

CHAPTER 3 - RESOURCE DESCRIPTION

In the early 1800's, government-sponsored land surveyors were commissioned to "quadrant off" new land. Their tasks included dividing land into sections and marking their corners. In the process, these men were directed to describe the land they saw, including terrain, vegetation, and wildlife. Their records of the Cache River area tell a much different story than today's Cypress Creek National Wildlife Refuge. Thousands of acres of sometimes impenetrable swamps, vast stands of timber, and unique wildlife species abounded in the area. While remnants of that thriving ecosystem exist today, most of it has fallen to axes, saws, plows, and shovels.

WILDLIFE RESOURCE

The Cache River and its associated wetlands (mostly bottomland forest, shrub cypress swamp) are well known for their diversity and outstanding wildlife values. Waterfowl, shorebirds, wading birds, raptors, songbirds, reptiles, amphibians, furbearers and other mammals utilize the area.

Threatened and Endangered Species: Seven federally listed species are known to occur within or near the boundary of the Refuge. Listed species include: pink mucket, pearly mussel, gray bat, Indiana bat, orange footed pearly mussel, interior least tern, pallid sturgeon, and the bald eagle. In addition to federally listed species, nearly 102 state listed species exist in or near the Refuge.

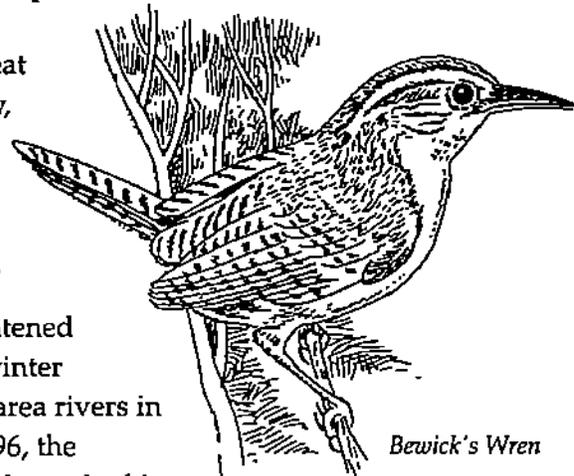
Waterfowl - A Trust Species: Even though this area has undergone intense degradation, the small amount of habitat left still supports a diverse wildlife community. The area has traditionally been important to waterfowl and other migratory birds. Due to its strategic location in the Mississippi flyway, the area continues to provide excellent habitat for most birds using the flyway, especially during the fall and spring migration periods. Peak migrational counts number in the hundreds of thousands and include geese, ducks, shorebirds,

wading birds, and countless other avian species. Recent harvest analysis indicates that the Cache River Wetlands is among the best in the State for the propagation of wood ducks. Restoration and management of wetlands within the proposed boundaries of the Refuge would improve existing habitat and create additional resources for dabbling ducks. It is expected that management activities will result in an estimated increase to a peak of 100,000 ducks annually using the Refuge.

Other Avian Species: A wide array of other avian species occur because of the diversity of habitats within or near the purchase boundary. To date, 251 species have been identified in the Cache River basin. Many species of birds are on the Illinois' endangered, threatened, or species of special concern lists. Among the species included on these lists are the barn owl, Cooper's hawk, red-shouldered hawk, great egret, Mississippi kite, Bachman's sparrow, Bewick's wren, Swainson's warbler, and loggerhead shrike. Other species present include wild turkey, northern bobwhite, mourning dove, and American woodcock.

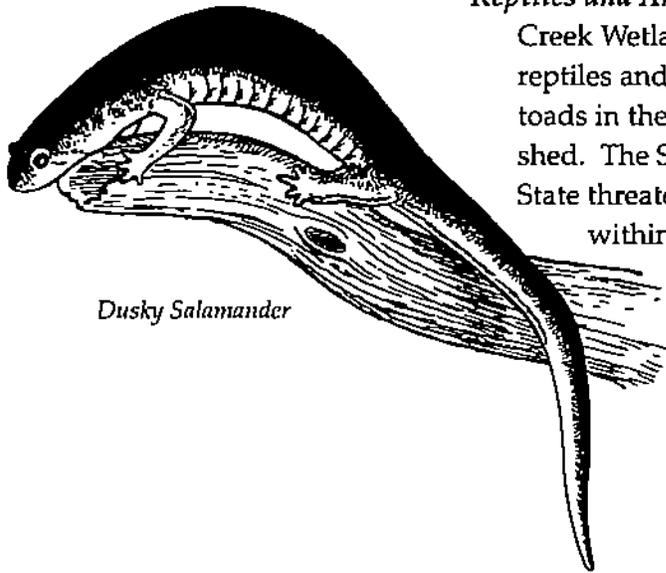
The bald eagle, a Federally listed threatened species, is a fairly common migrant and winter resident along the Mississippi, Ohio, and area rivers in southern Illinois. During the spring of 1996, the Refuge had an active bald eagle nest which resulted in the fledgling of one eagle. This was the first occurrence of eagle nesting in the Refuge area since 1909.

Neotropical migrant bird sightings indicate that the Cache River - Cypress Creek Wetlands area may contain the most diverse assemblage of such species remaining in the Midwest. More rigorous studies are needed to confirm which species are breeding here and how successfully they are reproducing.



Bewick's Wren

Mammals: The Refuge area contains 47 known species of mammals. The gray bat and the Indiana bat are on the list of Federally endangered species. The gray bat inhabits limestone karst areas in southern Illinois. The only known cave inhabited by the gray bat in Illinois is 40 miles to the east of the Refuge. However, the Department of Natural Resources has trapped gray bats at a site near Karnak, Illinois, which is within the Cache River and Cypress Creek Wetlands area. The Indiana bat winters in caves and abandoned mine tunnels. Females have their young in hollow trees or beneath the bark of trees while males summer in caves or wander in small groups. Indiana bats forage for food over forested areas or among trees along streams or river floodplain. The Refuge contains excellent habitat for the Indiana bat. Mammals considered to be resident species include an abundance of white-tailed deer, squirrel, and rabbits. Other mammals include bobcat, otter, and swamp rabbit.



Dusky Salamander

Reptiles and Amphibians: The Cache River and Cypress Creek Wetlands area contains 54 known species of reptiles and amphibians. Of the 20 species of frogs and toads in the state, 18 have been recorded in the watershed. The State endangered dusky salamander and the State threatened Strecker's chorus frog are found within Refuge boundaries. Until 1986, the eastern ribbon snake had not been seen in the state of Illinois for over 100 years. This state endangered species was rediscovered within the Cache River Wetlands, near Heron Pond. The yellow-bellied watersnake and timber rattlesnake are also found in the area.

MAJOR NATURAL COMMUNITIES OF THE CACHE

The Refuge is divided into five natural communities: 1) upland forests; 2) marsh or herbaceous wetlands; 3) swamps; 4) floodplain woods and 5) lakes or deep water habitat. These categories (which are illustrated on the following page) are representative of the 35 community types found within the Cache River Basin. Remnants of these community types exist today and serve as the model for future long range restoration of the Refuge.

The major natural communities within the Refuge are described below and highlight species that are threatened or endangered; the Cache River Wetlands provides a safe haven for one-third of all state threatened and endangered species. In addition, agriculture is noted in this section; nearly 60% of land within the delineated Refuge purchase boundaries is under agricultural production. Agriculture may not be a natural community but it does provide interim habitat for some species of wildlife.

UPLAND FORESTS

These areas are generally free of flooding and consist mostly of white and black oak, shagbark hickory, tuliptree, and cherrybark oak. The soils in the upland forested areas of the Refuge are typically thin and underlain with limestone or sandstone. These areas are historically the primary places of human habitation from prehistoric cultures to modern times. Agricultural practices on upland areas often result in highly erodible conditions which are difficult to restore once damaged. Wildlife found in upland forests range from big game species such as white-tailed deer to song birds, raccoon and many fur bearing animals.

Examples of state threatened or endangered species which require upland forest habitat include:

- ❖ bobcat (*Lynx rufus*)
- ❖ golden mouse (*Ochrotomys nuttalli*)
- ❖ Coopers hawk (*Accipiter cooperii*)

Cypress Creek National Wildlife Refuge

The Cache River bisects Cypress Creek NWR. This profile of the Cache River floodplain shows the typical relationship of the natural communities and unique features.

Managing the Resources

U.S. Fish and Wildlife Service will acquire, protect, and restore major natural community types within the delineated Refuge boundary. Plans also call for protection and management of unique features and wildlife.

Major Community Types:

Upland Forests: Often occurring on thin, highly erodible soils. Long range plans call for protection and reforestation of more than 6,000 acres of upland forested land.

Herbaceous Wetlands: Approximately 900 acres of herbaceous dominated wetlands exist or are proposed for restoration in the long range plan.

Swamps: These low lying areas are covered with water several months of the year. Acquisition and restoration of more than 3,200 acres are planned.

Deep Water Habitat: Protection of key open water areas is important for fish and other aquatic species. Long range plans call for acquisition and protection of approximately 200 acres of critical remaining open water habitat.

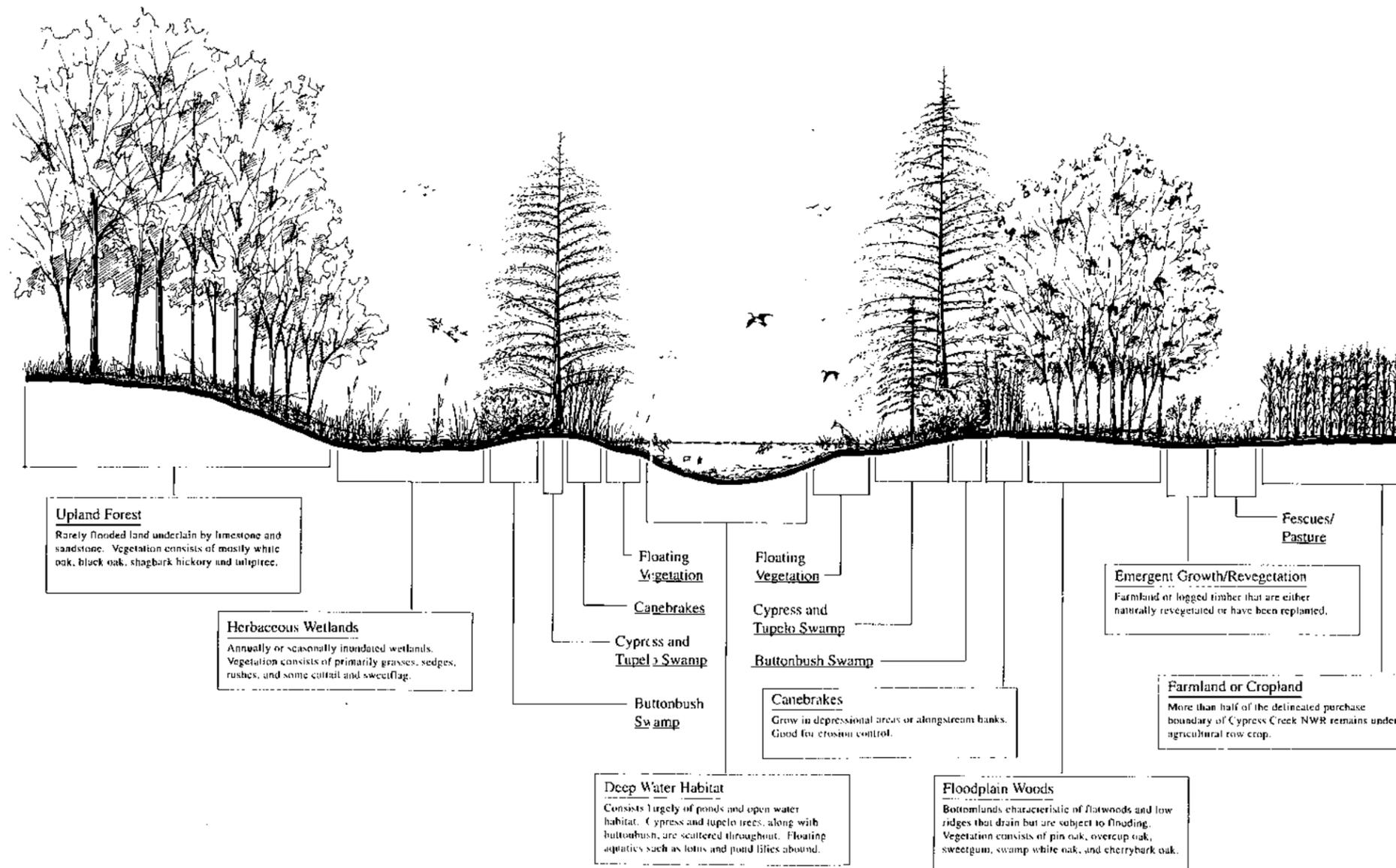
Floodplain Woods: Historically the largest natural community type. Acquisition and reforestation of nearly 24,700 acres is ultimately planned for the Refuge.

Other Unique Features:

Fresh Water Springs: Restoration and maintenance of eleven fresh water springs will help support water levels in the Cache River during drought as well as provide micronutrients to aquatic wildlife and plants.

Canebrakes: Six canebrake restorations are planned to provide erosion protection as well as unique habitat for species such as the swamp rabbit, canebrake rattlesnake, and the endangered Swainson's Warbler.

Farmland or Cropland: Much of the refuge is currently cultivated for agricultural production. Though most of the land will be converted to the major plant community types, several hundred acres will remain in production for wildlife use.



Natural Community Types Typical for Cache River Wetlands



Golden Mouse

The upland forests of Cypress Creek are also critical habitat for a myriad of songbirds including neotropical songbird species that rely on the dense hardwood forests of southern Illinois for summer breeding and nesting. Timber harvesting and agricultural activities have historically contributed to forest fragmentation which, in turn, has decimated songbird species, not only at the Refuge, but across Illinois and the Midwest. A major contributor to this is cowbird parasitism which has reached epidemic proportions in southern Illinois. Generally, the forest fragmentation makes it easier for the female cowbird to find a host nest. The host is often a neotropical songbird which raises the cowbird chick as its own. The cowbird chick repays the favor by evicting the host's real young which exacerbates the decline of the neotropical migrant songbird population.

HERBACEOUS WETLANDS

These areas are annually or seasonally inundated wetlands. They consist primarily of grasses, sedges, rushes, and cattails. These lands, with their deep rich soils, have been drained and converted to cropland. They provide ideal migrational habitat for waterfowl, shorebirds and wading birds.

Herbaceous wetlands provide critical habitat for wading birds. They also serve as unique hibernacular habitat for dozens of amphibious species. To help offset the loss of wetlands, nearly 400 acres of the Refuge have been developed into moist soil units. These systems help restore original functions and productivity.

Examples of state threatened or endangered species which utilize herbaceous wetlands habitat include:

- ❖ black crowned night heron (*Nycticorax nycticorax*)
- ❖ great egret (*Casmerodius albus*)
- ❖ rice rat (*Oryzomys palustris*)
- ❖ little blue heron (*Egretta caerulea*)
- ❖ river otter (*Lutra canadensis*)

SWAMPS

These are low-lying areas which were largely formed when the Ohio River was diverted to its present location. The flat terrain and lack of drainage created a huge wetland area. Today it totals about 45,000 acres in the Cache River watershed area.

Swamps are covered with water all, or at least several months of the year. The vegetation consists mostly of a canopy of cypress and tupelo with a mixture of pumpkin ash, swamp cottonwood, overcup oak, water locust, and water hickory. The understory is largely swamp privet and hawthorn.

Swamps provide key habitat for numerous species of aquatic birds, mammalian predators, fish and amphibians, and reptiles. The swamps embody the real image and spirit of the Cypress Creek National Wildlife Refuge. The finest example of what actually constitutes a swamp is Buttonland Swamp. Buttonland Swamp is located within the Refuge acquisition boundary and is managed by the Illinois Department of Natural Resources - Cache River State Natural Area. This unique area consists of 1,250 acres of wet forest and swamp that extends five miles along the Lower Cache River. It was designated as a National Landmark by the National Park Service in 1980. Much of the tract is dominated by water tupelo and bald cypress trees. It is an outstanding remnant of the swampy floodplain forest and open swamp that once covered an extensive area at the junction of the Mississippi and Ohio River valleys. The tract lies at the northern edge of the range for many southern species of plants and animals. It is a perfect place to see songbirds, waterfowl, wading birds, carpets of duckweed, native reptiles and amphibians, and an occasional river otter. It includes many large old trees; one national champion and five state champion trees.

Swamp habitat has been greatly degraded as a result of silt accumulation. Siltation occurred at the rate of 12' annually in the 1970's and continues today at a rate of approximately one-half inch annually. As swamp water depths decrease, vegetation such as buttonbush becomes dominant.

Since swamps could not be easily drained and farmed, they harbor cypress trees; the oldest living things east of the Mississippi River. They also provide excellent breeding habitat for wood ducks and other waterfowl.

State threatened or endangered species found in the swamp include:

- ❖ black crowned night heron (*Nycticorax nycticorax*)
- ❖ great egret (*Casmerodis albus*)
- ❖ river otter (*Lutra canadensis*)
- ❖ bobcat (*Lynx rufus*)
- ❖ spotted sunfish (*Lepomis punctatus*)

FLOODPLAIN WOODS

This is that assemblage of forested community types occurring on alluvial lands throughout the Cache Valley. A great diversity of species and tree dominants is found here on a variety of soils formed in recent sediments which border the river and its major tributaries. The land forms, all of which are subject to overflow flooding, include ridges, swales and flats. Topographic features include natural levees, river bars, sloughs, alluvial fans, and terraces. The bottomland hardwood forest represents the transition zone between permanent water areas and uplands. Soils vary from dry-mesic (well-drained) through hydric (very poorly drained) and are composed of various mixtures of sands, silts, and clays. The dominant natural class occurring here in presettlement times was forest. The natural community types include southern flatwoods, wet floodplain forest, wet-mesic floodplain forest, and mesic floodplain forest. Oaks are dominant and abundant including cherrybark oak and Shumard oak.

The kingnut and bitternut hickories are characteristic and widespread but are not as abundant as the oaks. Locally, other species are abundant, including sweetgum, green ash, and red maple. Some of the flats with hardpan soils are characterized by post oak and swamp white oak. The elms (American and red) were once much more common.

The floodplain woods comprises the largest single natural community type that provided habitat for the species of migratory birds and wildlife which made the Cache River area attractive to Native Americans and the early settlers. It was also in the floodplain woods where the great timber trees grew that the logging companies sought during the 1800's and early 1900's. Today, only remnants can be found of the once great floodplain woods. They fell to the axe and saw and to the ever-increasing loads of sediment which built up over the forest root system. They now occur only along the Cache River and its tributaries. With the exception of parts of Hogue Woods and Limekiln Slough (and Section 8 Woods which is outside the Refuge), the large and contiguous old growth tracts are gone. Floodplain woods provide critical habitat for most of the Refuge's wildlife. It is particularly important in that mast trees provide food for many species, especially birds and mammals.

Federally endangered species which require the habitat of the floodplain woods are:

- ❖ gray bat (*Myotis grisescens*)
- ❖ Indiana bat (*Myotis sodalis*)

Examples of state threatened or endangered species which require the habitat of the floodplain woods are:

- ❖ golden mouse (*Ochrotomys nuttalli*)
- ❖ red shouldered hawk (*Buteo lineatus*)
- ❖ Mississippi kite (*Ictinia mississippiensis*)

DEEPWATER HABITAT

Deepwater habitat are those areas of year-round open water. They are mostly open water areas with edges of buttonbush, and floating aquatics such as pond lilies, lotus, and duckweed. Deepwater habitat was an important characteristic of Buttonland Swamp and other reaches of the Cache River until the 1970's. Practically all the deeper water habitat has been reduced to a depth of less than three feet through siltation. Today there are only about 100 acres of open water habitat that remain in the form of "lakes" and "ponds." The remaining deeper areas are ditches, sloughs, and the main section of the Cache River. Deepwater habitat was an important characteristic of Buttonland Swamp and other reaches of the Cache River until the 1970's. Practically all the deeper water habitat has been reduced to a depth less than three feet through siltation.

Sedimentation has significantly diminished the deepwater areas which once supported game fish, rough fish, and other aquatic wildlife which require deep water for hibernating or overwintering. These areas also function as night roosting sites for many species of water birds.

Examples of state threatened or endangered species:

- ❖ spotted sunfish (*Lepomis punctatus*)
- ❖ least brook lamprey (*Lampetra aepyptera*)
- ❖ Cypress minnow (*Hybognathus hayi*)

RARE NATURAL COMMUNITY TYPES

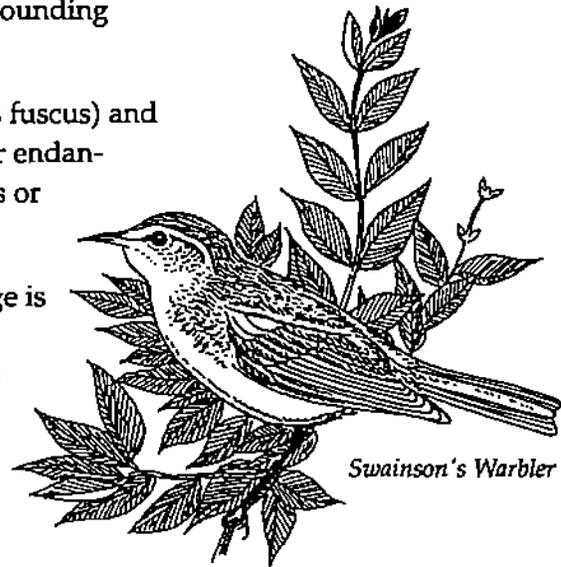
There are several other rare natural community types scattered throughout the Refuge. Examples of some of the most rare and high quality community types include:

Springs or Seeps - One of the features of the Refuge is the presence of freshwater springs or seeps. These interesting features provide year-round sources of clear, clean water to the Cache River and some of its tributaries. They provided drinking water to the early settlers and today are a source of wildlife habitat.

Many of the existing springs or seeps have been silted-in due to sedimentation and deforestation. These require reopening and the areas surrounding them should be protected.

The dusky salamander (*Desmognathus fuscus*) and cypress minnow are the State threatened or endangered species that seek habitat near springs or seeps.

Canebrakes - Another feature within the Refuge is the canebrakes. Giant cane (*Arundinaria gigantea*) is indigenous to southern Illinois and the only species of cane in Illinois. It provides two major habitat benefits. It serves as an aggressive bank stabilization plant that helps control erosion and provides habitat for state endangered species as well as neotropical migrantsongbirds. The Swainsons warbler (*Limnothlypis swainsonii*) is the only State threatened or endangered species whose habitat is known to require the canebrakes.



Existing large canebrakes within the Refuge boundaries are limited to some areas of the Limekiln Springs Slough and the southernmost tip of the Refuge. Cane regrowth can be seen in areas that were once farmed or were in pasture, such as the Hogue Woods reforested tracts. Rhizomes buried for years which are now allowed to grow are beginning to revegetate the wet seeps of the tract. The swamp rabbit, although not a listed species, is indeed rare in Illinois and nests and feeds on cane.

Barrens - The barrens is a type of savanna. It has an overstory of trees, usually hardwoods with understory of grass or other shade tolerant herbaceous layers.

Limestone Glade - These are southern prairie types and thin soils over limestone bedrock, usually on upland slopes.

Southern Flatwoods - A unique, hardwood forest type that is associated with a particular soil condition, generally with a hardpan. Trees are stressed by seasonally wet and dry conditions during the year.

AGRICULTURE

Over half the land within the proposed Refuge purchase boundary remains under agricultural production. Much land was cleared of timber in the Cache River basin and then converted to agriculture. Past agricultural practices impacted the Refuge perhaps more than any other use of the land. Agricultural production contributed to cropland erosion and sedimentation which has further increased loss of wetlands and wildlife habitat. In recent years, cropland erosion has dropped dramatically due to conservation programs within the watershed. An average of ten and one-half tons of soil per acre of land in the Upper Cache River Basin and nearly 16 tons of soil per acre in the Lower Cache River Basin are lost annually due to cultivation of land classified as highly erodible.

Today, land owned by the Service and Joint Venture partners is evaluated when acquired and most often taken out of agricultural production. Some tracts of land are maintained in agriculture until an area can be restored with native vegetation. When the Refuge was established, a commitment was made to maintain 10% of the land in agriculture within the Refuge purchase boundary. This Comprehensive Management Plan supports that commitment. Some tracts of land that have existing cover such as fescue grasses are low priority for restoration because minimal soil erosion is occurring. Other tracts acquired on highly erodible lands in row crop production are priorities for reforestation. Also, some lands are being maintained in agriculture to improve fertility and to control noxious weeds.

CULTURAL RESOURCES

In 1995, a comprehensive cultural resource overview for Cypress Creek National Wildlife Refuge was developed to provide information on the locations of known and undiscovered sites, as well as criteria to evaluate these resources. The study included the proposed boundary and a five mile radius around the perimeter of the Refuge. This cultural resources study is the first step in an overall inventory process. Under Section 106 of the National Historic Preservation Act (NHPA), archeological and historical sites and other cultural resources in the Refuge must be identified and assessed prior to disturbance or destruction.

Based on a synthesis of cultural resource locational data, this overview provides a framework for predicting the frequency and location of undiscovered cultural resources in the Refuge. The report addresses the importance of the various cultural resources found in terms of their current scientific, religious, and symbolic values. The importance of these resources is discussed in light of Refuge management objectives and concerns, and recommendations regarding cultural resource management issues are provided in the report. In this regard, it is a necessary reference component of the Plan.