

## **The Coastal Plain Natural Division**

### **Characteristics**

The Coastal Plain Natural Division of extreme southern Illinois is a region of swampy forested bottomlands and low clay and gravel hills that is the northernmost extension of the Gulf of Mexico Plain Province of North America. Baldcypress-tupelo swamps are a unique feature of the natural division, as are many southern animals such as bird-voiced treefrog and cottonmouth. The floodplain at the confluence of the Mississippi and Ohio rivers and Cache and Ohio rivers host rich bottomland forests, while the "Cretaceous Hills" section is a steep to rolling area of unconsolidated sand, gravel and clay hosting Cretaceous period fossil beds.

### **Major Habitats & Challenges**

Forests - Suppression of fire and subsequent alteration of fire-related species guilds and pre-disturbance natural character; alteration of basin hydrology and hydraulics as it relates to the natural flood regime (timing, depth and duration); controlling the spread of exotic and invasive species (especially Japanese honeysuckle, bush honeysuckle, autumn and Russian olive, garlic mustard, kudzu); and changes in woody species composition associated lack of forest management.

Open Woodland/Savanna/Barren - Reversing the effects of the suppression of natural disturbance, especially periodic burning, and controlling the spread of early successional woody species and the spread of woody and herbaceous invasive species (i.e., tall fescue, autumn olive).

Wetlands - Protecting existing wetlands from drainage and clearing for conversion to agriculture or urban use; widespread implementation of Best Management Practices throughout the watershed to improve water quality entering existing wetlands; restoring and maintaining the flood regime responsible for the character and sustainability of individual wetlands; establishing wetland complexes intensively managed to provide habitat for migratory waterfowl and shorebirds.

Lakes and Ponds - Establishing and maintaining a flood regime that will restore and sustain the natural character and productivity of backwater areas (natural ponds, oxbows, sloughs) associated with major rivers and tributaries while minimizing conflicts with private landowners (agriculture, industry, private home/property damage); maintaining and improving the natural character and public values assigned/determined for aquatic resources.

Streams - Restoring and maintaining stream/river aquatic and terrestrial natural communities with minimal affects to private lands; eliminating stream bed and bank instability to improve water quality and aquatic habitat, and subsequently the health of receiving waters.

Primary Communities - Identifying and monitoring river sandbars utilized by Least Terns and protecting these sites from development and disturbance; monitoring known mussel beds and conducting additional monitoring to locate new beds (Ohio and Cache Rivers).

## **Opportunities**

Cache River Joint Venture Partnership: Landscape-scale management and the restoration of ecological processes that will restore and sustain high quality aquatic and terrestrial natural communities is possible within land owned and managed by the Cache River Joint Venture Partnership (Illinois Department of Natural Resources, U.S. Fish and Wildlife Service, The Nature Conservancy, Ducks Unlimited).

Wetland Reserve Program, Wildlife Habitat Incentive Program, Best Management Practices: U.S. Department of Agriculture-Natural Resources Conservation Service programs can assist greatly with improving aquatic and wetland resources within the watershed by intensively working to implement these and similar programs on private land, especially land near large tracts of land already in public ownership (Cache River State Natural Area, Cypress Creek National Wildlife Refuge, Grassy Slough Preserve (The Nature Conservancy), Mermet Lake Conservation Area, Ft. Massac State Park). These programs have become significantly more attractive to private landowners subsequent to the increasing popularity and financial benefits associated with recreational use, especially waterfowl, whitetail deer, and wild turkey hunting.

Restoration of Giant Cane: Ecologists and historical data suggest that giant cane was once a dominant part of the landscape in the Coastal Plain, forming large dense monoculture stands often encompassing several hundred acres. Research has shown giant cane to provide significant water retention and filtration of overland flow. Restoration of giant cane within the riparian zone along rivers and tributaries could significantly improve water quality and provide habitat long absent from the floodplain environment.

Restoration of Forest Habitat: Agro-forestry is quickly gaining popularity throughout the Midwest, especially with the genetic enhancement of fast-growing species like cottonwood and sweet gum. Considerable acreage within the floodplain that is too wet for row-crop production could provide income for private landowners by replacing cereal grains with trees. If sufficient cropland acreage was converted the result would be significant reductions in overland flow and improvements in overall water quality in area streams/rivers, tributaries and receiving waters.

## **Management Guidelines**

### Landscapes

Forests - Net increase of 18,000 acres within the Coastal Plain Division; primary emphasis should be given to forested swamps (baldcypress-water tupelo) and floodplain forests within the Bottomlands Section. Massac and Pulaski counties contain the vast majority of the land within the Coastal Plain (384,681 acres), and this area was entirely forested prior to

human disturbance. Today, these counties are among the lowest in forested acreage in the state (Pulaski County-6,700 acres; Massac County-15,000 acres), with the vast majority of this converted to agricultural land (row crops and pasture). Particular attention should be given to the restoration of frequently flooded areas within the first terrace of river/tributary floodplains that have been cleared and are currently being farmed, especially corridors where reforestation can connect existing large forested blocks or other critical habitat. Management of existing forests should emphasize the restoration and sustainability of oak-hickory community types. Assessment of forest ecosystem health should be based on woody species guilds, but incorporate sub-canopy and herbaceous species composition as well.

Open Woodland/Barrens - A goal of increasing this natural community type by 3,730 acres within the Coastal Plain should emphasize open woodland and barrens habitat found within the Cretaceous Hills Section. This work may be accomplished best by identifying large forested tracts (>100 acres) where species composition suggests barrens and open woodland habitats were once present as a dominant component of the landscape, and where sufficient natural character remains to allow for restoration through intensive management (prescribed burning, timber stand improvement, and exotic/invasive species control).

Wetlands - The Bottomlands Section of the Coastal Plain Division includes bottomland hardwood forests, meander scars, oxbow lakes, sloughs, marshes, baldcypress-tupelo gum swamps, rivers and streams. These wetlands include aquatic habitat associated with each community type. A primary goal for protection of wetland habitat within this Ecoregion would include restoration, preservation and enhancement of an additional 20,000 acres of wetland habitat within the project boundary of the Cache River Joint Venture Partnership (Illinois Department of Natural Resources, U.S. Fish & Wildlife Service, The Nature Conservancy, Ducks Unlimited). A considerable part of the protection and enhancement will be accomplished with implementation of Best Management Practices on private land. Emphasis should be given to wetland restoration, water retention basins and stream bank/bed stabilization. Resource managers should target 20,000 acres for wetland restoration (including water retention basins) on private land within the Coastal Plain Division. Modification of existing impoundments to increase storage capacity should be included as part of this effort to reduce overland flow, water quality, and delivery of runoff to area rivers, streams and wetlands.

Lakes and Ponds - Intensive management/modification of lakes and ponds throughout the Coastal Plain Division offers perhaps the most significant opportunity for watershed improvements. They are very popular with private landowners, and recent innovations in design increase storage capacity to such an extent that they function hydrologically as a wetland, dramatically improving effluent water quality, reducing/slowing runoff, and in association with sufficient watershed coverage, reducing peak flows in tributary drainages, streams and rivers. Design and placement should emphasize these goals, with emphasis given to those watersheds containing high quality natural resources in public ownership or private land enrolled in land protection programs. These impoundments also provide valuable habitat for fish and wildlife, tremendous recreational and educational opportunities, and bring

resource professionals and the general public together for a mutually beneficial cause.

Streams - Streams within the Bottomlands Section of the Coastal Plain Division were once sluggishly flowing systems meandering within broad flat floodplains. These floodplains were dominated by bottomland hardwood forests and baldcypress-tupelo gum swamps. Most of these waterways receive runoff from cropland and pasture containing excessive sediment, nitrogen and phosphate. Priority should be given to effluent water quality, particularly when receiving waters contain high quality natural communities or support uses valued by the public. Stream bank and bed stabilization should be implemented within stream/river systems where degradation is severe, especially where subsequent water quality and flooding issues threaten high quality natural communities, threatened/endangered or rare species or habitat important for migratory waterfowl, shorebirds or Neotropical migratory songbirds.

### Natural Communities

Dry-mesic Acid Oak Upland Forest

Interior Highlands Oak Barrens

Backswamp/Slough Floodplain Forests

Midwestern Wet Flatwoods

Forested Acid Seeps - These acid seeps/springs are all found within the boundaries of Cretaceous Hills, on Shawnee National Forest and Illinois Department of Natural Resources property. The part owned by the Department of Natural Resources is a designated Nature Preserve, and is managed to preserve and restore the forest community, with emphasis on the barrens and seep spring components.

Open Ponds and Emergent Marshes - This community type occurs infrequently throughout the floodplain of the Cache River. Occurrences are small (often less than 1 acre), and created and maintained by natural disturbance (scouring during flood flows, beaver, wind, lightning). Permanent water greater than 18" but less than 48" also supports this community type.

Thin Soil Oak Savannas/Barrens

Shaded Rock Outcrops

Canebrakes - Canebrakes occur frequently throughout these macrosites. Although most are small in size (<1 acre), historic data suggests there were extensive areas (>10 acres) of this distinctive community type. Because of the abundance of existing stands within large tracts of public land, the restoration potential of canebrakes is very good. Canebrakes support diversity of dependent insect species, and provide habitat for the Swainson's warbler, and the canebrake rattlesnake (a subspecies of the timber rattlesnake).

Mesophytic Slope Forest

### Critical Species

dusky salamander, Illinois chorus frog, northern crawfish frog, cerulean warbler, Swainson's warbler, Bachman's sparrow, Henslow's sparrow, Oxbow crayfish, southeastern myotis, gray bat, northern myotis, Rafinesque's big-eared bat, Indiana bat, river otter, green water snake, timber rattlesnake, hellbender, alligator snapping turtle, Price's potato bean (*Apios priceana*),

cypress knee sedge (*Carex decomposita*), giant cane (*Arundinaria gigantea*), butternut (*Juglans cinerea*), willow oak (*Quercus phellos*), riverbank lichen (*Phaeophyscia leana*), heart-leaved plantain (*Plantago cordata*), ovate catchfly (*Silene ovata*), powdery thalia (*Thalia dealbata*)

#### Emphasis Game Species

Bottomlands Section: wood duck, mallard, Canada goose, whitetail deer, swamp rabbit, wild turkey, largemouth bass, white crappie, white bass, channel catfish

Cretaceous Hills Section: whitetail deer, wild turkey, bobwhite quail, gray squirrel

#### Non-game Indicator Species

Bottomlands Section: prothonotary warbler, Kentucky warbler, eastern wood pewee, Louisiana waterthrush, Acadian flycatcher, hooded warbler, summer tanager, yellow throated vireo, wood thrush, rusty blackbird, great blue heron, green heron

Cretaceous Hills Section: broad-winged hawk, chuck-will's-widow, worm-eating warbler, great-crested flycatcher, blue-winged warbler, prairie warbler

#### **Recreational Opportunities**

Hunting (whitetail deer, wild turkey, waterfowl, cottontail rabbit, bobwhite quail, squirrel), wildlife viewing/bird watching, fishing, hiking, bicycle riding

#### **Educational/Interpretive Resources**

Cache River Henry Barkhausen Wetland Center, Fort Massac State Park, Mermet Lake Fish and Wildlife Area, Ohio River Recreation Area, Southern Illinois Spring Bird Count, Cypress Creek Christmas Bird Count

#### **Natural Resource Commodities**

Forest products, commercial fisheries, commercial hunting (waterfowl, eastern wild turkey, whitetail deer), row crop agriculture

#### **Conservation Opportunity Areas**

##### Cache River Joint Venture Partnership Project

Protected Lands - Cache River State Natural Area, Cypress Creek National Wildlife Refuge, Grassy Slough Preserve, Cypress Pond State Natural Area, Heron Pond-Little Black Slough Natural Area

Priority Resources - Bottomland Hardwood forest, swamp forest, migratory waterfowl

and shorebirds, Neotropical migratory songbirds

Conservation Philosophy - Restoration, preservation, and management of bottomland hardwood forests, swamp forests, and riparian aquatic habitat. Resource management will be guided by conditions that were present prior to human disturbance, and emphasis will be placed on restoration of ecological processes that will provide sustainability of all natural communities within the river continuum.

Wildlife Habitat Objectives - By 2020 increase land in public ownership within the project area to 60,000 acres; achieve partial reconnection of the Upper and Lower Segments of the Cache River by 2010; reduce peak flows in Big Creek by 25%

Key Actions - Land acquisition, partial reconnection of the Upper and Lower Segments of the Cache River, reforestation and wetland restoration

Partners - Illinois Department of Natural Resources, U.S. Fish & Wildlife Service, The Nature Conservancy, Ducks Unlimited, U.S. Department of Agriculture-Natural Resources Conservation Service and local Soil and Water Conservation Districts

Implementation Resources - C2000, State Wildlife Grants, Wildlife Habitat Incentives Program, Wetland Reserve Program, Natural Areas Acquisition Fund

Research, Monitoring and Evaluation - Southern Illinois University at Carbondale, Illinois Natural History Survey, Illinois State Water Survey, Little River Research, Inc.

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