9 NATURAL AREA MANAGEMENT AND RESTORATION

"It is probably not an exaggeration to say that much of the planet is occupied by partially or badly damaged ecosystems. Restoring them is probably the best means of increasing diversity." -John Cairns, Jr., *Increasing Diversity by Restoring Damaged Ecosystems*, in Biodiversity.

Background

Human alteration of the landscape since the arrival of European settlers has led not only to some permanent loss of habitat, but also to the degradation of the remaining habitat and the ecological processes that maintain ecosystem health. As previously mentioned, ecologists have identified four principal causes of habitat degradation in our region:

- fragmentation of natural areas into smaller, isolated parcels;
- elimination of fire, which previously was caused by natural events such as lightning and also used by Native Americans;
- introduction of invasive non-native species such as common buckthorn and purple loosestrife; and
- disruption of natural water flow, or hydrology, due to draining of wetlands and installation of field tiles.

As a consequence, protecting and restoring structure, function, and health of these natural systems will require active management to maintain them in a condition that supports a natural richness of species. Some would argue that we should "let nature take its course." Unfortunately, because we have so disrupted natural processes, some ongoing human effort is necessary to maintain healthy natural communities.

Ecosystem restoration began nearly 60 years ago with a restored tallgrass prairie at the University of Wisconsin. In Illinois, subsequent efforts by the Morton Arboretum in Lisle and the Fermi National Accelerator Laboratory in Batavia were soon followed by hundreds of projects in forest preserves, park districts, and on private lands. In recent decades great strides also have been made in the restoration of oak woodlands, savannas, and wetlands.

Restoration sites of the Chicago Wilderness.

While restoration is generally thought to be the responsibility of large landowners such as the state and forest preserve districts, much can be done and encouraged by local governments. Park districts, in particular, can participate in small-scale restoration of prairies, woodlands and wetlands, while educating residents about the importance of ecosystem restoration. Municipalities and counties can encourage ecosystem restoration in new developments, particularly where sites contain degraded wetlands or stream corridors. Local governments also can encourage, or at least allow, important natural landscape management practices such as removing invasive species and prescribed burning.

Recommended Approaches

Local governments can assist in natural area management and restoration in a number of ways. As mentioned in the chapter on comprehensive planning, identifying natural areas and locations of threatened and endangered species is an important initial step to prioritizing areas for management and restoration. Local governments can restore lands under their ownership or assist in the restoration of other lands by enacting policies and ordinances that allow and encourage restoration efforts. This can include one or more of the following techniques.

"Restoration involves all manner of work with the land . . . Much of this work, although conceived by professionals—ecologists and land-use managers—is performed (and informed) by volunteers. Restoration skills can be developed by anyone, and wielding them can produce psychic benefits at least as great as their beneficial effects on the land." -Stephanie Mills, *In Service of the Wild* (Beacon Press, 1995.)

Restore Habitat on Public Land

Publicly owned land, particularly suitable park property, presents a great opportunity for local governments to enhance habitat and biodiversity, to develop demonstration projects for public education, and to demonstrate their commitment to habitat protection. Two important management and restoration targets follow:

Restoring Hydrology

A number of ecosystems, such as ponds, wetlands, streams, and rivers, depend on the natural fluctuation of water levels and flows. This natural water movement, or hydrology, has been seriously altered by agricultural and urban drainage. Management techniques to reestablish hydrology include removing or blocking drain tiles, removing drainage ditches from wetlands, removing water-level control structures, reducing the flow of stormwater to stream systems, and promoting stormwater infiltration into the soil where it can help recharge wetlands and groundwater-fed stream systems.

Restoring and Managing Native Plant Communities

Some plant species introduced into this country from Europe or Asia can become very aggressive and replace our native species in the landscape. Some common invasive species include common buckthorn (*Rhamnus cathartica*) and garlic mustard (*Alliaria petiolata*) in woodlands, purple loosestrife (*Lythrum salicaria*) in wetlands, and native ash (*Fraxinus sp*.) and box elder (*Acer negundo*) in prairies. As the diversity of native plant species declines, the native wildlife that depend on them disappear as well. Thus, the preservation of plants and animals depends on maintaining these natural communities in a healthy state.

Because native plant communities and their seed banks are often depleted on disturbed sites, it commonly will be necessary to reintroduce native species. To maintain ecological integrity, seeds should be obtained from local sources or nurseries. Once the initial restoration is complete, the preferred method for maintaining native prairie, savanna, and wetland communities is reintroducing fire through prescribed burning. Fire removes exotic species not adapted to fire, and allows native, fire-adapted species to thrive. Fire also returns essential nutrients to the soil where plants can use them. Local governments should work with local fire departments to educate them about the necessity of fire in managing these landscapes. In more urbanized settings, where prescribed burning is not feasible, weeding and annual or biennial mowing may be effective. As discussed below, volunteers can effectively accomplish many of these restoration tasks with appropriate supervision.

Troublesome Wildlife Populations

The presence of wildlife in an urban setting is often valued. But in the absence of natural predators, it is common for some species of wildlife to achieve numbers that conflict with their human neighbors or degrade the health of natural ecosystems.

After careful study, some communities adopt measures to control the numbers of such species as white-tailed deer, Canada geese, raccoon, beaver and others. Such action should be a matter of public discussion and consensus. The friction that often accompanies the early stages of nuisance animal control efforts should be seen as an opportunity for public evaluation of ethical questions and education about the interaction between humans and nature. The most successful programs demonstrate a respect for the animals and their human supporters while relying on sound science for decision-making once a public consensus on goals has been achieved.

- Courtesy of Steve Packard, National Audubon Society.

Support Private Landowner Restoration Initiatives

As mentioned above, private landowners play an important role in achieving habitat protection due to the dominance of this land ownership category. Fortunately, interest in establishing or enhancing natural habitats on private land is increasing. Local governments can encourage and provide technical assistance to these parties to help accomplish the community's biodiversity goals. Most importantly, governments can demonstrate a commitment to habitat protection by providing flexibility in local ordinances to allow a broader range of ecological restoration and natural landscaping activities.

Restore Land Used for Other Purposes to Important Habitat

Land used for other purposes can sometimes be reclaimed and restored to important wildlife habitat. Stormwater detention basins retrofitted with wetland prairie plants present good opportunities to provide the community with the multiple benefits of flood control, wildlife habitat, water quality benefits, and recreation areas.

Recruit and Train Volunteers for Management and Restoration Work

Volunteer participation in restoration work not only saves money but fosters an ecological restoration ethic in residents as well. Consider establishing programs through which conservation groups, students, scout troops, or other community groups can fulfill requirements and community obligations through restoration activities.

A community might also consider creating a separate local government committee made up of residents to develop guidelines for protecting and restoring local natural areas. Volunteers often pursue training at all levels and can become the community's natural area leaders and "experts" for natural area management. Involving residents will not only empower residents to take action, but also will help educate and build public support for management and restoration activities.

Summary of Benefits

Communities choosing to manage and restore their natural areas to healthy, functional habitats stand to gain a number of benefits.

- Public education: involving the public in management and restoration activities will help educate them about the benefits of natural areas to wildlife and the community.
- Re-establishment of habitat and an amenity for the public: the public will benefit from healthy natural areas supporting a diversity of wildlife and recreational opportunities.
- Community service opportunities: restoration and management activities can fulfill community service requirements for schools or legal obligations.
- Improved water quality and stormwater management: restored natural areas help cleanse water and reduce flood damage.
- Increased property values: restored natural areas in proximity to residential areas can increase the value of those residential properties.

Local Examples

❖ *Mnoke Prairie*

Before European settlers arrived in northwest Indiana more than two centuries ago, prairie was the predominant landscape in the area. Today, though, natural prairie is quite a rare habitat.

Consequently, the Indiana Dunes National Lakeshore has undertaken a restoration of 300 acres of previously-wooded land, south of Bailly Homestead between the Little Calumet River and Beam Street in Porter, Indiana. The focus of the project has been to weed out exotic, or non-native plants and return the land to a state of tallgrass prairie. Youth and school groups have helped toward this end by collecting prairie plant seeds, germinating them over the winter, and then replanting them. Controlled burns have also been done by park officials to maintain the health of the ecosystem.

The location of the restored prairie has been renamed Mnoke Prairie (pronounced m-no-kay) to honor the original Native American inhabitants of northwest Indiana. “Mnoke” is a Potawatomi word meaning “good land” or “good place.”

(Source: www.nwitimes.com article by Brian Williams)

❖ *Lake Michigan Coastal Program Grants*

The purpose of the Lake Michigan Coastal Program (LMCP) is to support coordination and partnerships among local, state, and federal agencies and local organizations for the protection and sustainable use of natural and cultural resources in the Lake Michigan region. Through the LMCP, Indiana participates in the Coastal Zone Management Program with 33 other coastal states and territories to protect, restore, and responsibly develop Indiana's coastal area.

In the year 2007, natural area management and restoration will receive the most grant funding through the LMCP. Anyone may apply for a grant, but grants usually are awarded to universities, nonprofit organizations, and municipalities. They do not exceed $100,000 per project. Those interested in applying should contact Program Manager Mike Molnar at 317/233-0132 or mmolnar@dnr.in.gov.

The LMCP is part of the Indiana Department of Natural Resources’ Division of Nature Preserves. Funding comes from the Office of Coastal Resource Management at the National Oceanic and Atmospheric Administration (NOAA.)

(Source: www.nwitimes.com article by Lauri Keagle)

❖ *Indiana Coastal Restoration Action Team (ICRAT)*

This partnership between public and private organizations provides training workshops and field training days to enhance restoration capacity and leverage additional resources to restore and manage lands with a public interest.

The purple loosestrife plant distribution with leaf-eating *Galerucella* beetles was a cooperative effort between seven agencies and organizations. 140 plants with several thousand beetles were placed in purple loosestrife infested wetlands.

The tree planting was in Burns Harbor on the Indiana Department of Transportation right-of way at U. S. 12 and SR 149. Over 200 trees were planted.

Additional Information

***Chicago Wilderness**:* This organization provides a forum for communication and coordination among organizations that are committed to protection and restoration of biodiversity. Funding is provided for activities such as ecological inventory and monitoring and ecological restoration. 68 projects were funded with over $1 million between April 1996 and February 1998.

***Partners for Fish and Wildlife (PFW)**:* This U.S. Fish and Wildlife program assists landowners with restoring important fish and wildlife habitats (847/381-2253).

***Wildlife Habitat Incentives Program (WHIP)**:* Assists landowners in improving wildlife habitat on private lands. Contact United States Department of Agriculture, Natural Resources Conservation Service.

Suggested Reading

Biodiversity Recovery Plan. Chicago Wilderness. 1999.

Illinois Wetland Restoration and Creation Guide. Illinois Natural History Survey. 1997.

The Lake and Reservoir Restoration Guidance Manual, 2nd ed. United States Environmental Protection Agency. 1990.

Tallgrass Restoration Handbook. S. Packard and C. Mutel, eds. Island Press. 1997.

Using Ecological Restoration to Meet Clean Water Act Goals: Proceedings of a National Symposium. 1995.