THE OHIO STATE UNIVERSITY EXTENSION

Extension FactSheet

School of Natural Resources, 2021 Coffey Road, Columbus, OH 43210

# Considering Wildlife in Golf Course Management

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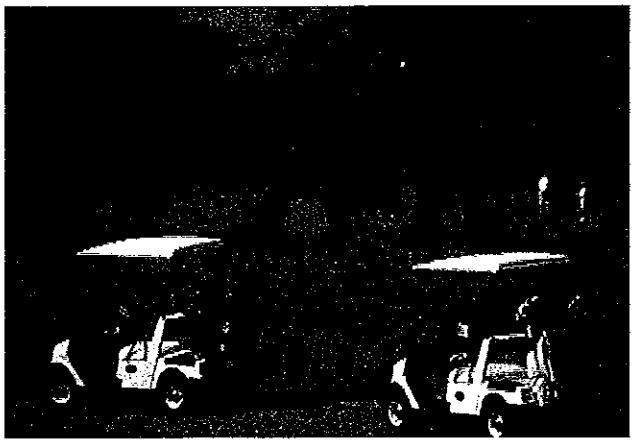
## Golf Courses as Wildlife Habitat

*Public open spaces* or *greenspaces* (parks, cemeteries, and golf courses) account for millions of acres of land in the United States. As urbanization spreads, these greenspaces have the potential to accommodate the needs of both people and wildlife. Golf courses and other public open spaces can be developed and managed to have a significant positive impact on the quality of habitat for sensitive and desirable wildlife species (Mankin, 2000), as well as enhancing the recreational, educational, and aesthetic aspects of these golf courses.

In the United States, there are approximately 15,000 golf courses, accounting for an estimated 4 million acres. Seventy percent of that area is considered *rough* or *out-of-play*, and has the potential for creating significant wildlife benefits (Tilly, 2000). More golf courses are created each year, with a typical golf course comprising 54 hectares of land (Terman, 1997). Recently, golf courses have played an important role in the conservation efforts for the Eastern bluebird, tree swallow, purple martin, red-cockaded woodpecker, and even osprey (Tilly, 2000). Golf courses may also provide suitable nesting sites for the declining red-headed woodpecker.



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Golf courses can be beneficial to the public and wildlife in many ways. Courses are sometimes built in areas in need of improvement, and the development of a golf course remains a positive option for the reclamation of landfills. The Phoenix Golf Links was the first course in Ohio to be developed on a landfill through a project with the Solid Waste Authority of Central Ohio (SWACO, 2000). Furthermore, plants on golf courses absorb carbon dioxide, release oxygen, and filter pollutants from runoff. Golf courses can also support America's endangered wetlands. With support from the Conservation Reserve Enhancement Program (CREP) and the Maryland Duck Stamp Fund, Rum Point Seaside Golf Links in Maryland turned adjacent old farmland into a complex of wetlands, offering habitat to many species of wildlife (Ceikot, 2000).

A significant trend in golf course management is to create more naturalistic landscapes. Not only are these areas beneficial to wildlife, but they are also often very cost-effective in the long-run. Once established, naturalistic golf courses can be maintained with far less effort than conventional golf courses, requiring smaller quantities of pesticides, herbicides, and water.

## Naturalistic Golf Course Design

Golf course landscapes typically contain diverse habitats, ranging from ponds to streams, wetlands to grasslands, and savanna woodlands to mature forests. This variety of habitats provides unique opportunities for wildlife. Naturalistic golf courses are both appealing and functional. Accentuating the natural diversity and beauty of an area can provide aesthetic, as well as educational and environmental benefits to patrons, staff, and the visiting public alike.

Golf course managers benefit from taking an active role in the design process, especially because they will be the caretakers of the resulting layout. Seeking advice from a professional biologist can identify strategies that will help realize the golf course's potential as a more naturalistic landscape. An excellent goal is to create a sustainable landscape plan that

is developed according to ecological structure and enhances biodiversity (Fech and Rodie, 1999). Many other factors should also be considered in a management plan, such as the needs of the golfers, staff, and community, as well as maintaining water quality. Audubon International's Cooperative Sanctuary Program provides detailed assistance in developing and maintaining a naturalistic golf course, as well as incorporating these diverse needs.

Any comprehensive wildlife habitat enhancement plan begins with a clear statement of goals, followed by a thorough survey of the site's characteristics. An important step is the selection of plants, trees, shrubs, grasses, and forbs, which will provide such basic habitat components as shelter and food. The plants used for naturalistic landscaping can be chosen for a variety of reasons, including attractiveness, availability, and cost. Also among the list of considerations are soil structure, pH, drainage, amount of sun and shade, and existing vegetation. It is beneficial to choose combinations of plants that will offer year-round color, berries, seeds, and nuts. Placement is also important. Clustered vegetation will be more aesthetically pleasing, and wildlife will benefit from the resulting corridors and buffers which link the habitat *patches* scattered throughout the golf course. A *riparian* (adjacent to the stream) forest buffer will also help in maintaining water quality by filtering chemicals and sediment from terrestrial runoff before it reaches the stream.

Favoring native species for your landscape design is also a wise choice. Native plants are generally less costly to maintain since they are well suited to local moisture and soil conditions, therefore requiring less fertilizer and water applications. In addition, choosing plants that are naturally resistant to pests and disease will make sustaining healthy specimens easier, without relying on chemical pesticides and herbicides.

Traditional turf is often expensive and time-consuming to maintain. Prairie grasses and wildflowers are an excellent alternative to turf for many areas of a golf course. They are suitable in out-of-play areas, hillsides, and along ponds, wetlands, and streams. Native wildflowers also are attractive in more structured flower beds, and the drought-tolerance of many native prairie flowers can greatly reduce water and fertilizer demands. Excellent alternatives to turf are naturalistic prairies and meadows, which can attract a myriad of birds, mammals, beneficial insects, reptiles, and amphibians. Although a naturalistic landscape often requires an initial expenditure to establish, cost savings in reduced labor and chemical and water use can be substantial over time.

## Chemical Applications

Approximately 120 studies and $50 million are required for the Environmental Protection Agency's approval of a single pesticide product (GCSAA, 2002). As a result, modern pesticides, herbicides, and fertilizers are considered safe when used according to the manufacturer's recommendations, but strategies to reduce chemical use are always a positive management tool in the creation of wildlife habitat.

In addition to advances in Integrated Pest Management (see the USDA IPM website at **www.reeusda.gov/ipm/** for more information), new methods of chemical application can greatly reduce the volume of pesticides required. This includes subsurface injection, which introduces chemicals directly to the site of infestation. This method can reduce pesticide use by as much as 200 pounds per acre and has been a highly effective deterrent to the mole-cricket in Florida (Perrault, 1998). The subsurface injection technology uses low-dosages and is very efficient. One drawback is the initial expense for equipment, but this is often offset after 2 to 3 years.

There are natural methods for managing against pests that can offer substantial benefits as well. Hanging bat boxes is an excellent way to encourage bats to reside on golf courses. These flying, nocturnal mammals will consume up to 3,000 insects nightly, including moths, leafhoppers, and mosquitoes. Contrary to popular belief, bats do not try to fly into human hair and rarely transmit disease to other animals and people. Also, birds can benefit trees by consuming insects living on bark, leaves, or branches. There are also beneficial insects that prey upon nuisance species. Establishing a wetland, rather

### Steps to increase wildlife habitat (food, water, and shelter) and maintain a healthy environment:

- Incorporate fallen limbs and trees into strategically placed brush piles or let them remain where they fall
- Retain dead limbs and snags
- Establish food and water sources
- Provide nesting boxes/structures
- Maintain natural areas with limited human impact
- Plant native species offering berries, seeds, and nuts
- Create vegetation corridors to link isolated habitat patches throughout the golf course
- Avoid spreading fertilizers and pesticides on paved surfaces
- Leave buffer strips of vegetation along streams and ponds to reduce run-off of sediments and chemicals
- Conserve water by recapturing and reusing water sources
- Compost
- Consult a professional biologist

than a pond, supports more dragonflies and damselflies that will feed on mosquitoes. Providing habitat for a variety of insectivores on the property could reduce the need for intense pesticide applications.

## Community Outreach

Golf courses play a large role in a community, since many golf courses are surrounded by housing developments. Neighbors and patrons take notice of the happenings on the course and sometimes question why areas are allowed to become "wild." Decorative fences may be a possibility to provide a barrier between natural areas and private yards where there is controversy regarding management decisions. Signage can be used to designate natural locations on the course such as wetlands and prairies and to discourage foot and vehicular travel through environmentally-sensitive areas. Explanatory flyers posted in the pro-shop and distributed to homeowners can be helpful in educating people about the various environmental efforts, and resulting benefits, of the naturalistic landscape practices chosen by the golf course. Neighbors may even be interested in adopting nest boxes near their property or creating additional wildlife habitat in their own yards. Saddle Rock Golf Course in Aurora, Colorado, found that some homeowners were eager to monitor nest boxes, providing valuable data to Audubon International (Fitzgeralds, 2001).

The community can also be more actively involved in the naturalistic management of golf courses. Rock River Country Club in northwestern Illinois established a Resource Advisory Group, comprised of the superintendent, assistant superintendent, a local biologist, horticulturist, student, and other interested parties (Satterwhite, 1997). This group meets to discuss environmental projects and strategies to enhance wildlife habitat on the golf course. Fact sheets, a column in the monthly newsletter, and even tours are used to educate the public, club members, and staff on wildlife habitat enhancement efforts on their golf course.

During off-hours, golf courses can provide a scenic place to walk, run, or bird-watch for members of the community. They offer locations for social affairs and special events. By making wildlife programs visible, golf courses can reduce public misconceptions concerning pesticides and habitat loss, and increase recreational and educational opportunities in a wildlife-friendly setting.

For additional information on environmental enhancement and wildlife conservation on golf courses, contact Audubon International, 46 Rarick Rd., Selkirk, NY 12158; phone: 518-767-9051; e-mail: acss@audubonintl.org

Audubon International (not associated with the National Audubon Society) has developed a Cooperative Sanctuary Program with golf courses. They provide expert guidance to superintendents interested in adopting more naturalistic landscape practices.

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