

More Aquatic Habitats

Teacher's Guide



Illinois contains a diversity of wetland communities. Wetland communities are lands that often are transitional between aquatic and terrestrial systems where the water table is usually at or near the surface, or the land is covered by shallow water. The values of wetlands and some of the larger, more common types of wetlands are discussed in the “Wetlands Teacher’s Guide” of the *Aquatic Illinois* unit. The following text deals with some of the rare wetland communities in Illinois: bogs, wet prairies, marshes, swamps and fens.

Bog

A bog is characterized as an area where more than 50 percent of the vegetation is herbaceous, standing water is present and the soil is acidic in pH. Restricted drainage and the presence of sphagnum moss create acid conditions. Bogs are found almost exclusively in glaciated depressions in northeastern Illinois.

Volo Bog, in northeastern Illinois, is the only Illinois example of a “quaking” bog, or one that is open at the center. This bog was formed during the Wisconsinian glacier 15,000 years ago. The glacier pushed large pieces of ice into the earth, forming kettle holes. Of the two kettle holes at Volo Bog formed by the glacier, one has filled in and the other has become considerably shallower than its original 50-foot depth. Since the original kettle holes were poorly drained, dead plant material accumulated and became peat. The development of peat resulted in water that was acidic.

The transition from open water to land, or succession, is readily evident in a bog. As additional plants die and settle to the bottom of the bog, a floating mat of vegetation forms along the edges and the amount of open water decreases. Without management, bogs eventually fill in.

Along the edge of Volo Bog grow cattails, arrowhead and duckweed. Moving toward the center of the bog, the next distinct zone is the tall shrubs, such as poison sumac and winterberry holly. Further in toward the center of the bog are the tamarack trees. These unusual conifers shed their leaves each fall. Tamaracks grow where the floating mat has become thick enough to support their weight. A low shrub zone area follows, which contains many young trees and shrubs growing amid cattails, orchids, bog buckbean and sphagnum moss.

The vegetation close to the open water area is a mat of herbs. This mat is very thin and cannot support much weight. Many of the same herbaceous plants from the previous zones grow here. The final zone is open water, which is all that remains of the original glacial lake.

Bogs are home to unique plants. With only one open bog remaining in Illinois, many of the plants in this habitat are rare, threatened or endangered. The pitcher plant is a carnivorous plant that consumes insects, mites, spiders and small frogs. The leaves of the plant form a tube that prey cannot escape from. Digestive enzymes dissolve the prey. Leatherleaf has thick leaves that are retained during the winter and protect the plant from excessive water loss. Orchids can live on the hummocks through a symbiotic relationship with fungi that decompose plant materials and share it with the orchids. A variety of aquatic organisms reside in Volo Bog, including dragonflies, leopard frogs, bullfrogs, snails and red-winged blackbirds.

Where to Find Bogs Today: The best example is Volo Bog State Natural Area in Lake County. A boardwalk into the center of the bog and on-site interpretive programs provide excellent opportunities to view this unique and fragile habitat. Pistakee Bog Nature Preserve can be accessed from the parking lot at Volo Bog.

Wet Prairie

A wet prairie, also commonly referred to as a wet meadow, is characterized as an area having more than 50 percent of the vegetation being herbaceous, standing water present seasonally during the growing season and neutral pH.

Historically, wet prairies existed in the northern two-thirds of Illinois and were most commonly found in the flood plains of major

streams and rivers. Today, these communities remain as scattered relics throughout that range. As Illinois was settled, crossing the vast expanses of wet prairie became a chore for many pioneers. "Corduroy" roads, logs laid side-by-side, were built across many wet prairies to assist with the passage of wagons. Many pioneers crossed the prairies at night to avoid biting flies. Some wet prairies were mowed and the hay used for feed and bedding material for farm animals.

Many wet prairies were drained. Some people felt that stagnant pools of water held diseases. Others desired to drain them and convert them to agricultural fields. Large numbers of ducks inhabiting these prairies were considered a nuisance to surrounding grain fields. Landowners used a variety of techniques to drive ducks off these prairies.

Wet prairies have a lower plant diversity than other prairie communities. The most common plant in wet prairies is cord grass, or slough grass. Wetter sections of these prairies consist of hummocks created by bluejoint grass. Other typical plants include white lady's-slipper orchid, ferns, sedges, wild blue iris, swamp milkweed, swamp rose and marsh fen.

Historically, wet prairies were havens for a variety of birds, including ducks, geese, swans, rails, prairie-chickens, sandhill cranes, warblers, red-winged blackbirds and herons. Turtles, frogs and muskrats were other common wet prairie inhabitants. With the decline in this habitat type, at least six animal species and eight plant species have been listed as Illinois endangered or threatened species.

Where to Find Wet Prairies Today: Some of the finest examples of remaining wet prairies can be found at Matanzas Prairie in Mason County, Green River State Fish and Wildlife Area in Lee County, Goose Lake Prairie in Grundy County and Chauncey Marsh in Lawrence County.

]

Marsh

A marsh is characterized as an area where more than 50 percent of the vegetation is herbaceous and the soil has neutral pH. Less than 30 percent of marsh vegetation is woody. With standing water present throughout the growing season, marshes are highly productive communities. Marshes occur throughout Illinois, with the most extensive communities occurring at the edges of bottomland lakes and sloughs and along the Illinois and Mississippi rivers.

The deeper the water level in a marsh, the lower the plant diversity. Marshes are dominated by tall grass plants, such as cattails, bulrushes and sedges. Other typical plants may include wild rice, white water lily, jewelweed, arrowhead and pondweed. Marshes are highly productive habitats and support hundreds of species of animals, such as frogs, toads, salamanders, turtles, muskrats, mink, swallows, ducks, herons and fishes.

Where to Find Marshes in Illinois: Chauncey Marsh Nature Preserve in Lawrence County

Swamp

A swamp is characterized as an area where more than 50 percent of the vegetation is woody, adapted to living in water and greater than 20 feet tall. Surface water is usually present in swamps. Illinois swamps are the northernmost remnants of a community that once covered most of the southern United States. Many of the plants and animals found in southern Illinois swamps are at the northern extent of their range, often resulting in a listing as threatened or endangered species.

The Cache River in southern Illinois was the ancient channel of the Ohio River. This watershed contains four overlapping physiographic regions, something which occurs in only five other areas in the United States. This overlap of northern and southern floras allows unique combinations of wildlife and vegetation to exist. Native Americans used the Cache River valley for sustenance trapping, hunting and fishing. In 1702 a Frenchman named Juchereaux established a mission and tannery in the area. Later settlers of European descent brought sawmills, farming and finally drainage and land clearing to the region. Lumber companies harvested large quantities of timber for lumber, veneer for manufacturing baskets and boxes, railroad ties, mine timbers and charcoal.

Cypress and tupelo swamps have a water depth of approximately two feet. Floating or submersed plants, such as pondweed, coontail and duckweed, can be seen in the water. Bordering the swamp and adjacent forests are maples, elms and oaks.

Swamps are rich and biologically diverse habitats. For instance, the Pine Hills/La Rue Swamp area in southern Illinois contains 43 percent of all the plants species known from Illinois. The dominant tree of swamps is the baldcypress. Some individual trees may be as old as 1,000 years and have orange-tipped knees up to 10 feet high. Water tupelo is another common swamp tree.

Swamps are rich in wildlife diversity. Historically, bison, elk, black bears, cougars and wolves were found in the Cache River area. By the 1850s these species were no longer present. Today, animals typical of the area include herons, waterfowl, black vulture, red-shouldered hawk, barred owl, flycatchers, warblers, squirrels, bats, foxes, mink, muskrat, beaver and cottontail and swamp rabbits. Signs of bobcat and river otter may be found. A wide variety of frogs, turtles and snakes live in swamps.

Where to Find Swamps in Illinois: La Rue Swamp Nature Preserve in Union County. Heron Pond-Little Black Slough Nature Preserve in Johnson County has a floating boardwalk that leads visitors into the pond.

Fens

A fen is a type of wet meadow that is fed by an alkaline water source, such as a calcareous (having calcium carbonate) spring or seep. The presence of calcium and magnesium makes the soil alkaline. More than 50 percent of the vegetation in a fen is herbaceous. Standing water is present. Fens are most commonly found in northeastern Illinois and in isolated areas along the Illinois River valley. Twelve of the known 125 fens in the United States occur in Illinois.

Fens frequently occur on a hillside and are often called “perched bogs” or “hanging bogs.” Some fens were historically mowed.

Typical plants include pitcher plant, turtlehead, skunk cabbage, beaked spikerush, wild marsh timothy, hoary willow, rushes, dwarf birch and cotton grass. Sandhill cranes and other wetland-dependent birds nest in fens. Some plants attract insects that specialize in fens, such as the Baltimore checkerspot butterfly which feeds on turtlehead plants.

Where to Find Fens in Illinois: Turner Lake Fen in Lake County, Spring Grove Fen Nature Preserve in McHenry County, Ferson’s Creek Fen Nature Preserve in Kane County.

Wetland Issues

Drainage and siltation from agricultural development and lack of periodic burning have contributed to the loss and degradation of wetlands. Alteration of groundwater, including pollution, impacts many wetlands. With the diversity of unique plants in some wetlands, plant piracy is often a problem. Exotic species, such as common reed, glossy buckthorn and purple loosestrife, threaten to destroy some wetlands.

Current Wetland Management Practices

Restoration of wetlands often requires re-establishing historic water levels, revegetation, improving water quality, controlling erosion, reducing wave action or construction of water-retaining structures. Prescribed burns, control of exotic species and brush removal encourage desired plants and slow the process of succession. Vegetation control practices can also include use of chemical and mechanical techniques and biocontrol using insects. Land acquisition programs have been undertaken to preserve many unique communities.

References

- Curtis, J. T. 1958. *The vegetation of Wisconsin*. University of Wisconsin Press, Madison, Wisconsin. 657 pp.
- Illinois Department of Natural Resources. 1995. *Directory of Illinois nature preserves. Vols. 1 and 2*. Illinois Department of Natural Resources, Springfield, Illinois. 189 pp. and 321 pp.
- Illinois Department of Natural Resources. 1988. *A field guide to the wetlands of Illinois*. Illinois Department of Natural Resources, Springfield, Illinois. 244 pp.
- Illinois Department of Natural Resources. 1995. *Volo Bog State Natural Area educational guide*. Illinois Department of Natural Resources, Springfield, Illinois. 26 pp.
- Illinois Institute of Natural Resources. 1981. *Illinois wetlands: their value and management*. State of Illinois Institute of Natural Resources, Chicago, Illinois. 133 pp.
- McClain, W. E. 1992. Wetlands that were. *Illinois Audubon*. 240:5-7.
- McClain, W. E. 1996. Prairies on the wet side. *The Illinois Steward*. 5(3):3-7.
- Post, S. L. 1996. No place like Volo Bog. *The Illinois Steward*. 5(1):14-19.



Equal opportunity to participate in programs of the Illinois Department of Natural Resources (IDNR) and those funded by the U.S. Fish and Wildlife Service and other agencies is available to all individuals regardless of race, sex, national origin, disability, age, religion or other non-merit factors. If you believe you have been discriminated against, contact the funding source’s civil rights office and/or the Equal Employment Opportunity Officer, IDNR, One Natural Resources Way, Springfield, IL 62702-1271; 217/785-0067; TTY 217/782-9175. This information may be provided in an alternative format if required. Contact the DNR Clearinghouse at 217/782-7498 for assistance.

Aquatic Illinois © 2011, Illinois Department of Natural Resources
DNR 164– 7/12 • IOCI 12-0831