

Information Sheet on Ramsar Wetlands

Country: USA

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Name and address of compiler:

Thomas J. Cloud, Jr.
Senior Staff Biologist
US Fish and Wildlife Service
711 Stadium Drive East
Suite 252, Arlington
TX 76011, USA

Name of wetlands: Caddo Lake State Park and Wildlife Management Area

Date of Ramsar designation: 23/10/1993

Geographical coordinates: 32°42'-32°47'N; 94°5'-94°10'W.

General location:

The proposed area is state owned land associated with the headwaters of Caddo Lake in Harrison and Marion Counties of Northeastern Texas. The area, known as Caddo Lake State Park and Wildlife Management Area, lies entirely within the Cypress Bayou drainage basin of Texas and is located approximately 24.1km (15 miles) northeast of Marshall, Texas, and 40.2km (25 miles) northwest of Shreveport, Louisiana. Big Cypress Bayou, known as Twelve Mile Bayou downstream of Caddo Lake, is a major tributary to the Red River which enters the lower Mississippi River in Louisiana.

Area:

Approx. 3,237ha, consisting of 202ha in the state park unit and 3,035ha in the wildlife management area. All of the management area lies north of Cypress Bayou in Marion County, while the state park unit is situated entirely in Harrison County south of the bayou.

Degree of Protection: The land is currently owned and managed by the State of Texas, Texas Parks and Wildlife Department, as a unit of its public lands system. The wildlife management unit of the project was acquired in 1992 by the Department with the assistance of a donation by the Texas Nature Conservancy and a federal matching grant from the North American Wetlands Conservation Council. An area of 40ha within the project area was donated by the Texas Department of Highways and Public Transportation as mitigation for several small highway projects in east Texas. All project lands are managed in accordance with master plans developed by the Department under its Wildlife Code.

Site description:

The wetlands of Caddo Lake State Park and Wildlife Management Area lie entirely within the headwaters of Caddo Lake and the floodplain of Big Cypress Bayou. Elevations range from about 51.35m to 53.34m mean sea level. Included are the shallow, heavily-vegetated waters of Caddo Lake, associated backwaters, sloughs, swamps, and bottomland hardwood forests. The majority of the area is either permanently flooded by backwater influences of Caddo Lake or is inundated for extended periods during the growing season by overbank flooding of Cypress Bayou. Caddo Lake and its associated wetlands were originally formed by massive log jams on the lower Red River; however, water elevations in the lake are now maintained by an uncontrolled weir constructed in the early 1900s following removal of the log jam.

Wetlands at Caddo Lake are predominantly classified as palustrine forested under the US Fish and Wildlife Service's National Wetlands Inventory classification system. These forested wetlands are interspersed with a smaller amount of palustrine emergent, lacustrine, and riverine wetland types. The palustrine forested areas are primarily baldcypress swamps and flooded hardwood forests. The vegetation composition of these habitat types, as with most palustrine forested systems in the southern United States, is correlated to existing hydrological conditions and water regimes. Permanent water or saturated soils are dominated by baldcypress or baldcypress - water tupelo (*Nyssa aquatica*) - blackgum (*Nyssa sylvatica* va. *biflora*) associations, while the overcup oak (*Quercus lyrata*) - bitter pecan (*Carya aquatica*) association is the characteristic vegetation of the lowest moist soil sites. Higher elevation bottomland hardwoods consist primarily of willow oak (*O. phellos*) - water oak (*O.*

nigra) - sweetgum (*Liquidambar styraciflua*) associations.

The palustrine forested areas of Caddo Lake comprise one of the most floristically diverse areas in the State. Inventories of east Texas hardwood bottomlands, including Caddo Lake, indicate that they support at least 189 species of trees and shrubs, 42 woody vines, 75 grasses, and 802 other herbaceous plants.

Wildlife populations are also extremely diverse within the wetland and its drainage basin. Approximately 216 bird, 47 mammal, and 90 reptile and amphibian species occur in the project area, many of which depend on the highly productive, specialised habitats provided by the wetlands of Caddo Lake. The wetlands are especially well-noted as habitat for waterfowl, colonial waterbirds, migratory passerines, and restrictive wetland species such as the American alligator (*Alligator mississippiensis*) and river otter (*Lutra canadensis*). According to the Texas Parks and Wildlife Department, the wetlands of Caddo Lake also support some of the highest densities of furbearing animals in the State. Field assessments conducted by the Fish and Wildlife Service indicate that habitat conditions are near optimum for many of the representative wetland wildlife species of the area.

International and National Importance:

The wetlands of Caddo Lake are particularly important to a variety of migratory game and nongame bird species within the Central Flyway. Mallards and other waterfowl species depend heavily upon the resting cover of Caddo Lake, and the flooded bottomland hardwoods are used extensively for foraging activities. The area supports one of the highest breeding populations of wood ducks in Texas. Mid-winter aerial surveys indicate that the project area provides wintering habitat for a substantial number of waterfowl, although precise population numbers are unavailable due to the difficulties in aerial censusing of forested habitats.

Perhaps even more important than waterfowl is the project area's importance to nongame migratory birds and threatened or endangered species. The mature hardwoods within the Caddo Lake area are especially vital to the survival and productivity of neotropical migrants, providing critical nesting habitat during the spring and summer breeding season. The prothonotary warbler (*Protonotaria citrea*) requires cavities which occur in the cypress and hardwood trees for nesting, while the cerulean warbler (*Dendroica cerulea*) commonly occupies the canopy of the tallest trees. The parula (*Parula americana*) and yellow-throated (*Dendroica dominica*) warblers are dependent upon Spanish moss (*Tillandsia usneoides*) in the cypress canopy for nesting material. All of these wood warblers are very specific in their habitat requirements and need large, relatively undisturbed tracts of forested woodlands for optimum habitat conditions. Such conditions are provided by the forested wetlands of Caddo Lake. Currently, the US Fish and Wildlife Service's research program is cooperating with local state universities to investigate the importance of Caddo Lake to the overall populations of these habitat-specific neotropical migrants. This could potentially provide valuable information on the ecology of these birds and the management of old growth, forested wetlands for their propagation.

The environs of Caddo Lake are either home or potential habitat for at least 44 animals, plants, or plant communities considered rare, threatened, or endangered by the Texas Parks and Wildlife Department. According to the Department, ten of these species occur at five or fewer locations in the entire State of Texas. Of these 44 species, six are federally listed as threatened or endangered, while eight are considered candidates for listing. The area is currently being evaluated for its potential for the reintroduction of the Louisiana black bear (*Ursus americanus*), which historically occurred in the extensive bottomlands of the site.

Caddo is also host to the State's most diverse, native, freshwater fish fauna. Significant among the restricted aquatic species occurring in the project area are the paddlefish (*Polyodon spathula*) recently added to Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) list, American eel (*Anguilla rostrata*) and southern brook lamprey (*Ichthyomyzon gagei*). Restricted and unique reptile species present at Caddo Lake include the American alligator and the alligator snapping turtle (*Macrolemys temminckii*).

Changes in Ecological character:

Caddo Lake has undergone considerable changes in its ecological character as a result of man's activities within the lake and its watershed, although the hydrology of the area (ie. flooding) has somewhat mitigated large-scale, adverse effects. The recent acquisition of the wetland area by Texas Parks and Wildlife Department will also reduce any future wide-spread impacts, since it will be managed for the preservation of its natural fish and wildlife resource values.

Water resource projects, timber harvest, and lakeside development are the most serious threats to the ecological integrity of the site. Small boat traffic has been maintained by a navigation district through

the creation of a system of boat roads. These roads connect various lakeside development throughout the project area; however, most of them are relatively small and poorly maintained thus resulting in minimal impact to the wetland ecosystem. Most of the boat roads and backwater areas of the wetland are not passable during the summer growing season thus limiting disturbance to the area. Timber harvest and water development projects in the upper basin have resulted in the greatest impact on Caddo Lake through modification of the volume of water circulation and amount of nutrients entering the system and increased erosion. It is thought that eutrophication has increased within the lake in recent years, but additional research studies will be required to evaluate this factor. Studies are presently being conducted to determine the health and status of the old-growth baldcypress stands within the project area.

The greatest single threat to the wetlands of Caddo Lake is the US Army Corps of Engineers Shreveport to Daingerfield Reach of the Red River Navigation Project. This development which would extend barge navigation through Caddo Lake and its wetlands by the creation of a 60.96m wide, 2.74m deep navigation channel, was authorised by the US Congress in 1968 but was deferred due to its lack of economic benefits. A recent re-evaluation by the Corps has determined that the project is still economically infeasible and would be extremely damaging to the natural resources of Cypress Bayou Basin. Therefore, work on the project has once again been terminated, but it still remains a threat to the area unless officially de-authorised by Congress.

Management practices:

The Texas Parks and Wildlife Department is currently in the process of developing an overall master plan for development and management of Caddo Lake's natural resources. This plan will emphasise the unique and fragile nature of the wetland habitat, while providing for the continued wise, environmentally-sensitive use of the area by the public. The area will continue to be maintained as a high priority waterfowl wintering and production area, refugium for endangered and/or rare species, and a natural research laboratory for a consortium of numerous Texas and Louisiana universities and agencies.

Scientific research and facilities:

The Caddo Lake College Consortium, an out-growth of the Caddo Lake Institute, contemplates the preservation and wise use of the Caddo Lake ecosystem as a living laboratory for ecological research and education. The Consortium originally consisting of three colleges (East Texas Baptist University, Wiley College, and Stephen F. Austin State University), is currently being expanded to include a total of 7 to 11 regional educational institutions. This presents an unprecedented opportunity for development of long-range, cooperative research efforts on a major Texas wetland ecosystem.

The US Fish and Wildlife Service's National Wetlands Research Center in Lafayette, Louisiana, has also proposed the establishment of a satellite research station in the vicinity of Caddo Lake. This facility would conduct research on the ecology and status of this wetland system, with major efforts concentrating on migratory, neotropical birds and the ecology of forested wetlands. Texas Parks and Wildlife Department also has plans to conduct breeding bird surveys of the wildlife management unit to further define its value to migratory and resident species.

Bibliographical references:

The above information concerning Caddo Lake was derived primarily from the US Fish and Wildlife Service's Resource Category 1 designation of Caddo Lake wetlands under its Mitigation Policy (May 19, 1993) and reference material submitted to the Service by the Caddo Lake College Consortium in its nomination of Caddo Lake as a Ramsar Wetland of International Importance. Other significant reference materials are noted below:

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bottomland hardwood forests and swamps. Texas Parks and Wildlife Department, Austin, TX. Paper 0-238A-08/07/87.

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Criteria for inclusion:

Caddo Lake meets numerous criteria for inclusion into the list of Wetlands of International Importance, including: (1) high value and use by migratory waterfowl as a wintering area, especially for mallards (*Anas platyrhynchos*); (2) represents one of the highest populations and reproduction areas for wood ducks (*Aix sponsa*) in the State of Texas; (3) represents one of the best examples of a mature baldcypress, swamp wetland community in the southern United States; (4) provides important habitat for an assemblage of rare, threatened, or endangered plant, fish, and animal species; (5) serves as a critical staging and breeding area for a variety of nongame migratory birds, such as neotropical songbirds and colonial waterbirds; (6) provides important hydrologic and biological functions with respect to the Cypress Bayou and lower Red River drainage basins; and (7) provides an exceptional opportunity for research and study of the life histories and habitat requirements of internationally important species, such as the neotropical songbirds.