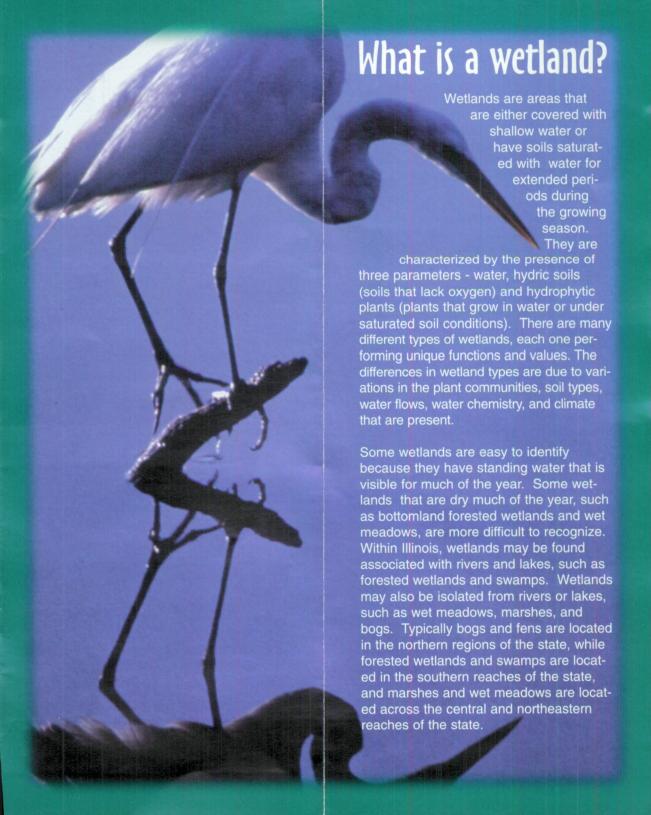
Illinoi Wetlands





Why are wetlands important?

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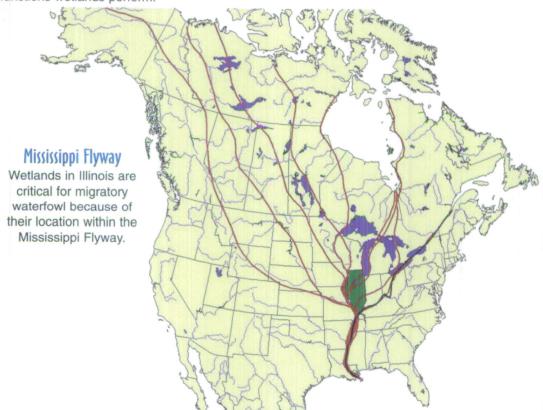
Wetlands are a dynamic resource, ever changing in response to weather conditions and precipitation patterns. During a dry year, for example, some wetlands may

not be very wet at all. During a year with heavy rains, those same areas may fill and hold water. Depending upon whether it is a dry or wet year, wetlands may perform different functions, serving as habitat for different assemblages of plants and animals, and contributing more or less control over the flow rates of nearby streams. This flexible nature is what helps make them so valuable to humans and natural systems. The following is a list of some of the more valuable functions wetlands perform.

Flood Prevention and Stream Flow Control: Wetlands, (especially drier wetlands) absorb large amounts of storm water and reduce flooding by storing and slowing down the force of the water. During dry periods these same wetlands continue to release the stored water back into their associated streams, resulting in a more constant flow rate. In fact, an Illinois State Water Survey study has shown for every 1% of a watershed that exists as wetland, the peakflow of the associated streams decreases by an average of 3.7%, and low flow of those streams increases by an average of 7.9%.

Preserving the water storage capability of

wetlands can have substantial benefits.



Nationally, flooding causes approximately \$8 billion in damage annually, and here in Illinois, a DuPage County study found that 80% of all flood damage reports came from homeowners whose houses were built on converted wetlands.

Threatened and **Endangered Species**

Habitat: All wildlife depends upon the presence of suitable habitat in order to live and

breed. Many species require very specific habitats, such as wetlands. Because so many of our unique wetlands have been lost, many species that once thrived and were plentiful, are now endangered or threatened. At least 1/3 of the nation's threatened or endangered plants and animals depend on wetlands. In Illinois, over 60% of the vertebrates and 18% of the plants listed as threatened or endan-

gered are wetland dependent. These species' survival relies heavily upon the remaining 3.5% of the

state's landscape that exists as either natural or artificial wetlands.

Wildlife and Fish Habitat: In addition to those species listed as threatened or endangered, wetlands provide food and shelter for a wide variety of other plants, fish, wildlife,



Hines Emerald Dragonfly is one of

many endangered wetland species.

Wetlands can support a large number of plants and animals. This diverse assembly of plant and animal communities is often referred to as biological diversity. Unfortunately, Illinois has lost nearly 90%

of its original wetland base and the biological diversity of the state has drastically declined.

> Therefore, the few remaining wetlands are critical to the species which still remain including those migratory waterfowl passing through Illinois. Without Illinois' wetlands, migrating birds would either never make it to their destinations, or

Several wildlife species, such as the Ring-Necked Duck, depend upon wetlands.



waterfowl, and shorebirds. Many species of fish depend on the wetlands that are adjacent to lakes and rivers as places to spawn, for small fish to grow, and for feeding. Several species of resident animals such as dragonflies. mussels, and muskrats depend on wetlands all year long to provide them with

homes, food, and a place to raise their young. Migrating birds, such as the Ring-

Necked Duck depend on wetlands during critical times in the spring and fall as places to stop to rest and feed.



Wetlands provide a variety of recreational opportunities.

they would be in such poor condition that their breeding success would be greatly reduced.

Improving Water Quality: The lush vegetation in wetlands, and the associated microorganisms, work together to improve water quality. The vegetation slows down storm water, which allows suspended sediment and other materials to drop out. This reduces sediment loads that are delivered to streams and lakes downstream from these wetlands. Wetland vegetation also has a tremendous capacity to absorb dissolved nutrients, such as nitrogen and phosphorus from water. In some cases, a wetland can absorb up to 90% of these nutrients that it receives. Many other pollutants brought into wetlands can get trapped in the sediment and then be broken down by the many microorganisms that thrive in the nutrient rich system. This filtering capability of wetlands is critical to improve the ecological health of our nation's waters.

High levels of sediments, nutrients, and pollutants, however, can easily "overload" the assimilation capacity of a wetland and create serious management problems as those impurities reach ponds, lakes, rivers or other, more sensitive wetland areas

Aesthetics and Recreation:

Wetlands are also important sources of outdoor recreation. They help support fishing, hunting, trapping, and wildlife observation opportunities. Waterfowl hunters and fur trappers use wetlands almost exclusively. Because of the diversity of plants and animals that are associated with wetlands, bird-watchers

and wildflower enthusiasts can see unique and beautiful species they can not observe elsewhere. For the same reason, nature photographers find scenes in wetlands that cannot be duplicated. Even though the value of our wetlands cannot be easily measured in dollars, studies show that these activities contribute well over \$1.6 billion annually to Illinois' economy.

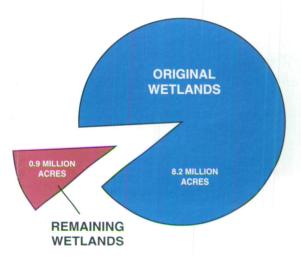
Lush wetlands vegetation helps filter excess nutrients and improve water quality.



What is the status of Illinois' wetlands?

Although wetlands can provide many public benefits, those benefits are at risk. The predominant cause of these losses is generally conversion to agricultural crops, although in northeastern Illinois, conversion to urban uses is the major threat. Approximately 23% of the state was wetland prior to European settlement. Since 1818, Illinois has lost nearly 90% of its wetland acreage, ranking it sixth nationally in converting wetlands to other uses. Currently, there are only an estimated 870,000 acres of the original 8.2 million acres of natural wetlands remaining within the state. Furthermore, it is estimated that Illinois continues to lose between 3.000 to 5,000 acres of wetlands annually.

The following table contains the size, acres of wetlands, and percent of wetlands in the six northeastern Illinois counties. Four of these six counties exceed the statewide average of 2.4%. It is interesting to compare one area to another in order to demonstrate differences. For example, the six counties in northeastern Illinois comprise 6.7% of the state's acreage. Yet the wetlands in these counties comprise 10.8% of the state's wetlands. Northeastern Illinois is fortunate to have a greater percentage of natural wetlands remaining than much of the rest of the state. Another concentration of the state's natural wetlands is in the southern counties. while the central counties have lost the greatest number of their natural wetlands. For comparison, the county with the highest percent of remaining natural wetlands is Alexander County (in southern Illinois) with 13.5% and the lowest is Ford County (in central Illinois) with .3%.



County	Total Acres in County	Acres of Natural Wetlands	% Total Area in County
Cook	607,261	14,313	2.4%
DuPage	213,476	7,752	3.6%
Kane	332,583	8,066	2.4%
Lake	298,839	28,713	9.6%
McHenry	387,915	20,709	5.3%
Will	538,379	14,021	2.6%
Totals	2,378,453	93,574	3.9%

What is being done to protect Illinois' wetlands?



in Illinois.

There are a number of approaches to wetland protection including regulation, economic incentives, education, and acquisition/restoration activities. Wetland regulation is an

effective tool for protecting these valuable resources, but the regulations are limited and as a result the health and existence of many wetlands continue to be at risk. Economic incentives are another effective wetlands protection measure, but are voluntary in nature and rely on concerned landowners taking the responsibility of protecting a particular wetland upon themselves. Education can help change public perceptions and attitudes towards wetlands, but unless the actions of those individuals are also changed, the resource will still remain in jeopardy. Acquisition and restoration activities are also very good protection efforts, but rely heavily on availability of funds and technical expertise. None of these efforts alone is enough to protect Illinois' wetland resource, but collectively they can help ensure Illinois' remaining wetlands can be enjoyed by future generations. The following is a discussion of how each of these types of protection measures is being applied The deposition of fill

Federal regulations: The major federal regulatory tool protecting wetlands against development is Section 404 of the Clean Water Act, administered by the U.S. Army Corps of Engineers with oversight from the U.S. Environmental Protection Agency. Under Section 404, it is necessary to secure a permit from the Army Corps of Engineers to discharge dredged or fill material into waters of the United States, which

can result in civil and/or criminal penalties. When the Army Corps of Engineers receives a permit application to fill a wetland for develop-

includes wetlands. Failure to secure a permit

ment, it is evaluated on regulations developed by the Corps and Section 404(b)(1) guidelines developed by U.S. Environmental Protection Agency, which establish the environmental criteria and standards that determine whether the project is in the public interest.

The major federal regulatory tool for wetland protection against agricultural conversions is the Swampbuster provision of the Food Securities Act (Farmbill). The Swampbuster program is administered by the U.S. Department of Agriculture - Natural Resource Conservation Service. This regulation requires anyone wishing to alter a wetland for the purposes of making it capable of producing an agricultural product to first secure a permit from the Natural Resource Conservation Service. Failure to obtain such a permit may result in the denial of all U.S. Department of Agriculture subsidies and benefits.

State Regulations: The Section 404 and Swampbuster programs are not comprehensive wetland protection programs, in that many activities that damage or destroy wet-

lands are often conducted without the discharge of a dredge or fill material, or making the land completely capable of producing an agricultural product. The Section 404 and Swampbuster mitigation policies



also do not ensure that there will be no net loss of wetland acreage. As a result many states have passed legislation to further protect wetlands. In 1989, the Interagency Wetland Policy Act was passed by the Illinois General Assembly. This legislation applies to all state supported activities.



Development pressures threaten the existence of many valuable wetlands.

The Interagency

Wetlands Policy Act of 1989 established a nonet-loss of wetlands goal for the State of Illinois. This goal applies to wetland types and functional values as well as acreage. The state legislation also requires replacement of all wetlands lost with like kind and quality which provides protection for unique wetland types. The mitigation requirement is based on the degree of destruction, the type of wetland, and the location of the replacement wetland. For example, under this act, bogs and fens cannot be destroyed because the expertise does not currently exist to replace them.

Economic Incentives: The State of Illinois also allows for decreased property taxes for open space lands which have not been developed or are not under intensive agricultural practices. Local governments can also help protect wetlands by enacting special ordinances offering landowners similar economic incentives or disincentives through property taxes.

Education: There are currently several educational programs related to wetlands. The federal government and the State of Illinois each have developed and make available a wide variety of wetland educational materials designed for all age groups. Individuals or organizations interested in receiving additional

educational materials or setting up a workshop or interpretive talk should contact the Illinois Department of Natural Resources' Office of Land Management and Education at (217) 524-9505 The U.S. Fish and Wildlife Service also has a number of educational programs and materials related to wetlands and can

provide assistance by being contacted at (847) 381-2253. Additionally, the U.S. Environmental Protection Agency has a Wetlands Information Hotline that can be contacted for other wetland educational materials. That number is 1-800-832-7828.

Acquisition/Restoration: Acquisition and restoration measures involve the purchase of wetlands and surrounding uplands which serve as buffers. This may be complemented by technical or financial assistance for restoring the wetland's hydrology by dismantling drainage systems; replanting or encouraging the growth of native vegetation; and/or improving water flow into and out of the wetland, and/or removing non-native and invasive species. This approach is used by private conservation organizations as well as governmental agencies. Ducks Unlimited, The Nature Conservancy, the U.S. Fish and Wildlife Service, and the Illinois Department of Natural Resources are each involved in a variety of private and public land acquisition and restoration projects to protect wetlands. Some such acquisition/restoration projects include; Redwing Slough in Lake County, Cypress Creek Wildlife Refuge in Pulaski, Union, Johnson and Alexander Counties, and Banner Marsh in Fulton and Peoria Counties.

How do wetlands change as a result of human activity?

An undisturbed wetland may be teeming with plants and animals and have clear water in both shallow and deep areas. In this wetland we see a Yellow-Headed Blackbird, Snowy Egret, and Osprey, which are all listed as endangered in Illinois. There is also a snake, turtle, fish, ducks and an assortment of high quality wetland plants such as sedges and arrowhead.



A. Wetland loss may happen quickly and dramatically, such as when a bulldozer fills one in prior to construction of a home or highway. More often, however, wetland loss and the resulting species declines are the result of minor individual impacts which cumulatively destroy the wetland over a period of time.



B. Land use changes nearby, such as new roads or conversion of uplands to agricultural fields, may increase runoff into the wetland, gradually altering both the water chemistry and the amount of silt which enters the wetland.

Even though there has been no direct loss of wetlands with the construction of the road and plowing of the adjacent field, changes have occurred in this wetland. The snake and Osprey are no longer present and the water quality and number of ducks has declined.



Significant changes to the wetland are now visible. This wetland no longer provides habitat for the endangered Yellow-Headed Blackbird and Snowy Egret, both have left this site as development encroaches. The vegetation has also changed to the more tolerant cattails and the fish are no longer as abundant.

C. Conversion of nearby land to new uses will cause additional changes in the habitat because there is less of a buffer for the wetland. As homes and commercial areas are placed closer and closer to the wetland, animals less tolerant to human disturbance will be unsuccessful in raising their young and will eventually leave the area altogether. The plant composition of the wetland will also change as species intolerant of the new conditions die out and are replaced by other species, often those which are not native to Illinois.



Virtually all wildlife has disappeared from this wetland as a result of the development on adjacent lands. The vegetation has also continued to decline in quality, further degrading the habitat available to animal species.

D. The increasing demand for land places developed areas ever closer to the wetland. As this occurs there is a lower diversity of native species found there. As runoff increases, it carries eroded soil from the uplands which gradually fills in the deep water areas, making it unsuitable for certain plants and animals which had lived there.



E. Eventually the wetland is so surrounded by development that it can no longer survive. Although it was not directly paved over, it has nevertheless been destroyed because it no longer supports the diversity of the life which it once saw.

The former values this wetland provided have been lost or degraded. The wildlife is now absent, the vegetation is altered, and the flood control function has been greatly reduced as the wetland area has become smaller and smaller. The end result is less habitat for endangered species and the other wildlife and increased flooding of the surrounding land.

What can concerned citizens do?

Effective protection of the state's natural resources

requires the involvement of not only state and federal agencies, but also local governments, and most importantly, individuals. As a citizen your voice helps to shape the priorities of government at all levels. People often want to become involved in protecting resources, but have no idea where to begin. Unfortunately, all too often, an interest in protection comes about late in the process, usually when a proposal to develop a treasured wetland comes before a planning commission, or even worse when the equipment arrives on the scene to begin construction.



There are many opportunities for the public to participate in the protection of wetlands.

Public Involvement: In either case, as a private citizen you can ensure that all applicable ordinances are being followed and, if necessary, that a Section 404, Swampbuster, or Interagency Act of 1989 permit has been secured. If equipment has arrived on the scene you can call your village board, or local Army Corps of Engineers office to quickly verify that approvals have been secured. If they have not, cease and desist actions may be ini-

tiated before more damage has been done.

Of course, it is better to become involved before a wetland is at risk. Every citizen can work to develop a public appreciation for wetlands by making sure local officials know that developing wetlands is expensive, with higher construction costs, increased demand for flood control assistance, increased maintenance costs for roads and other infrastructure, decreased quality of life, and the loss of unique environmental assets which in many instances drew people to the community in the first place. You should also point out the positive values of wetlands, including reducing storm water damage to developed

areas, purifying water supplies, and providing natural open space for unique wildlife.

You can work with your local government to develop ordinances which provide meaningful protection for wetlands and other important natural resources. Encourage them to incorporate wetland protection provisions into such things as storm water management plans, watershed plans, zoning requirements, subdivision ordinances, and comprehensive city development plans. Do not rely solely on

existing federal and state regulatory programs to protect wetlands. These laws provide useful guidelines, but need to be supported by local regulations.

Protection/Management: More than 95% of the land area in Illinois is privately owned. This means a great deal can be done, in both urban and agricultural landscapes, to protect wetlands by implementing conservation management techniques on private lands. Such techniques include the maintenance of buffers around existing wetlands, implementing soil erosion control techniques when disturbing the ground, and placing conservation easements on certain areas.

<u>Buffers:</u> Prior to the settlement and development of the state, vast areas of wetlands, prairies and forests did not need to be buffered from human activities. As land was converted to agricultural and urban uses, the impacts to the natural environment were so great that buffering became necessary. A buffer is nothing more than a protective strip of vegetation (grasses, trees, and/or shrubs) between wetlands and developed land. Buffers reduce storm water and contaminant runoff, reduce noise, and provide undisturbed opportunities for wildlife habitat, particularly for threatened and endangered species.

Buffers protect wetlands from cropland and urban development on adjacent properties. For example, the water that runs off from housing developments can vary widely in quality. Quality of runoff is determined by a

number of factors including slope (and therefore water velocity) vegetation type, soil permeability, detention time, and the presence

Healthy wetlands require an adequate buffer.



or absence of lawn chemicals On steeper slopes, for instance, there may be increased water velocity of the runoff from less permeable sites. When velocity doubles, water moves particles, such as soil, 64 times larger and transports 32 times more suspended materials, increasing the erosion power of water four times This runoff can be controlled by a buffer.

The size of the buffer needed to protect a wetland depends upon the purpose of the developed site, and the purpose of the buffer. If water quality is the concern, the buffer can range from 50

to 400 feet depending upon the slope and vegetation. If protecting a wetland and its wildlife species from noise is the goal, more elaborate buffers are needed. Noise can be reduced by the use of barriers such as trees or shrubs. Approximately 5 to 10



Many wetlands can be protected or restored by placing them into a conservation easements.

decibels of noise reduction can be achieved per 100 feet of forest width. To protect highly sensitive species, such as the endangered black-crowned night heron. from human disturbance a buffer from 330 to 700 feet may he needed. Fortunately. buffers can generally be incorporated into any agricultural or suburban land use plan to the benefit of both humans and the environment.

Soil Erosion
Control: It is
important that
wetlands be protected from sedimentation that
results from
bare soil being
exposed, particularly on slopes.
Sedimentation
may result in a
wetland gradual-

ly filling in. A potential by-product of reducing water depth in this manner is an invasion by exotic species such as purple loosestrife, and the loss of habitat required by other animals, particularly threatened or endangered bird species. An excellent reference for learning more about methods of reducing urban soil erosion is the *Procedures and Standards for Urban Soil Erosion and Sedimentation Control in Illinois* published by the Association of Illinois Soil and Water Conservation Districts. This book proposes principles for limiting erosion and sedimentation from urban development projects. Some good guidelines to follow when trying to reduce soil erosion include:

- Keep disturbed areas small. As much natural vegetation as possible should be maintained. All areas vulnerable to erosion should be disturbed as little as possible, and the construction should be sequenced so that only the area actively being developed is exposed.
- 2. Stabilize disturbed areas. Mechanical, structural, or vegetative methods exist to stabilize vulnerable areas.
- Keep runoff velocities low. Short slopes, low gradients, and maintenance of natural vegetation help to reduce veloci-

ties and thereby limit soil erosion hazards.

Protect disturbed areas from storm water runoff.
 Methods that may be employed include waterways, sediment basins, and straw bale barriers.

- 5. Retain sediment within the site boundaries. Sediment that does occur can be held on site by two methods: filtering runoff as it flows, and detaining sediment-laden runoff for a period of time in order to allow the soil particles to settle out.
- Implement a monitoring program. A site cannot be effectively protected from soil erosion without frequent examinations of the erosion and sediment control practices.

Conservation Easements: Another method of providing long-term protection for both urban and rural wetlands is the dedication of a conservation easement. An easement gives the holder of that easement interest in some but not all of the property rights. For example, a wetland within a subdivision may be owned

by an individual landowner but have a conservation easement placed on it that limits the use of the property for the purpose of protecting the wetland.



Wetlands are an

integral part of a

healthy watershed.

A conservation easement may be held by the homeowners association, a local unit of government such as a park or forest preserve district or municipality, state or federal agency, citizen's organization, or land trust. If the group holding the easement has limited experience with wetland management, it is important that a long-term management plan be prepared to guide management of the site.

Local units of government and agricultural communities have many opportunities before them to protect wetlands that exist on their property. Incorporating wetlands into subdivision designs and retaining wetlands on farms provide many benefits to the landowner and the public at large. It is necessary, however to protect the wetland and an adequate buffer to prevent the gradual degradation and eventual loss of the wetland.

In many parts of the state, private citizen groups work with landowners to plan and implement wetland protection programs. Get to know local landowners. You may find them grateful for management assistance. If you own a wetland, protect it from

development or degradation. You may wish to restore or enhance the wetland. Please contact your local Illinois

Department of Natural Resources, or Natural Resource Conservation Service field office, or the U.S. Fish and Wildlife Service Chicago Wetlands Office for more information, on how to accomplish your restoration or enhancement

goals.

Wetland Sites to Visit: If you are interested in visiting a wetland, there are a number of exciting sites throughout the state, in addition to those mentioned before. The sites listed below are publicly owned and protected areas in Northeastern Illinois which have facilities to accommodate group trips.

Cook County: Crabtree Nature Center, located in Barrington, is bordered by Dundee, Algonquin, and Palatine Roads. Boardwalks and trails allow access to a variety of wetlands. This site is owned by the Cook County Forest Preserve District.

Kane County: Nelson Lake Marsh Nature Preserve is located approximately 3 miles west of Batavia. At the intersection of Highway 31 and Main Street, take Main Street 3 miles west and then go south 0.3 miles. Nelson Lake Marsh includes several wetland types, including marsh, fen, and open water communities. This site is owned by the Kane County Forest Preserve District.

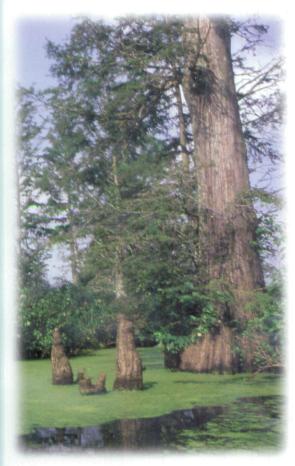
Lake County: Volo Bog Nature Preserve is locat-

ed north and west of Volo. Take Highway 12 north 1.2 miles to Sullivan Lake Road, go west 1.4 miles to Brandenburg Road, and turn north to the entrance. Volo Bog is the only site in the Illinois

> Nature Preserve system which contains all the stages of a classical bog succession. Unique plant and animal species have adapted to the distinctive conditions within the bog. The site is owned by the Illinois Department of Natural Resources.

There are a several managed wetland sites with facilities for you to enjoy.





People can visit swamps that are rare in Illinois at Cypress Creek National Wildlife Refuge.

McHenry County: Pike Marsh is located in the southeast corner of Moraine Hills State Park. From the intersection of Highway 31 and Highway 120 in McHenry, take Highway 120 east, turn right onto River Road immediately after crossing the Fox River and follow the signs to the park. Pike Marsh is a peatfilled basin which contains marsh and fen vegetation. The site is owned by the Illinois Department of Natural Resources.

For information on other wetland sites to visit in Illinois contact one of the following Illinois Department of Natural Resources Regional Offices:

Region I

2612 Locust Street Sterling, IL 61081 (815) 625-2968

Region III

2005 Round Barn Rd. Champaign, IL 61821 (217) 278-5773 Region IV

Region II

110 James Rd.

(815) 675-2385

4521 Alton Commerce Pkwy. Alton, IL 62002 (618) 462-1181

Spring Grove, IL 60081

Region V

11731 State Highway 37 Benton, IL 62812 (618) 435-8138

WEBSITES

http://dnr.state.il.us Illinois Department of Natural Resources

http://www.fws.gov U.S. Fish and Wildlife Service

http://www.epa.gov/region5 U.S. Environmental Protection Agency - Region 5

http://www.il.nrcs.usda.gov U.S. Department of Agriculture/Natural Resource Conservation Service - Illinois

http://www.usace.army.mil/Irc Chicago District - U.S. Army Corps of Engineers

http://www.lrl.usace.army.mil Louisville District - U.S. Army Corps of Engineers

http://www.mvm.usace.army.mil Memphis District - U.S. Army Corps of Engineers

http://www.mvr.usace.army.mil Rock Island District - U.S. Army Corps of Engineers

http://www.mvs.usace.army.mil St. Louis District - U.S. Army Corps of Engineers





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Prepared by:

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This information may be provided in an alternative format if required. Contact the DNR Clearinghouse at (217) 782-7498

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