The entire suite of cultural resources should be highlighted including prehistoric Native American, historic settlement, World War, and Cold War sites.

Land Use and Socioeconomics

The Service makes payment in lieu of taxes for any lands over which it has primary jurisdiction and manages. Under a overlay refuge agreement, the Service would not make payments in lieu of taxes, but the Army would continue to make payments on any timber harvested. While a limited number of Federal employees would be hired to manage the LHAAP, a greater economic return might be realized under private ownership. Army personnel will continue to decline in numbers, but activities by recycling and contaminant cleanup personnel will continue without interruption. CLI, through the Consortium that it is forming, will seek partners to reuse portions of the LHAAP not presently of value to the Army or the Service. Continuing forestry activities are contemplated on the upland pine plantations as part of a Demonstration Forestry Center. The only anticipated change in land use will result from continuing demolition and collapse of buildings; sites formerly occupied by buildings would be available for remediation and reforestation.

C. Establishment of Caddo Lake NWR on a Portion of the Longhorn Army Ammunition Plant as an Overlay Refuge Only (Alternative C)

Only the sites of highest ecological quality would be protected in overlay status under this alternative. The Service would not assume primary jurisdiction of any of the LHAAP under any circumstances. Only those areas known to be free of contamination and buildings (unless specifically requested by the Service) would be considered for overlay status (see Figure 4). Any lands within the Caddo Lake Institute lease (the majority of the lands that would be protected under this option are within the CLI lease) would be subject to the lease for its duration. Any lands not placed in this overlay status would be subject to disposal by the Army and GSA.

Physical Environment

The air quality on the portion of the LHAAP conserved in an overlay status would remain essentially the same as now. However, development on the remainder of the site might result in degraded air quality if industrial facilities with significant emissions are present. In addition, large amounts of traffic to the area might produce higher ozone levels in times of air inversion. Development at the LHAAP might result in increased erosion at least on a short-term basis during construction activities.

Biological Resources

On the area of the LHAAP with an overlay refuge designation, protection of biological resources would be given priority under Service management, especially migratory birds and endangered species for which the Service has trust authority. Little public use would be possible because of the isolated nature of the tract (see Figure 4). During the tenure of the lease on Harrison Bayou and Starr Ranch, the Service would coordinate management with CLI. All lands not within overlay status would be subject to sale or transfer to other entities whose management of natural resource management would be established later. However, it is unlikely that most owners would make managing for biodiversity and species of special concern a priority. It is likely the area would be intensively harvested, and, even if harvesting were sustainable, the site probably would be converted to a monoculture pine site or to a non-timber enterprise. Sensitive biological lands within the overlay would be subject to encroachment by activities occurring on other portions of the LHAAP. Only minimal buffer lands would protect the sensitive sites.

Archaeological and Historical Resources

Archaeological and historical resources on lands with an overlay refuge status would receive protection under the National Historical Preservation Act and the Archaeological Resource Protection Act. Any Native American remains found on these refuge lands will be subject to the Native American Graves Protection and Repatriation Act. Artifacts and remains on the remainder of the lands would not receive such protection after transfer or sale by the Army to non-federal entities.

Land Use and Socioeconomics

Since the lands would be in overlay status, the Service would not make payments in lieu of taxes to the County. The Army would continue to make payments on any timber harvested at the site. However, development on the remainder of the site may produce a number of jobs and economic income in the area. CLI would be able to implement its Consortium reuse on only about 15 acres of the site and for a maximum of 30 years. Recycling activities and contaminant cleanup would continue unabated.

D. Establishment of Caddo Lake NWR Through Immediate Transfer (Alternative D)

This alternative would result in the immediate transfer of all or part of the LHAAP from the Army to the Service subject to the CLI leases. This might involve all or a part of the LHAAP, but no overlay refuge would be established, even temporarily. The Service would assume immediate and primary control of all transferred property.

Physical Environment

The impacts of this proposal would be identical to those listed in the Preferred Alternative except that any lands not transferred would be subject to disposal and development. The Service would assume immediate responsibility for the repair or demolition of all buildings within the transferred lands; this would be exceedingly costly. It is possible that the Service might assume liability for some contaminant cleanup under this option; the Service wants to avoid this under any situation since the Service actions are not the source of the contamination.

Biological Resources

Again, the impacts of this option would be essentially identical to the preferred option. However, the Service would be able to more aggressively manage the natural resources immediately and initiate a comprehensive public use plan. More money and personnel would be needed very quickly. The Service would have to assume a significant (if not total) portion of the cost of security at the site, and this money is not available to the Service. The Service could more rapidly respond to the threat of invasion by exotic pest species.

Archaeological and Historical Resources

Federal and State laws as noted above would protect archaeological and historical resources on transferred lands. These resources would receive little or no protection if sold to private individuals.

Land Use and Socioeconomics

Land use on areas transferred to the Service would remain essentially the same except on those areas needing reforestation and remediation. Lands sold to private developers could experience significant changes in land use.

Within existing funding constraints, Service personnel would be hired immediately to manage wildlife and compatible public use. Army personnel would remain for only a short time with the exception of the recycling contractors and hazardous material remediation personnel. Any lands not transferred to the Service probably would be taken over by the private sector. Additional jobs might be available and more money might enter the local economy. CLI also would immediately work to organize the Consortium and seek reuse partners.

VI. CONSULTATION AND COORDINATION

Numerous meetings have been held with the Army and its contractors, EPA, and the TNRCC concerning contaminant cleanup and remedial activities. The Service has briefed the staff of Congressman Max Sandlin, and the staffs of Senator Phil Gramm and Kay Bailey Hutchinson concerning the Service's interest in assuming control of the LHAAP. Local citizens have been briefed about the proposal and have been taken to the site for a detailed discussion of the alternatives. A discussion of the LHAAP and possible Service involvement in a transfer was the subject of a briefing to the Harrison County Commissioners Court. In addition, staff of State Representative Paul Sadler, State Senator Bill Ratliff, and Governor George W. Bush have received information about the project.

VII. CUMULATIVE IMPACTS, MITIGATION, AND FUTURE ACTIONS

There are no other Federal proposals or actions in the immediate area that together with the actions proposed here impact the environment.

The actions incorporated within this proposal which stem from EPA administered CERCLA responsibilities serve to facilitate cleanup of hazardous wastes. These actions are not intended to serve as mitigation for the proposal offered in this document per NEPA. The Federal action of transferring jurisdiction from the Army to the Service and the establishment of the Caddo Lake NWR requires no mitigating actions since the proposal causes no significant impacts to the human environment.

This action and nothing in this document should be construed to affect the ability of state, tribal and federal natural resource trustees to seek restoration of injured natural resources. Furthermore, State and Federal Agencies participating in the Federal Facility Agreement for the remediation of contamination at Longhorn Army Ammunition Plant will continue to seek to render lands at the LHAAP safe for human health and the environment.

Site specific actions taken by the Service which follow acceptance of this proposal may require additional site specific NEPA compliance.

VIII. LIST OF PREPARERS

Jim Neal, Wildlife Biologist, U. S. Fish & Wildlife Service; P. O. Box 4655 SFA Station;
Nacogdoches, TX 75962.

Susan MacMullin, Chief, Division of Habitat Conservation/ Environmental
Contaminants, U.S. Fish and Wildlife Service, P.O. Box 1306, Albuquerque, NM 87103

Rod Krey, Refuge Supervisor, Oklahoma/Texas, U.S. Fish and Wildlife Service, P.O.
Box 1306, Albuquerque, NM 87103

APPENDICES

**Appendix A. Memorandum of Agreement Concerning a Framework for the
Potential Establishment of the Caddo Lake National Wildlife Refuge**

**Memorandum of Agreement
concerning
A Framework for the
For the Potential
Establishment of a
Caddo Lake National Wildlife Refuge**

The U.S. Fish and Wildlife Service, U.S. Department of the Interior ("FWS"), the U.S. Department of the Army ("Army"), and the Caddo Lake Institute ("CLI") (collectively, the "Parties"), have entered into this Memorandum of Agreement ("MoA") to implement portions of the Parties' November 1999 Memorandum of Understanding ("1999 MoU") concerning the Longhorn Army Ammunition Plant ("LHAAP"), Karnack, Texas. The primary purpose of this MoA is to establish a framework and planning process which the Parties agree to follow in pursuing the creation of a Caddo Lake National Wildlife Refuge. It is intended that the processes and decision principles set forth herein be relied on in order to set essential parameters and guide further efforts among the Parties to establish the Wildlife Refuge.

RECITALS

1. Under the 1999 MOU the Army agreed to "take all steps necessary to permit FWS to establish a Refuge Overlay" at LHAAP "on terms mutually agreeable" and to provide FWS access to data and personnel "to facilitate conduct and completion of Due Diligence and other activities" (1999 MoU p.3, sec 1).
2. Since November 1999, the Parties have conducted joint on-site investigations, coordinating conferences, data mapping and scoping activities.
3. The potential footprint of the Caddo Lake National Wildlife Refuge (hereinafter "Refuge Footprint") as identified by Region 2 of FWS, consisting of 7,172 acres of LHAAP property more or less, is denoted by the colors green and light brown on MAP EXHIBIT A. Darker brown areas are not included in the Refuge Footprint because these areas are still undergoing Remedial Investigations Feasibility Studies (RI/FS) for known or suspected contaminants. Green and light brown areas identify lands which justify further activities by the Parties to determine the portions thereof which are suitable for any future administrative transfer to FWS for wildlife refuge and compatible re-uses under 16 USC 667b.
4. Region 6 of the U.S. Environmental Protection Agency (USEPA) expressed a willingness to follow procedures under which USEPA, in coordination with state authorities, would concur with the Army's determination that the refuge lands either had no history of contamination or had been properly remediated and were suitable for transfer for refuge purposes. USEPA's assurance was provided on the expectation that the Army would base its determination on data like that compiled and relied on to meet the requirements of section 120 (h) of CERCLA.

USEPA provided further assurances that, as between the Army and FWS, it would consider the Army responsible for any contamination caused by the Army's activities at LHAAP, or that of its operator-contractor, as required under CERLCA and the Longhorn Federal Facilities Agreement (FFA).

5. This MoA reflects the Parties' agreements to implement their 1999 MoU in the following respects:

- (a) Establishment of a framework and process covering the future negotiation of the specific details for administratively transferring property from the Army to FWS to create a Caddo Lake National Wildlife Refuge;
- (b) Formation of a Transition Managers Group (TMG) consisting of knowledgeable representatives from each of the Parties to conduct these negotiations and coordinate other activities, such as those listed below, aimed at facilitating creation of the Wildlife Refuge;
- (c) Establishment of guiding principles by which the respective Parties, through the appropriate use of their TMG representatives, shall perform and document these activities;
- (d) Provide for the Parties joint announcement of their execution of this MoA for release by Memorial Day, May 29, 2000.

AGREEMENTS

Now Therefore The Parties agree as follows:

1. **Framework for the creation of the Caddo Lake National Wildlife Refuge.** The Parties establish that the Refuge Footprint area described above shall be considered for inclusion into the National Wildlife Refuge System, subject to the following understandings, processes, and principles:
 - a. Refuge Footprint. The Refuge Footprint delineates portions of LHAAP where the Parties will focus their activities to permit FWS to select those areas, buildings and other improvements which are suitable for transfer to FWS under 16 USC 667b to facilitate creation of the Caddo Lake National Wildlife Refuge, and for other compatible re-uses identified in the Parties' 1999 MoU.
 - b. Army Primary Jurisdiction. The Army will retain its present exclusive administrative responsibilities and authority for the Refuge Footprint, and all buildings and other improvements

therein, until Army completes a transfer of jurisdiction to FWS under 16 USC 667b, or as otherwise agreed to by the Army and FWS.

- c. FWS Establishment of a "Refuge Overlay" (optional). Prior to the section 667b transfer of Refuge Footprint areas from the Army to FWS, FWS may, assume management responsibilities within Refuge Footprint areas, including responsibility for buildings and other improvements which FWS has designated for transfer from the Army under 16 USC 667b, but for which such transfer has not been executed. Any such assumption of responsibilities by FWS shall be documented under mutually acceptable interim management permits or other agreements with the Army as consistent with applicable law and regulation. It is understood that permits or other agreements entered into between the Army and FWS under this subsection (c), shall confer on FWS an administrative property interest in those portions of the Refuge Footprint for which FWS has elected to create a Refuge Overlay and assume associated management responsibilities.
- d. NEPA compliance. All activities contemplated under this MoA shall comport with the requirements of the National Environmental Policy Act (NEPA). In this respect, it is understood that FWS will be unable to establish a Caddo Lake National Wildlife Refuge or establish a Refuge Overlay covering Refuge Footprint areas until required NEPA compliance actions associated with these activities are completed.
- e. Required permits. Army will expeditiously process and execute appropriate real estate permits or other real estate instruments to facilitate the conduct of activities under this MoA.

2. **Transition Managers Group: purposes & tasking**. Within two weeks after the date of execution of this MoA, the Parties will establish the LHAAP Transition Managers Group (TMG), by written notification to other Parties of the names, titles and contact information of their respective TMG members. Each of the Parties will be represented at the TMG level by their respective TMG members. It is expected that each Party's TMG team will include on-site LHAAP representatives. The participation of USEPA and appropriate State of Texas environmental regulatory authorities will be sought as necessary. The TMG is established to coordinate the Parties respective operational activities and it is not intended to provide consensus advice or recommendations.

- a. First meeting. As an initial step, the TMG shall convene for its first session not later than June 30, 2000, for the purpose of coordinating an initial work plan. The focus on the work plan will be coordinating activities that the Army, FWS, and CLI respectively, may agree to perform to facilitate the transfer of property included in the Refuge Footprint to FWS for the creation of a wildlife refuge, and to implement any of the interim objectives established in this MoA.
- b. Tasks. The TMG will meet in person at LHAAP at least once per quarter (and more frequently as needed in person or by telephone conference) to implement this MoA by coordinating activities assigned to the TMG by mutual direction of the Parties. Pending further directions, the tasks of the TMG shall include the following:
 - i. Develop or amend coordinated work plans encompassing activities that the Parties may perform to facilitate FWS due diligence and the ultimate creation of the wildlife refuge.
 - ii. Evaluate and manage the progress of work plans relating to the creation of the wildlife refuge.
 - iii. Coordinate personnel and fiscal resources of the Parties to the extent available for activities under this MoA.
 - iv. Develop and recommend to the Parties practical, site-specific resolutions for problems which might delay or obstruct timely completion of activities contemplated by this MoA.
 - v. Document the proper completion of MoA conditions for section 667b transfers under this MoA, such as due diligence, soil characterization, remediation work, identification of areas, buildings and other improvements within the Refuge Footprint which are to be included or excluded from transfer to FWS.
 - vi. Refine the Scoping Agreement first draft, previously submitted by CLI.
 - vii. Development of a Restoration and Re-use plan, to include Longhorn Consortium strategies, for the re-use of buildings and areas within the Refuge Footprint which are not selected for transfer by FWS, including RI/FS enclaves which are not included in the Footprint.
 - viii. Consistent with principle (d) below, identify roads, bridges and other infrastructure for reservation of use and maintenance by Army or for discontinuance, closure, secure abandonment, or institutional controls.

- ix. Coordinate development of an administrative transfer plan and transfer documents for Refuge Footprint areas selected for transfer, including mechanisms for resolving issues concerning public access and visits to the refuge, liability for third party claims, and dispute resolution.
- x. Resolve site-specific questions under "TMG Decision Principles" set out below, or refer any questions, which cannot be resolved by the foregoing means, to the Parties for their mutually agreed directions to their respective representatives.

3. **TMG Decision Principles.** The Parties reserve the right to specify mutually agreed decision principles for use by the TMG from time to time. Pending such additional directions, the following principles shall govern the activities undertaken by the Parties to facilitate implementation of this MoA.

(a) Long term goal: FWS Administrative Transfer decisions before the end of FY 2001. If consistent with NEPA determinations, those portions of LHAAP that FWS determines are compatible with the establishment of a wildlife refuge shall be selected for section 667b transfer before the end of FY 2001, as contemplated in paragraph 2, page 6 of the 1999 MoU.

(b) Finding of Suitability of Transfer Determination: As a prerequisite to transfer, the Army will prepare, with appropriate review and comment by USEPA and appropriate State of Texas environmental regulatory authorities, and execute a Finding of Suitability of Transfer ("FOST") like document, known as an Environmental Condition of Property (ECOP), for property to be transferred as suitable for reuse as a wildlife refuge. The Army will prepare this document in accordance with procedures developed to comply with the requirements of CERCLA Section 120 (h) (3) or (h) (4), as appropriate. With respect to parcels of the property, if any, determined to be contaminated and presently unsuitable for reuse as a wildlife refuge, the Army will be afforded the option to either (a) remediate the subject parcels to a standard which FWS and Army mutually agree is compatible with reuse as a wildlife refuge and transfer such property to FWS; or (b) retain and/or remediate the subject parcels to facilitate alternative options for disposition. In addition, it is expressly understood that any environmental remediation required at LHAAP will be performed in accordance with the Longhorn Federal Facilities Agreement, effective December 30, 1991 (FFA), and the Army's environmental restoration program.

- (c) Affirmation of Army's Continuing Remediation Obligations: As contemplated by the 1999 MoU, to assist FWS and CLI in obtaining confirmation from USEPA that as between the Army and FWS, the Army (and not FWS or CLI) is responsible for the remediation of any contamination discovered on lands transferred to FWS which originated from Army occupancy or use of the property (including occupancy and use by the Army's LHAAP operator-contractor), the Army affirms and will reaffirm to USEPA its continuing cleanup obligations under the FFA, CERCLA, and the DoD Policy on Responsibility for Additional Environmental Cleanup after Transfer of Real Property, dated July 1997.
- (d) Demolition of Buildings and Infrastructure will not burden Army or FWS budgets: Neither FWS nor the Army will be required to assume out of annual appropriations the cost of demolishing structures or infrastructure improvement at LHAAP, unless necessary to protect human health and the environment. Rather, should the Army or FWS determine it necessary to demolish buildings or other improvements located within Refuge Footprint areas in order to render the subject property compatible with the establishment of a wildlife refuge, the Army and FWS agree to work cooperatively to develop a funding plan for accomplishing this work. In no event, however, shall either agency be required or expected to assume this cost out of annual appropriations. Therefore, should the Parties be unable to reach agreement on such a funding plan, FWS will not be expected to accept, but may exclude buildings and associated footprint or fenced cantonment areas from portions of the LHAAP property to be managed by or transferred to FWS, unless presented with an Army or third party plan, acceptable to FWS, setting forth a mechanism for handling future demolition requirements, including any required removal or abatement of non-friable asbestos containing material. Similarly, the Army will not be required to transfer any such building footprint or fenced cantonment area to FWS, if as a condition to transfer, the Army would have to conduct demolition or other work for the sole purpose of transferring the underlying real property to FWS for reuse as a wildlife refuge.
- (e) Roads, bridges and Infrastructure.
- (1) The Army reserves the non-exclusive right to designate and use those roads, bridges or other infrastructure which Army desires to use to conduct its ongoing cleanup responsibilities at LHAAP, including portions which cross or are located within the Refuge Footprint. The Army will maintain such reserved roads, bridges and infrastructure. FWS and CLI will

be granted appropriate access rights to permit them to use such infrastructure for access to areas and activities contemplated by this and prior agreements between the Parties.

- (ii) Roads, bridges and infrastructure which are not reserved by Army but which are located within Refuge Footprint lands selected by FWS for transfer shall be included in the transfer, and may be used by FWS, or closed to Army or other road use, as FWS shall determine.

- (f) Development of the Longhorn Consortium and Creation of an Adaptive Reuse Plan: CLI will seek actively to recruit participants in the Longhorn Consortium, as contemplated by the 1999 MoU. CLI and ultimately the Longhorn Consortium will work with the TMG (see above) to develop an acceptable and executable plan for the adaptive reuse of existing LHAAP structures and facilities. A key goal of any such plan shall be to provide for the privately funded restoration of LHAAP structures and facilities, including, as necessary, work required for ACM or other substance abatement, as discussed above. CLI's obligations to perform such activities is contingent upon its receiving in-kind credit or offsets for work performed against rental payments coming due under its existing real property lease with the Department of the Army.

- (g) Army Contribution to Support FWS Ecological and Human Health Risk Assessment: The Army will contribute on a one-time basis \$100,000 to be used by FWS as a contribution toward the cost of conducting its ecological and human health risk assessment. Information obtained from FWS assessment activities will be shared with the Army to assist the Department in addressing requirements under CERCLA and the Installation Restoration Program for an ecological and human health risk assessment. It is expressly agreed and understood by the Parties that the relevance of any FWS findings concerning potential contamination of biota and/or wildlife is limited to assisting FWS in determining whether to incorporate specific portions of LHAAP in the 667b transfer that is to create the wildlife refuge. The Army and FWS will coordinate the development of a scope of work and other required documents to describe and delineate the work to be performed by FWS, so as to ensure that the work conducted is for the mutual benefit of the Army and FWS. In preparing these documents, the Army and FWS will refer to and take into consideration the biomarkers screening level protocol appended to the draft Scoping Report prepared by CLI.

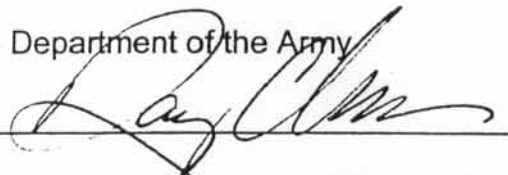
4. Miscellaneous provisions.

- a. Map Exhibit. The Color Map Exhibit A , Guice Engineering rev 3-14-2000 is incorporated herein by this reference.
- b. Memorial Day Announcement. The Parties' Joint Memorial Day Announcement concerning this MoA is attached hereto.
- c. USEPA concurrence. USEPA may concur in this MoA by separate writing confirming USEPA's concurrence with the provisions of this Agreement, which refer to USEPA.
- d. GSA concurrence. The Parties shall obtain the General Services Administration (GSA) endorsement of this MoA and agreement to execute any designating orders or other documents which are customarily executed, made or published by GSA in connection with transfers of federal lands to the Department of Interior under 16 USC 667b.
- e. MoA Supplements 1999 MoU. This MoA supplements and refines the 1999 MoU, which continues in effect in all other respects. Any conflicts between this MoA and the 1999 MoU shall be resolved in favor of this MoA.

The Parties hereto have caused their respective authorized representatives to execute and deliver this agreement.

U.S. Department of the Army

BY:



Title: Principal Deputy Assistant Secretary, (Installations & Environment)

Date: May 22, 2000

U.S. Fish and Wildlife Service

BY:

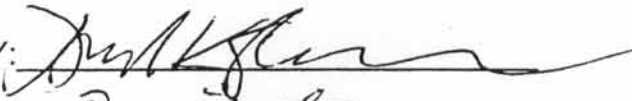


Title: Director

Date: May 22, 2000

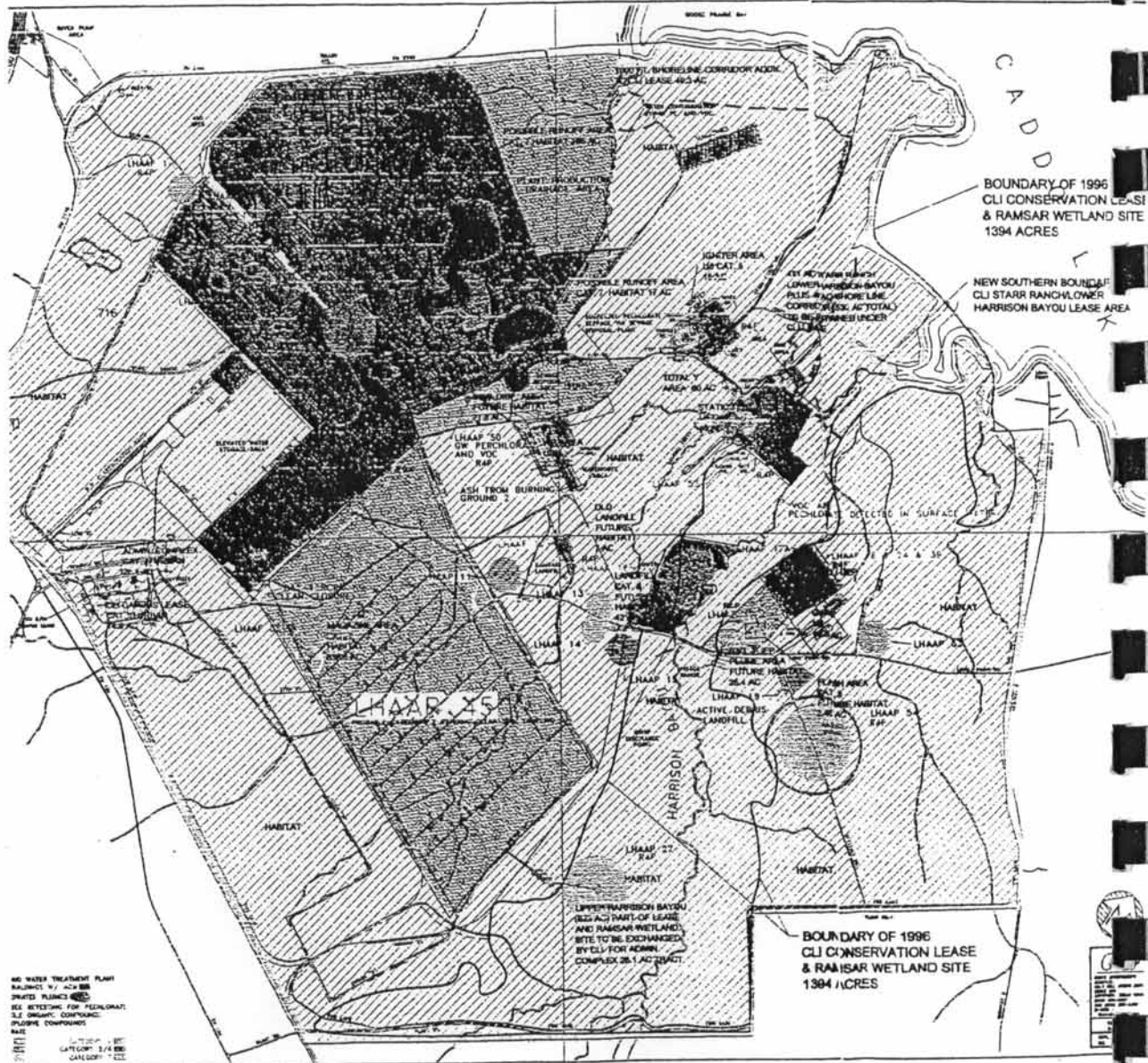
Caddo Lake Institute

BY:



Title: President

Date: May 22, 2000



CADD
 BOUNDARY OF 1996
 CLI CONSERVATION LEASE
 & RAMSAR WETLAND SITE
 1394 ACRES

NEW SOUTHERN BOUNDARY
 CLI STARR RANCH LOWER
 HARRISON BAYOU LEASE AREA

BOUNDARY OF 1996
 CLI CONSERVATION LEASE
 & RAMSAR WETLAND SITE
 1394 ACRES

**Appendix B. Federal Laws and Regulations Applicable to the Protection and
Management of Fish and Wildlife Resources**

Federal Laws and Regulations Applicable to the Protection and Management of Fish and Wildlife Resources

Antiquities Act of 1906 (34 Stat. 225): Provided for protection of artifacts and historical objects and their recovery by accredited institutions.

Archaeological Resources Protection Act of 1979 (93 Stat. 721; 16 U. S. C. 470aa): This act protects archeological resources on public lands from unauthorized excavation, removal, damage, alteration, or defacement. For any person who would make unauthorized use of archeological resources without a permit, criminal and civil penalty and forfeiture provisions are prescribed in the act. For agencies of the Department of Interior, regulations that implement the act appear under Part 7 of Title 43 of the Code of Federal regulations.

Bald and Golden Eagles Protection Act of 1940 (16 U.S.C. 668- 668d; 54 Stat. 250): Provides for protection of the bald eagle (the national emblem) and the golden eagle.

Criminal Code Provisions of 1940 (18 U.S. C. 41), as amended: States the intent of Congress to protect all wildlife within Federal sanctuaries, refuges, fish hatcheries, and breeding grounds, and provides that anyone except in compliance with rules and regulations promulgated by authority of law, who hunts, traps, or willfully disturbs any such wildlife, or willfully injures, molests, or destroys any property of the United States on such land or water shall be fined up to \$500 or imprisoned for not more than six (6) months or both.

Endangered Species Act of 1973 (16 U.S.C. 1531 -1543; 87 Stat. 884): This Act provides for the conservation of threatened and endangered species of fish, wildlife, and plants by Federal action and by encouraging State programs. Specific provisions include: (1) authorizes the listing and determination of critical habitat of endangered and threatened species and requires consultation with the Service on any federally-funded or licensed project that could affect any of these species or their habitat; (2) prohibits unauthorized trading, possession, sale, transport, etc. of endangered species; (3) authorizes an expanded program of habitat acquisition; (4) authorizes the establishment of cooperative agreements and grants-in-aid to States which establish and maintain an active, adequate program for endangered and threatened species; and (5) authorizes the assessment of civil and criminal penalties for violating the Act or regulations.

Federal Water Pollution Control Act of 1972 (Public Law 92-500, 86 Stat. 816):
Section 401 - Requires any applicant for a Federal license or permit to conduct any activity which may result in a discharge into navigable waters to obtain a certification from the state in which the discharge originates or will originate. Section 404 - Authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits, after notice and opportunity for public hearings, for discharge of dredged or fill material into navigable waters at specified disposal sites.

Fish and Wildlife Act of 1956 (16 U.S.C. 742a- 742j; 70 Stat. 1119): Approved August 8, 1956, the Act established a comprehensive fish and wildlife policy and directed the Secretary of the Interior to provide continuing research; extension and information service; and directed development, management, and conservation of fish and wildlife resources.

Land and Water Conservation Fund Act (LWCFA) of 1965: This Act provides financial assistance to the States for outdoor recreation, primarily in (1) planning; (2) acquisition of land, water, or interests in land or waters; or (3) development.

In addition to assistance to the States, the LWCFA also provides that not less than 40 percent of the annual appropriation shall be available for Federal purposes. Funds appropriated for Federal purposes shall be made available for the acquisition of land, waters, or interests in land or waters for the (1) National Park System, (2) National Forest System, (3) National Wildlife Refuge System, and (4) Bureau of Land Management.

The appropriations provided by the LWCFA are derived from Outer Continental Shelf leases, tax on motorboat fuels, and sale of certain surplus Federal lands. The Act also increases LWCFA authorization for Fiscal Year 1978 and the following years through Fiscal Year 1989.

The Service utilizes four basic acquisition authorities which are allowed through the funding authority of the LWCFA to purchase land and water, including (1) Endangered Species Act of 1973; (2) Recreation Act of 1962; (3) Fish and Wildlife Act of 1956, except for migratory waterfowl areas; and (4) any areas authorized as additions to the National Wildlife Refuge System by specific Congressional Acts.

Migratory Bird Conservation Act of 1929 (16 U.S.C. 715- 715r; 45 Stat. 1222): Authorizes acquisition, development, and maintenance of migratory bird refuges; cooperation with others in conservation; and investigations and publications on North American birds.

Migratory Bird Hunting Stamp Act of 1934 (16 U.S.C. 718- 718h; 48 Stat. 451): Requires hunters, sixteen (16) years of age or older to possess a valid "duck stamp". Required use of "duck stamp" net revenue to acquire migratory bird refuges and waterfowl production areas.

Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-711; 40 Stat. 755): Implements treaties with Great Britain (for Canada), Mexico, Japan, and the Soviet Union for protection of migratory birds whose welfare is a Federal responsibility; provides for regulations to control taking, possessing, selling, transporting, and importing of migratory birds and provides penalties for violations.

The National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. 4321, ~.; 83 Stat. 852): Declares the national policy to encourage a productive and enjoyable harmony between man and his environment. Section 102 of that Act directs that "to the fullest

extent possible: (1) the policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with the policies set forth in the Act, and (2) all agencies of the Federal Government shall... insure that presently unquantified environmental amenities and values may be given appropriate consideration in decision making along with economic and technical considerations..."

Section 102(2)c of the National Environmental Policy Act requires all Federal agencies, with respect to major Federal actions significantly affecting the quality of the human environment, to prepare a detailed statement on:

- (i) The environmental impact of the proposed action;
- (ii) Any adverse environmental effect which cannot be avoided should the proposal be implemented;
- (iii) Alternatives to the proposed action;
- (iv) The relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity;
- (v) Any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

National Historic Preservation Act of 1966 (16 U.S.C. 470, ~.; 80 Stat. 915): The Act provides for the preservation of significant historical features (buildings, objects, etc.) through a grant-in-aid program to the States. Establishes a National Register of Historic Places. Federal agencies are required to take into account the effects of their actions on buildings, etc., included or eligible for inclusion in the National Register.

National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd - 668ee; 80 Stat. 927): Consolidates the authorities for the various categories of areas previously established that are administered by the Secretary of the Interior for the conservation of fish and wildlife, including species that are threatened with extinction. All lands, waters, and interests therein administered by the Secretary as wildlife refuges, etc., are hereby designated as the National Wildlife Refuge System. Provides, according to the Act, that the Secretary may authorize hunting and fishing to the extent practicable and consistent with State fish and wildlife laws and regulations.

National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57, October 9, 1997): This Act defines the mission of the National Wildlife Refuge System, which is, "to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans. Key provisions include the following:

* It requires the Secretary of the Interior to ensure the biological integrity, diversity, and environmental health of the National Wildlife Refuge System are maintained.

* It defines compatible wildlife-dependent recreation as "legitimate and appropriate general public use of the [National Wildlife Refuge] System."

* It establishes hunting, fishing, wildlife observation and photography, and environmental education and interpretation as "priority public uses" where compatible with the mission and purposes of individual national wildlife refuges.

* It retains the refuge managers' authority to use sound professional judgment in determining compatible public uses on national wildlife refuges and whether or not they will be allowed. It establishes a formal process for determining "compatible use".

* And it requires public involvement in decisions to allow new uses of national wildlife refuges and renew existing ones, as well as in the development of "comprehensive conservation plans" for national wildlife refuges.

National Wildlife Refuge Regulations for the most recent Fiscal Year (50 CFR Subchapter C; 43 CFR 3101.3-1): Regulations for administration and management of wildlife refuge areas including mineral leasing, exploration, and development.

Refuge Recreation Act of 1962 (16 U.S.C. 460k -460k-4; 76 Stat. 653): Authorizes appropriate, incidental, or secondary recreational use on conservation areas administered by the Secretary of the Interior for fish and wildlife purposes.

Refuge Revenue Sharing Act of 1935, as amended in 1978 (16 U.S.C. 715s; 92 Stat. 1319): Makes revenue sharing applicable to all lands solely or primarily administered by the Service, whereas previously it was applicable only to areas in the National Wildlife Refuge System. The new law makes payments available for any governmental purpose, whereas the old law restricted the use of payments to roads and schools. For fee (acquired) lands, the new law provides a payment of .75 per acre, 3/4 of 1 percent of fair market value, or 25 percent of net receipts, whichever is greater, whereas the old law provided a payment of 3/4 of 1 percent adjusted cost or 25 percent of net receipts, whichever is greater. For reserve (public domain) lands, the law provides for a payment of 25 percent of net receipts. The new law authorizes appropriations to make up any shortfall in net receipts to make payments in the full amount for which counties are eligible. The old law provided that if the net receipts were insufficient to make the full payment, the payment to each county would be reduced proportionally.

Refuge Rights-of-Way General Regulations (50 CFR 29.21): Provides for procedures for filing applications and the terms and conditions under which rights-of-way over, above, and across lands administered by the Service may be granted.

Refuge Trespass Act of June 25, 1948 (18 U.S.C. 41; 62 Stat. 686): The Act makes it unlawful to hunt, trap, capture, willfully disturb or kill any bird or wild animal, or take or destroy the eggs of any such birds on any lands of the United States set apart or reserved as refuges or breeding grounds for such birds or animals by any law, proclamation, or executive order, except under rules and regulations of the Secretary. The Act also protects Government property on such lands.

Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (public Law 91-646; 42 U.S.C. 4601, et. seq.): This act provides for fair and equitable treatment of persons displaced as a result of a Federal program. It provides that landowners receive a just compensation statement giving the fair market appraised value prior to negotiations. The act outlines the required fair treatment of the landowner during the appraisal process, and requires appraisals be done using uniform appraisal standards. Benefits may include reimbursements for reasonable moving expenses; replacement housing payments under certain conditions; relocation assistance services to help locate replacement housing, farms, or businesses; and reimbursement for certain expenses incurred in selling real property to the government. Tenants will not be required to move until their property has been acquired and relocation assistance has been offered. Any relocation benefits paid will be in addition to money paid for real property and is not taxable.

Use of Off-Road Vehicles on Public Lands (Executive Order 11644, as amended by Executive Order 11989): Provides policy and procedures for regulating off-road vehicles.

Wilderness Act (16 U.S.C. 1131; 78 Stat. 890): Establishes the wilderness system as a supplement to the purposes for which units of the National Wildlife Refuge System are established.

**Appendix C. Draft Conceptual Management Plan: Proposed Establishment of the Caddo
Lake National Wildlife Refuge**

Draft Conceptual Management Plan: Proposed Establishment of the Caddo Lake National Wildlife Refuge

I. INTRODUCTION

This document provides a general guideline for management of the Caddo Lake National Wildlife Refuge (NWR) by the U.S. Fish and Wildlife Service (Service). The Service proposes to create an overlay refuge through a cooperative natural resources management agreement for lands within the Longhorn Army Ammunition Plant (LHAAP), and subsequently to acquire all or part of LHAAP lands from the U.S. Army. These actions establish the Caddo Lake NWR within Harrison County, Texas. This Conceptual Management Plan (CMP) only provides limited detail and does not pinpoint where facilities will be located or show where public use could occur. Greater detail will be included in a formal refuge Comprehensive Conservation Plan (CCP). The Service will initiate the CCP within five years from establishment of the refuge. Additionally, the CCP will include input from the public in accordance with the National Environmental Policy Act (NEPA), as well as the compatibility requirements in the National Wildlife Refuge System (NWRS) Administration Act, as amended; and the Refuge Recreation Act.

II. MISSION AND GOALS OF THE NATIONAL WILDLIFE REFUGE SYSTEM

With the passage of the Improvement Act, the mission of the NWRS was established. The Refuge System Mission . . .

"is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans."

Refuge System Goals. Prior to passage of the Refuge Improvement Act, the Service had established four goals for the NWRS (Refuge Manual 2 RM 1-4):

- To preserve, restore, and enhance in their natural ecosystems (when practicable) all species of animals and plants that are endangered or threatened with becoming endangered.
- To perpetuate the migratory bird resource.
- To preserve a natural diversity and abundance of animals and plants on refuge lands.
- To provide an understanding and appreciation of fish and wildlife ecology and man's role in his environment, and to provide refuge visitors with high quality, safe, wholesome, and enjoyable recreational experiences oriented toward wildlife to the extent these activities are compatible with the purposes for which the refuge was established.

These goals have remained in place in general order or priority.

The Refuge goals include:

1. To conserve and restore migratory birds, including neotropical migrants.
2. To conserve and restore the natural diversity of Ramsar wetlands including bottomland hardwood forests along Harrison Bayou and elsewhere.
3. To conserve, remediate, and restore the natural diversity of fish and wildlife resources by managing large blocks of lowland and upland forest habitats.
4. To provide research, monitoring, and educational opportunities with an emphasis on resource conservation, restoration, and enhancement of biodiversity and ecological integrity.
5. To provide the public with opportunities for high quality, wildlife-dependent and culturally oriented recreation to the extent these activities are compatible with the mission of the Caddo Lake National Wildlife Refuge and are compatible with uses in the National Wildlife Refuge System Improvement Act.
6. To protect and promote interpretation of the full range of prehistoric and historic cultural resources.

III. ESTABLISHING AUTHORITIES

The following statutory authorities are the basis for establishment of Caddo Lake NWR:

- (1) Section 667b of the Fish and Wildlife Coordination Act of 1934, as amended [16 U.S.C. 661-667e; the Act of March 10, 1934; Chapter 55; 48 Statute 401] for "...wildlife conservation purposes..." and for "real property [that] has particular value in carrying out the national migratory bird management program."
- (2) The Fish and Wildlife Act of 1956 [16 U.S.C. 742a-742j], as amended authorizes the Secretary of the Interior to acquire interests in property "... for the development, advancement, management, conservation, and protection of fish and wildlife resources..."

These purposes fulfill a public need for the development, advancement, management, conservation, and protection of migratory birds including neotropical migrants, old growth bottomland hardwood forests, Ramsar wetlands, numerous species of concern, and the restoration of upland mixed pine/hardwood forests.

IV. PURPOSE FOR ESTABLISHMENT

Caddo Lake NWR Purpose Statement. The purpose statement along with the Mission of the NWRS are the bases upon which management activities are determined. These statements are the foundation for allowed uses of refuges as determined by a defined compatibility process.

The CLNWR "...shall be administered by him [Secretary of the Interior] directly or in accordance with cooperative agreements... and in accordance with such rules and regulations for the conservation, maintenance, and management of wildlife, resources

thereof, and its habitat thereon..." 16 U.S.C. 664 (Fish and Wildlife Coordination Act of 1934)

Caddo Lake NWR is being established for:

- The conservation and enhancement of migratory birds including neotropical migrant;
- The conservation of Ramsar wetlands and other wetlands at the LAAP;
- The development, advancement, management, conservation and, protection of all native fish and wildlife resources, including those listed as threatened and endangered.

Management at Caddo Lake NWR derives from these preliminary purposes. Wildlife-dependent recreational use opportunities such as hunting, fishing, and wildlife observation will be incorporated into management, subject to security and safety concerns, of the Army and the Service.

Additional refuge objectives provide for strategies that provides the full protection and interpretation of cultural resources on refuge lands.

Refuge objectives will encourage and provide financial and logistical support for research, monitoring, and field study important to the successful accomplishment of the refuge program. It also is an objective of the refuge management program to recognize and protect areas under the Research Natural Area designation.

V. MANAGEMENT OF THE REFUGE

In general, the lands subject to an overlay management agreement or to be accepted by the Service from the will be managed to fulfill the purposes for which the Caddo Lake National Wildlife Refuge was established. However, new objectives will be developed as part of the CCP process. In the interim, the following represents a general approach to managing the lands accepted by the Service as part of the Caddo Lake National Wildlife Refuge. They follow three broad topical areas: Wildlife and Habitat Management including population monitoring; Recreational Uses; and Refuge Administration and Facilities Management.

A. Wildlife & Habitat Management & Population Monitoring

Wildlife & Habitat Management. The Service will manage habitats on lands subject to a cooperative agreement or lands it acquires consistent with the purposes for which those lands were acquired, i.e., to restore and maintain habitats for migratory birds, including neotropical migrants; conserve and restore wetland habitats, including Ramsar Wetlands of International Significance especially for Waterfowl Habitat; to maintain habitat and restore natural diversity of fish and wildlife resources on large blocks of upland and lowland forests; and to conserve, restore, and monitor species of special concern and their associated habitats.

A refuge management goal is restoration of the integrity and function of the intact native biotic

communities: waters of Caddo Lake, oxbows, backsloughs, and rivers and streams; bald cypress swamps; shrub/scrub woodlands; bottomland hardwood flats and bottomland hardwood slope forests; mixed pine/hardwood or hardwood/pine forests; managed pine forests; young, regenerating pine thickets; grasslands; upland hardwood forests; and urban/developed land and bare soil. Some areas such as the urban/developed land and bare soil will require reestablishment of native plants to hasten biotic community recovery. In addition, the managed pine forests and pine thickets will require continuing forest management, including harvesting and thinning, to move the areas back to a natural condition.

Population Monitoring. Since the primary purpose for establishing a national wildlife refuge is wildlife, extensive surveys, particularly of old growth communities, habitats in transition, species of concern, and migratory birds, will be conducted to track population trends. This is the basis for habitat management decisions. Studies include nesting surveys to determine densities and success, breeding bird surveys, Audubon Society Christmas bird counts, and banding and marking. Academic research and research by other agencies will be encouraged and is currently being conducted to provide additional information that will assist with habitat management.

B. Wildlife-Dependent Recreational Uses

The Refuge Improvement Act was designed to ensure that six priority wildlife-dependent recreational uses are strongly considered for integration into refuge programs provided they are determined compatible with the purposes for which the refuge was established and with the Mission of the NWRS as defined earlier. These six priority wildlife-dependent uses are hunting, fishing, wildlife observation, photography, environmental education, and interpretation of natural and cultural resources.

Executive Order 12996 and Preacquisition Recreational Uses. The Refuge Improvement Act codified many of the principles contained in a 1996 presidential Executive Order 12996, *Management and General Public Use of the National Wildlife Refuge System*, requiring the Service to examine any existing wildlife-dependent priority public recreational uses on lands proposed to be acquired and, in conjunction with public involvement, make a determination on whether those uses can continue, be modified, or be discontinued. Law now recognizes these uses as priority wildlife-dependent recreational uses. If an existing use is legal, compatible, safe, consistent with sound fish and wildlife management principals, and otherwise in the public interest, the Service assesses whether it has the funding and staffing to administer that program. If those resources are insufficient, the new law requires the Service to seek out partners to assist in implementing that program - for example, assistance from state personnel to enable an understaffed refuge to have a hunting program. Only after exhausting all possibilities for assistance from partners, can the Service prohibit an otherwise compatible, safe and sound wildlife-dependent public recreational use.

Uses on Lands to Be Accepted by the Service from the Army. All new lands will be evaluated for compatible wildlife-dependent priority recreational uses. Under the Army's

management of the LHAAP, a hunting and fishing program was allowed. White-tailed deer, squirrels, and waterfowl and other migratory birds have been hunted on the LHAAP based on existing State regulations and Federal law. Fishing in Caddo Lake and other bodies of water within the LHAAP were allowed on a limited basis under State regulations. Limited public use for wildlife observation and photography also has been permitted in recent years. It is expected that in the short-term only very limited public use may be available. However, in the long-term, it is anticipated that hunting, fishing, and wildlife observation and photography will be allowed as security and safety concerns by the Army and the Service are addressed. Environmental education and interpretative of natural and cultural resources also will not be immediately undertaken due to security and safety concerns and the arrival of proper staff..

C. Refuge Administration & Facilities Management

Any areas subject to an overlay management agreement or transferred to the Service would become part of the Caddo Lake National Wildlife Refuge.

Staffing. The refuge currently has no staff. It is anticipated that minimal staff will be hired soon after establishment of the refuge

Headquarters Location. The refuge headquarters and maintenance facilities have not yet been established, but will be on the existing LHAAP.

Refuge Budget. The budget for the refuge will covers salaries, equipment maintenance, supplies, routine equipment and construction material purchases, the fire management program, law enforcement expenses, contaminant survey expenses, and special project funds.

Oversight. The Southwest Regional Office, located in Albuquerque, New Mexico, would provide oversight of refuge administration and management. The Regional Office also would provide technical assistance on matters such as engineering, cultural resource protection, recreational use planning, and land acquisition.

Facilities. The Service would be responsible for maintaining any facilities that it decides to use. Upon acquisition of any property, the Service would evaluate the condition and any need for retaining structures or buildings. Any structure not needed by the Service would remain under the control of the Army or the CLI Consortium. If a structure is on, or eligible to be on, a state or national register of historic places, it cannot be destroyed. It must be maintained or transferred to an entity that would maintain it.

Roads. The Army would be responsible for the management and maintenance of any roads and bridges within the LHAAP necessary for its continuing mission of cleanup and remediation. Any other roads or bridges needed by the Service, but not required for the mission of the Army, would be the responsibility of the Service.

Fencing and Signage. The Army is responsible for maintaining and signing its boundary fences in coordination with the Service. Boundary security continues to be the responsibility of the Army. Any additional signs or new fences needed by the Service would be the Service's responsibility. The responsibility for internal fencing is yet to be determined.

**Appendix D. Memorandum of Understanding Between the Caddo Lake Institute and the
U.S. Fish and Wildlife Service, U.S. Department of the Interior: Longhorn Army
Ammunition Plant, Karnack, Texas**

**Memorandum of Understanding
Between the Caddo Lake Institute and the
U.S. Fish and Wildlife Service, U.S. Department of the Interior**

Longhorn Army Ammunition Plant, Karnack, Texas

Parties: The U.S. Fish and Wildlife Service, U.S. Department of the Interior ("FWS"), and the Caddo Lake Institute ("CLI").

Whereas, FWS is very interested in the protection of important biological resources on the U.S. Army's Longhorn Army Ammunition Plant (LAAP) and located at the Caddo Lake Ramsar international wetland site, subject of the 1996 Ramsar "Brisbane Pledge," and

Whereas, FWS has expressed its tentative interest in pursuing the transfer of the LAAP facility to the FWS for inclusion in the National Wildlife Refuge System, subject to legal and policy considerations, including satisfactory cleanup of contaminants and the disposition of buildings, and

Whereas, CLI would like to facilitate an eventual transfer of LAAP to FWS for refuge purposes in order to assure its future management and conservation as a key habitat component of the Caddo Lake Ramsar international wetland site, and CLI would like to establish at LAAP the first U.S. Regional Ramsar Center and an academy of wetland science education, in fulfillment of the Brisbane Pledge, and

Whereas, CLI is committed to taking a variety of actions that the parties recognize may facilitate the transfer of LAAP by resolving potential obstacles to such transfer, and

Whereas, FWS recognizes the potential value of CLI's efforts in achieving the mutual objectives of the parties to protect, restore, and preserve habitats and natural resources on LAAP lands and to remove potential obstacles to a transfer of LAAP to FWS; and FWS wishes to cooperate with certain initiatives being undertaken by CLI,

Now, Therefore, the Parties agree as follows:

CLI agrees--

(1) To undertake planning and local coordination to facilitate the potential transfer of LAAP to FWS for inclusion in the National Wildlife Refuge System,

(2) To authorize eventual, mutually-agreeable amendments to the current in-holding lease between CLI and the U.S. Army at LAAP, so as to permit CLI to continue its lease and rental revenues, by releasing the "upper Harrison Bayou habitat lands" in exchange for the addition to the lease of those portions of the 120 - 130 acre "Administrative Area" which are not presently leased to CLI,

(3) To seek completion of CLI's "Longhorn Consortium" (of other non-governmental organizations, agency, and academic groups), which is intended to permit CLI to identify, in consultation with FWS, sub-leases and sub-lessees for LAAP lands which will advance the above common objectives of the parties. These Consortium proposals may include assistance with proposals for funding from private and public sources, as well as leases with the U.S. Army, or sub-leases with CLI, for the assumption of use and responsibility for certain LAAP buildings, lands or areas, where such leases or sub-leases will have the

practical effect of resolving potential obstacles to transfer of LAAP to FWS. Potential obstacles include the Army and/or General Services Administration concerns regarding parcelization of LAAP; FWS and Army concerns about the allocation of costs of maintaining or removing buildings or improvements, or asbestos containing materials therein; and FWS and/or Army concerns about the appropriate restoration, segregation, or security of such problem lands or buildings.

FWS agrees—

(1) To continue its support for an amendment, described above, to the present lease between CLI and the Army, which would substitute at the appropriate time, in the lease, lands and buildings in the Administrative Area of LAAP for old growth habitat area in the upper Harrison Bayou portions of the lease,

(2) To support, as appropriate, leases between CLI and the Army, or sub-leases by CLI, for the assumption of use and responsibility for certain LAAP buildings, lands or areas, where such leases or sub-leases will have the practical effect of resolving potential obstacles to transfer of LAAP to FWS.

(2) To otherwise cooperate with CLI's efforts identified above.

Nothing in this Agreement shall be construed as committing FWS or the U.S. Department of the Interior to accept all or part of the LAAP facility, or as identifying terms or conditions that would make such a transfer suitable to FWS or the Department. FWS has expressed a tentative interest in LAAP, but has identified a variety of legal and policy considerations which must be addressed as part of the decision making process whether to pursue a transfer. FWS recognizes that CLI's efforts pursuant to this MOU may help resolve some of those legal and policy considerations.

Nothing in this Agreement shall be construed as creating obligations on behalf of FWS or the U.S. Department of the Interior that are not authorized by law.

This Agreement may be terminated by either party after providing at least 30 days notice to the other party.

The Longhorn Army Ammunition Plant Parcelization Map, as manually annotated and attached, or as hereafter augmented by the parties, generally reflects the lands, concepts, concerns, Special Treatment Areas, and eventual lease in-holding objectives that the parties seek to address through this MOU.

U.S. Fish and Wildlife Service

The Caddo Lake Institute





Title: Acting Director

Date: 9/15/99

Title: President

Date: 9/15/99

**Appendix E: Memorandum of Agreement Between Caddo Lake Institute, Inc. and the
Department of the Army for a Proposed Lease of a Portion of Longhorn Army
Ammunition Plant**

MEMORANDUM OF AGREEMENT

BETWEEN

CADDOLAKE INSTITUTE, INC. AND THE DEPARTMENT OF THE ARMY

FOR A PROPOSED LEASE OF A PORTION OF

LONGHORN ARMY AMMUNITION PLANT

WHEREAS: The United States is a signatory to the Convention on Wetlands of International Importance, especially as Waterfowl Habitat, attachment 1, commonly known as the Ramsar Wetland Convention, because it was originally signed in Ramsar, Iran in 1971.

WHEREAS: Contracting parties to the Ramsar Wetland Convention shall, among other duties, designate suitable wetlands within their territory for inclusion in a List of Wetlands of International Importance (the List), formulate and implement planning so as to promote the conservation of wetlands included in the List, and as far as possible promote the wise, sustainable use of wetlands in their territories, encourage research regarding wetlands and their flora and fauna, and promote the training of personnel competent in the fields of wetland research, and management.

WHEREAS: The Caddo Lake Institute, Inc. (the Institute) is a private non-profit, operating foundation, whose purposes include the preservation and improvement of the ecological and cultural integrity of the Caddo Lake wetland ecosystem. The Institute's Ramsar-based projects include partnerships with federal and state agencies and with local schools and colleges which "field-train" local Master Wetland Science Educators, student wetland interns, and private landowners in world-class wetland science and stewardship skills. These projects include conducting local ecosystem research, monitoring and guidance in sustainable use. These activities are informed by, and seek to demonstrate the value of, the world-class wetland science guidance derived from the Ramsar Wetland Convention.

WHEREAS: Caddo Lake is a 26,000 acre wetland complex located on the border of Texas and Louisiana which drains the 6,000 square mile Cypress Bayou Basin and discharges these waters into the Red River and thence to the Gulf of Mexico. In 1993 the Institute joined the Texas Fish and Wildlife Department and the U.S. Department of Interior (DOI) in co-sponsoring the designation of a Texas-owned 6,500 acres Wildlife Management Area (WMA) within Caddo Lake's wetlands as the 14th U.S. Ramsar Wetland of international importance.

WHEREAS: Longhorn Army Ammunition Plant (LHAAP), Karnack, Texas, a Department of the Army installation, lies in close proximity to the Caddo Lake Ramsar lands, and contains important, biologically diverse shoreline, wetlands, bottom land hardwood and upland forests, particularly a portion known as Harrison Bayou bottom land, as well as other diverse and significant biological species, communities, habitats, and water resources.

WHEREAS: In 1996 the United States government invited the Caddo Lake Institute to join in formulating a pledge to be made at the 6th Conference of the Ramsar Contracting Parties to be held in Brisbane, Australia. The Institute's initiative included a commitment of \$100,000 to stimulate the establishment of the first U.S. Regional Ramsar Center at Caddo Lake. The Institute's private sector initiative was included as a part of the official United States pledge announced as part of the March 1996 25th anniversary Brisbane ceremonies celebrating the signing of the Ramsar Wetland Convention.

WHEREAS: The Institute desires to conduct an awards ceremony in October 1996 which will honor the many government and private persons who have helped place important parts of the Caddo Lake ecosystem under sustainable stewardship consistent with the Ramsar Wetlands Convention, and to announce the inclusion of important portions of LHAAP under such stewardship management.

WHEREAS: The Army supports the purposes and goals of the Ramsar Wetland Convention and the Institute's efforts on behalf of the United States under the Convention.

NOW THEREFORE AND IN FURTHERANCE OF THE PREMISES AND GOALS SET FORTH ABOVE, the parties agree as follows:

1. Should the Institute desire to hold an awards ceremony on LHAAP, the Army agrees to grant the Institute a right of entry to prepare for and conduct such a ceremony, open to invitees and the public, subject to terms and conditions that the Army deems appropriate. The right of entry shall also grant the Institute access for the purpose of conducting assessments and delineations necessary to prepare long term lease documentation.
2. The Army proposes and currently intends to grant, as soon as practicable, a long term lease to the Institute, under 10 U.S.C. §2667, to certain portions of LHAAP, consistent with and subject to compliance with all federal laws and Executive Orders, including but not limited to, the National Environmental Policy Act, the National Historic Preservation Act, the Comprehensive Environmental Response, Compensation, and Liability Act, the Clean Water Act, the Endangered Species Act, the McKinney Act, the Sikes Act, and Executive Order 11988 Floodplain Management, Executive Order 11990 Protection of Wetlands, and Executive Order 13007 Indian Sacred Sites.

a. Parcel Description: The lease, initially, will include two parcels of land, broadly described herein as all of LHAAP Woodland Management Units 11 and 12, including the Starr Ranch improvements, and the Harrison Bayou natural area, lying generally within LHAAP Woodland Management Units 13, 32, 33, 35, 36, 38, 39, and 40, to be more fully and accurately described in the lease. To the maximum extent possible, areas of known contamination or Army remediation sites shall be excepted and excluded from the parcels to be leased to the Institute.

b. **Purposes of Lease:** The lease shall restrict the Institute to uses that do not involve construction, alteration of facilities or resources, land disturbance, or activities of any kind that have a significant impact on the environment and which can be supported by a Categorical Exclusion under Army Regulation 200-2 for compliance with the National Environmental Policy Act. The purpose of the lease will be to promote development (with academic, institutional and other agencies) of projects which will assure the long-term continuation, maintenance or improvement of the area's rich and diverse cultural, biological and ecological values, functions, training and demonstration opportunities. Use by the Institute shall be consistent with and complimentary to the LHAAP Natural Resource Management Plan and the Department of the Army's conservation and stewardship responsibilities under Federal law. The Parties may in the future amend the lease to permit additional uses, including uses consistent with the recitals of this Agreement, to include potentially the construction of buildings, roads, and other improvements, or the use or modification of existing structures, or other uses, subject to compliance with all federal laws and Executive Orders.

c. **Term of the Lease:** The lease shall be for a term of thirty (30) years.

d. **Existing Army Buildings:** The lease will provide that the Institute will not alter, modify, demolish, or otherwise make changes to the existing Army buildings, located on Starr Ranch, without receiving prior written approval from the Army. The Institute will be required to maintain these structures throughout the duration of the lease, preserving any historical or architectural value as stipulated in the lease.

e. **Compliance with Law:** The lease will require that the Institute's activities and use of the leased premises shall comply with all applicable federal, state, and local laws and regulations, including applicable and appropriate Army regulations.

f. **Fines and Penalties:** The lease will require that any fines, penalties and/or remediation costs resulting from the Institute's activities shall be the sole responsibility of the Institute, and should the Army be required to pay any fines, penalties, or remediation costs arising from activities caused solely by the Institute, the Institute shall agree to reimburse the Army the amount of any such fine, penalty, or remediation cost.

g. **Rental Value:** The rental value for the leased premises shall be Fair Market Value (FMV) based on uses permitted by the lease. If the parties cannot agree on an acceptable FMV for the leased premises, the FMV shall be established by a mutually agreeable outside professional appraisal, the cost of the appraisal to be paid by the Institute. It is agreed that the lease may, consistent with 10 U.S.C. § 2667, provide for a full or partial rental offset credit for costs incurred by the Institute for the improvement, maintenance, protection, repair, or restoration of the leased premises.

h. **Utilities:** The Institute shall agree to pay the cost of any utilities supplied by the Army in accordance with Army regulations and procedures.

i. Non-interference with Army IRP: The lease shall provide that all uses by the Institute shall be subject to, consistent with, and not in conflict with the Army's Installation Restoration Program (IRP), and the Institute will agree to grant the Army and appropriate federal and state environmental regulatory agencies, access to and permission to conduct any necessary IRP projects or to collect environmental data on the leased premises.

j. Liability for Existing Contamination: The lease shall provide that the Institute shall not be responsible for any remediation costs or liability arising solely from contamination existing on or migrating onto the leased premises arising from activities of the United States Army, its contractors, lessees, or other parties not under the control of the Institute.

k. Preliminary Assessment Screening: The Institute will provide the Army with a Preliminary Assessment Screening (PAS) for Army review and approval for the lease.

l. Revocation of the Lease: So long as the Institute's use of the premises is consistent with the lease, and its terms and conditions, including the use restrictions, it is agreed that the lease shall not be subject to revocation by the Secretary of the Army, the purpose thereof having been determined to be in the public interest

m. The lease shall contain such other terms and conditions as the Secretary of the Army determines to be in the best interest of the United States.

3. This Memorandum of Agreement expresses the intent of the parties to enter into a lease for a portion of LHAAP, consistent with the requirements of Federal law. It is agreed that any sums expended by the Institute in anticipation of the execution of such a lease are expended at its sole risk, and create no right to any claim against the Army or the United States.

IN WITNESS WHEREOF, the parties have signed and executed this Memorandum of Agreement set forth herein, to be effective as of the date of the last signature.

DEPARTMENT OF THE ARMY

THE CADDO LAKE INSTITUTE, INC.

By: *Paul W. Johnson*
P. W. Johnson
Deputy Assistant Secretary of the Army
(Installations and Housing)

By: *Dwight K. Shellman, Jr.*
Dwight K. Shellman, Jr.
President and General Counsel

Date: 9/20/96

Date: 9/18/96

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