

# Native Biodiversity and Golf Courses in Midwestern Landscapes

Robert Blair  
Miami University

## Objectives:

1. Determine what small- and large-scale landscape features within and around a golf course are important to particular species of birds.
2. Determine what small- and large-scale landscape features within and around a golf course are important to particular species of butterflies.
3. Compare and contrast these two taxa to see if design guidelines can be developed to increase the number of native species of both of these groups at golf courses.
4. Compare and contrast the contribution of small-scale and large-scale landscape features in preserving native biodiversity.
5. Develop guidelines for golf course design for both birds and butterflies at both small- and large-scale.

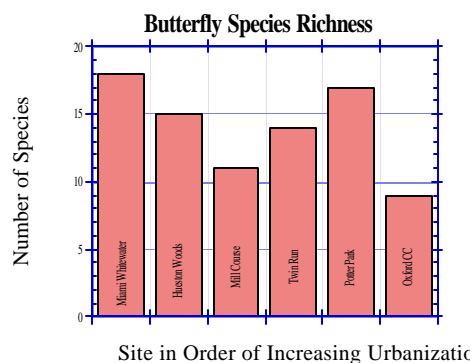
**Start Date:** 2000

**Project Duration:** 3 years

**Total Funding:** \$62,600

This project examines the conservation value of golf courses in the Midwestern landscape by focusing on two indicator taxa: birds and butterflies. The Midwest has more land that is directly manipulated by humans than any other region of the country. This pattern of land use presents a challenge to conservation biologists because they cannot rely solely on public lands in their conservation efforts.

Golf courses have the potential to play a significant role in overall conservation plans. They may directly provide habitat for specific groups of organisms as they are lush, green parcels of open space. They may also provide buffer zones between developed and natural areas. However, golf courses are also accused of consuming an inordinate amount of freshwater, pesticides, fertilizers, and native habitat. Consequently, some people consider them a wonderful use of land while others consider them detrimental to the landscape.



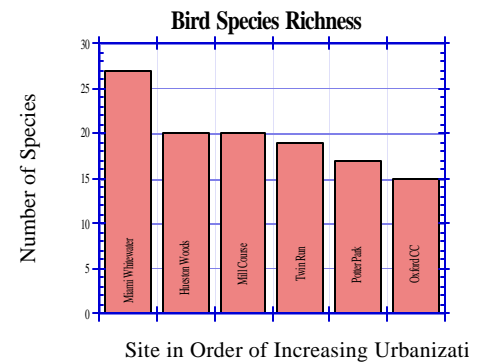
*Butterfly species richness as a function of surrounding urbanization on six golf courses in southwest Ohio.*

This project will identify the relative contribution of landscape features within and around golf courses that affect native birds and butterflies and provide some guidance to golf course designers and managers as to how much effort they should devote to working on features within and outside of their course. We expect this project to result in methods for creating and conserving habitat for native biodiversity on golf courses. It will also provide evidence of whether or not golf courses can be a component in larger conservation planning.

We will determine bird and butterfly distribution and abundance on the six golf courses using scientifically established procedures. Detailed information on the small-scale landscape features within the golf courses, such as types of vegetation, will be collected. We will also quantify the proportion of the surrounding landscape occupied by different types of landscape, such as pavement, buildings, and trees.

This data will be collected over the course of two years and was begun in May, 2000. We will analyze the data collected to determine which landscape features are the best predictors of native bird and butterfly distribution and abundance.

The second year of fieldwork - surveying bird and butterfly species, and vegetation features - is in progress. The principle benefit to the golf course industry of this project will be the development of scientifically defensible, golf-course design guidelines that conserve native species. These guidelines will be most useful for new golf course construction, but will also provide direction for golf course managers who are trying to improve conditions on



*Bird species richness as a function of surrounding urbanization on six golf courses in southwest Ohio.*

existing courses. The approach taken will identify those features that golf course designers and managers can directly control, such as ponds within the golf course boundaries, as well as those features that they would need to address in the context of the surrounding landscape, such as land use contiguous to the golf course.

## Summary Points

- ☐ Researchers are determining bird and butterfly distribution and abundance on six golf courses using scientifically established procedures.
- ☐ Researchers are analyzing the data to determine which landscape features are best predictors of native bird and butterfly distribution and abundance.
- ☐ Researchers will compare landscape features within the golf course, such as amount of rough and number of water features, to the landscape features surrounding the golf course, such as amount of housing or woodlands, to determine which has more effect in promoting native biodiversity.
- ☐ The principle benefit to the golf course industry will be scientifically-defensible, golf-course design guidelines that conserve native species.