The Two Centuries of Caddo Lake

Natural History, May, 2001 by Robert H. Mohlenbrock

A wetland shared by Texas and Lousiana has earned international recognition.

About 200 years ago, a huge logjam formed in the Red River where it flows through northwestern Louisiana. Because of the buildup of logs, the river spilled into nearby Cypress Valley, creating Caddo Lake, a large body of freshwater that straddles the border between Texas and Louisiana. A legend recounted by the Caddo Indians attributed the lake's origins to an earthquake. In fact, Caddo Lake did develop close in time to the great New Madrid earthquakes of 1811-12, which formed Reelfoot Lake in Tennessee and altered the course of the Mississippi River. Archaeological evidence, however, reveals that Caddo Lake arose earlier, about 1800, and was simply the result of dead trees piling up in what was a relatively slow-flowing, shallow section of the river.

The logjam, known locally as the Great Red River Raft, persisted and the lake continued to expand until the 1870s, when the federal government cleared the blockage with underwater explosives. This maneuver opened the river to navigation farther upstream and stopped the overflow of water into the lake. During the twentieth century, the lake was dammed for purposes of oil exploration, flood control, and water supply, and it now has a stable water level, with an average depth of eight to ten feet. Altogether, including its associated maze of bayous and cypress swamps, the lake covers fifty square miles. Its diverse habitats may be sampled in Texas's Caddo Lake State Park (established in 1934), whose recreational and camping facilities border Big Cypress Bayou.

In the two centuries since Caddo Lake's formation, plant and animal life have adjusted to its presence. Alligators and water snakes--including venomous water moccasins--are common in and around the lake, which is a haven for several fishes and amphibians that are rare elsewhere in Texas and Louisiana. The lake's large aquatic plants include spatterdock, with yellow, club-shaped flowers; white water lily; and water lotus, with huge creamy flowers and woody fruits. Among its smaller aquatic plants is water shield, whose three-inch-wide, nearly circular leaves are enveloped in a protective coat of gelatinous slime.

In the surrounding region, the terrain consists of low hills whose ridge tops are less than a hundred feet above the elevation of Caddo Lake. Next to the lake, in low-lying areas that often contain standing water year-round, are extensive bald cypress forests. With enlarged, buttressed bases and cone-shaped "knees" to anchor them in their watery habitat, bald cypresses may tower as high as a hundred feet. The knees also store food reserves in the form of starch. When a bald cypress does die and fall into the swampy waters, wildflower seeds become lodged in the decaying wood and sometimes germinate. A fallen log thus often nurtures considerable vegetation, especially species of beggar's-lice.

Bottomland forest grows where the elevation is slightly higher and water stands only some of the time. A still higher zone, which remains free of standing water, supports a mesic (moist) forest. This habitat extends partway up the adjacent slopes, while upland forest occupies the upper slopes and ridge tops.

Caddo Lake is one of only seventeen wetlands in the United States that have been designated Ramsar sites, so named for the Convention on Wetlands, which resulted from a forum that took place in Ramsar, Iran, in 1971. The convention established guidelines for identifying "wetlands of international importance" and ensuring their conservation. More than 120 nations are now contracting parties to the convention. The United States ratified the Ramsar agreement in 1986, and Caddo Lake was listed in 1993, when nearly twelve square miles' worth of Texas-owned land parcels in and around the lake were designated for protection.

For a wetland to be a Ramsar site, it must do one of the following: (1) contain a representative, rare, or unique example of a wetland type; (2) support endangered species or threatened ecological communities; (3) support populations of plant and/or animal species important for maintaining the biological diversity of a particular region; (4) serve as a refuge for plant and/or animal species or support them at a critical stage in their life cycle; (5) regularly support 20,000 or more waterfowl; (6) regularly support I percent of the individuals in a population of one species of waterfowl; (7) support a significant proportion of indigenous fish species; or (8) provide fish stocks with an important spawning ground, nursery, migration path and/or source of food. Caddo Lake meets many of the Ramsar criteria. It is a good example of a bald cypress swamp; it supports a number of plants and animals that are rare for the region; it is home to more than 200 species of birds, 50 of mammals, 90 of reptiles and amphibians, 90 of fishes, and 500 of native plants;, and it attracts well over 20,000 waterfowl. Conservation of this ecosystem is the

responsibility of the Texas Parks and Wildlife Department and of the U.S. Fish and Wildlife Service and its offices in Texas. In 1999 the protected area was increased to thirty-three square miles.

HABITATS

Bald cypress forest contains the largest trees in the area. Growing with the bald cypress are two other species of trees that commonly have buttressed trunks but lack the cypress's "knees"--tupelo gum and pumpkin ash. Other species are water hickory, planer tree, and swamp red maple.

Virginia sweetspire and snowbell bush grow in the shrub layer. These two species, both bearing attractive white flowers, are commonly available from nurseries and garden centers. Plants that colonize fallen tree trunks include two varieties of pink St.-John's-wort, several kinds of beggar's-lice (or stick-tights) with yellowish flower heads, and two stingless members of the nettle family: false nettle and clearweed.

Bottomland forest trees often grow straight and tall, forming a dense canopy in summer and autumn. Common species in the seventy-five-foot range are sweet gum, overcup oak, cherrybark oak, and willow oak. Often growing below these is a secondary canopy of trees from twenty to fifty feet tall. Among them is box elder, a member of the maple family with compound leaves, and green haw, which has two-inch-long curved spines on some or all of its branches and sometimes even on its trunk.

Vegetation on the forest floor in this shaded habitat is often sparse but includes a diversity of species. Among the grasses are the bamboolike giant cane as well as lower-growing wood reed grass and white grass. Wildflowers include water horehound, jack-in-the-pulpit, green dragon, and a triangular-leaved blue violet. Here and there are thickets of shrubs such as possum haw, a type of holly that loses its leaves during the autumn. Greenbrier vines and a vine known as supplejack (or rattan vine) climb over some of the vegetation.

Mesic forest tree cover is not as closed as that in bottomland forest. The most common species are water oak, bitternut hickory, and sugarberry (a type of hackberry). Black walnut trees appear in the more elevated tracts. A midcanopy layer is formed by hop hornbeam, musclewood, and pawpaw. Ferns are plentiful, among them rattlesnake fern, named for the tiny spherical spore cases arranged on a special tufted frond. Violets, wild geranium, mayapple, and blue phlox bloom in April and May. After a bit of a

summer lull, the blues of woodland asters and the yellows of woodland goldenrods render the forest vibrant in late August.

Upland forest trees include large, sturdy black walnuts and southern red oaks, in addition to the somewhat shorter black gum, red mulberry, redbud, flowering dogwood, and sassafras trees. Here and there is the large-leaved, prickly stemmed Hercules' club, also known as the devil's walking-stick. The brilliant magenta-fruited beautyberry is the most common shrub. Asters, goldenrods, and sunflowers dominate the landscape from late summer to the end of the growing season.

For visitor information, contact: Caddo Lake State Park RR 2, Box 15 Karnack, TX 75661 (903) 679-3351 www.tpwd.state.tx.us/park/caddo /caddo.htm

Robert H. Mohlenbrock, professor emeritus of plant bioloxy at Southern Illinois University, Carbondale, explores the biological and geological highlights of U.S. national forests and other parklands.