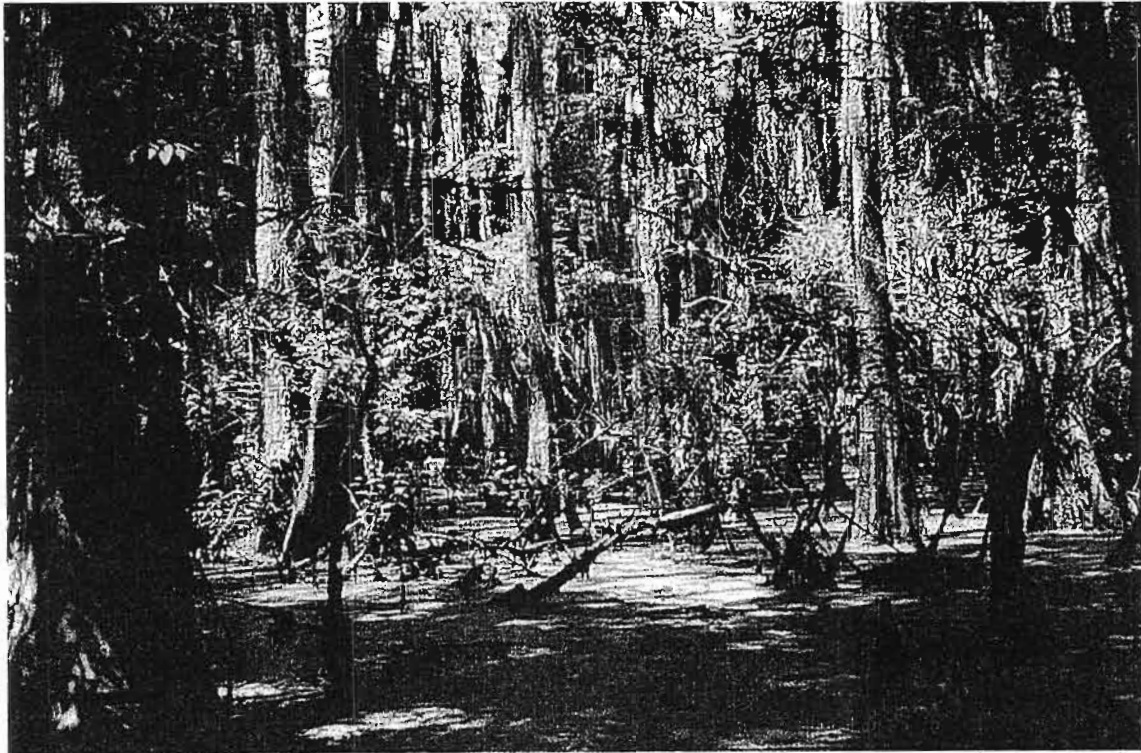


FINAL ENVIRONMENTAL ASSESSMENT

**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 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) *Jim Neal* 9/21/00
Originator Date

(2) *[Signature]* 9/21/00
NEPA Coordinator Date

(3) *Tom Ciccone* 9/21/00
Regional Chief, NWRS Date

(4) *[Signature]* 9/21/00
Deputy Regional Director Date

Thomas M. Kaufman
Regional Director

9/22/00
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.

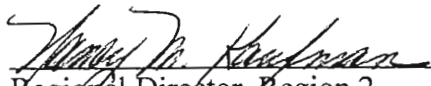
The draft Environmental Assessment was published on August 11, 2000. The 30-day comment period ended on September 11, 2000. A public meeting/open house was held on August 21, 2000 in Karnack, Texas at the Caddo Lake State Park. The Final Environmental Assessment has incorporated comments received on 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:

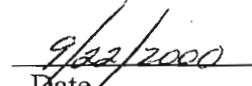
- 1) No action (Alternative A) – no acceptance of an overlay or transfer of lands from the Army to the Service would occur and the Army would continue efforts to dispose of the LHAAP to other public agencies or to private interests.
- 2) Accept secondary jurisdiction of an overlay refuge and/or transfer 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

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

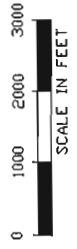
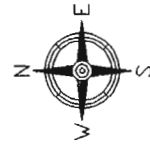
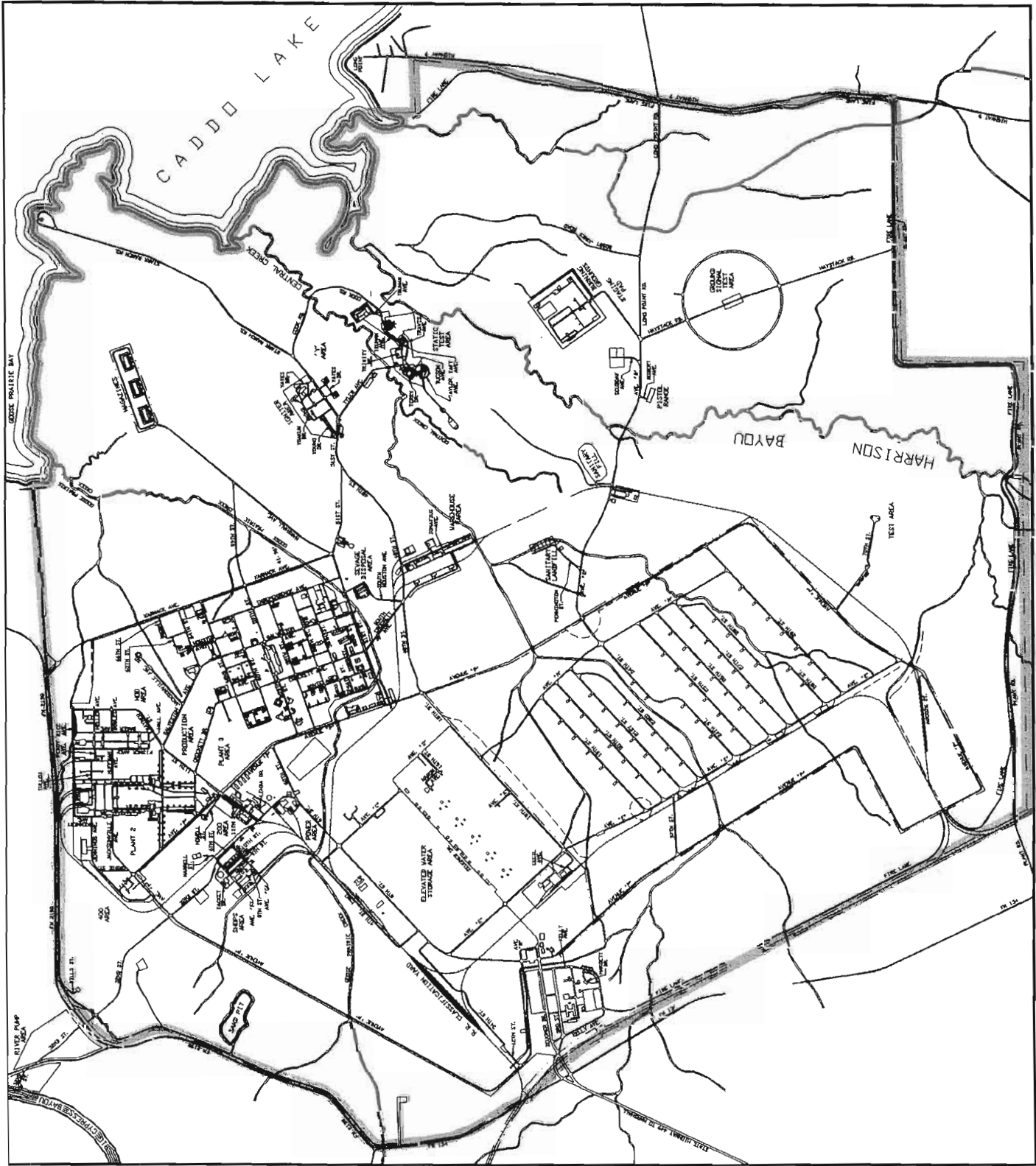
The U. S. Fish and Wildlife Service (Service) proposes to enter into a memorandum of agreement establishing Caddo Lake National Wildlife Refuge as an overlay refuge with the Department of the Army (Army) to permit the Service to conduct natural resource management and conservation activities on portions 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.

LONGHORN ARMY AMMUNITION PLANT AND VICINITY: HARRISON COUNTY, TEXAS



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.

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.

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.

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

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.

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.

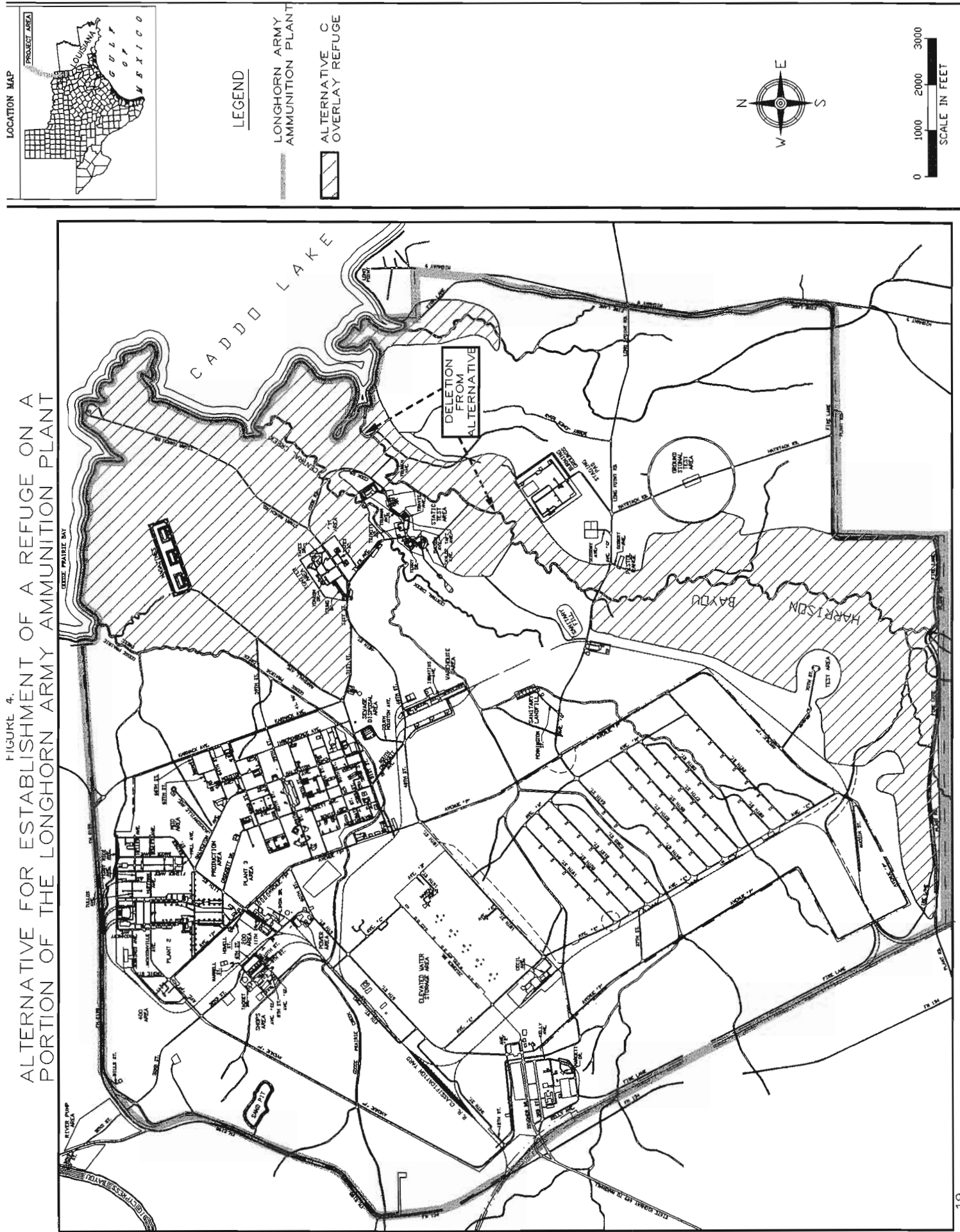
The area would be available for transfer to another Federal agency, a State or local agency (i.e. Harrison County), or private interests, if no agency expressed an interest in the LHAAP. GSA would continue efforts to dispose of the property at the request of the Army. The Army has made it clear they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

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



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.

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;

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 virens*), 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*).

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 platyrhynchus*) 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.

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

(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.

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

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).

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

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.

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.

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.

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.

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.

- 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.

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.

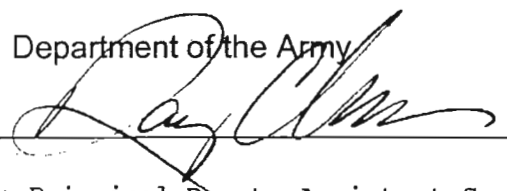
- (ii) Roads, bridges and infrastructure which are not reserved by Army but which are located within Refuge Footprint lands selected by FWS for transfer shall be included in the transfer, and may be used by FWS, or closed to Army or other road use, as FWS shall determine.

(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.

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

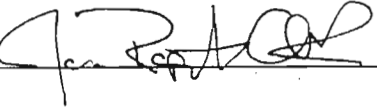
U.S. Department of the Army

BY: 

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

Date: May 22, 2000

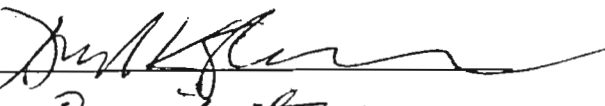
U.S. Fish and Wildlife Service

BY: 

Title: Director

Date: May 22, 2000

Caddo Lake Institute

BY: 

Title: President

Date: May 22, 2000

**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.

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:

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:

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

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.

**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

**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.

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.

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