

The new wildlife refuge -- Golf courses?

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Golf courses are known as centers for human recreation, but if managed properly, they also could be important wildlife sanctuaries, a University of Missouri-Columbia researcher has found.

“There are more than 17,000 golf courses in the United States, and approximately 70 percent of that land is not used for playing,” said Ray Semlitsch, Curators’ Professor of Biology in the MU College of Arts and Science. “These managed green spaces aren’t surrogates for protected land and ecosystems, but they can include suitable habitat for species native to the area. Golf courses could act as nature sanctuaries if managed properly.”

Semlitsch, along with Michelle Boone, an assistant professor at Miami University in Ohio and former MU graduate student, and J. Russell Bodie, senior scientist for Audubon International, outlined recommendations that would improve golf course habitats for amphibian populations in a paper published in *USGA Turfgrass and Environmental Research Online* in January. Their recommendations included buffering aquatic habitats from chemical runoff, surrounding wetland areas with 150 to 300 meters of forest or natural grassland, and creating a diversity of pond types that mimic natural wetlands.

A recent study by Semlitsch, Boone and Cory Mosby, a senior at MU, built on these suggestions. They found that completely drying golf course ponds in the late summer or early fall would benefit amphibian populations and biodiversity.

“It’s a hard concept for people to understand, but non-permanent wetlands are more natural than permanent wetlands. Most natural wetlands dry for some periods of time, and the species that live in them are well-adapted for this. The natural drying process benefits amphibians, and it releases nutrients from the soil. Maintaining permanent ponds actually harms biodiversity,” Semlitsch said.

In the study, the researchers used two types of ponds – control reference ponds and ponds located on golf courses – to monitor populations of American toads, southern leopard frogs and spotted salamanders. They found that the American toads, southern leopard frogs and spotted salamanders survived better in the golf course ponds than in the control ponds, probably because of a reduced number of insect predators. They also found that these species survived better in the absence of overwintered bullfrog tadpoles, which are common to permanent golf course ponds and act as unnatural predators and competitors.

Semlitsch said this shows that greater biodiversity can be achieved by eliminating bullfrog tadpoles. Because bullfrog cycles of metamorphosis take longer to complete (typically 12 months) than the cycles of other amphibians (typically one to four months), the bullfrog tadpoles have advantages in permanent ponds and can grow larger and more powerful, nudging out other species. By drying golf course ponds in the early fall, the tadpoles can be eliminated, while other species of amphibians survive and thrive.

Source: University of Missouri-Columbia

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