Avian Community Response to a Golf Course Landscape Unit Gradient

Progress Report

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Submitted by:

David H. Gordon, Ph.D.
Department of Aquaculture, Fisheries, and Wildlife
Clemson University

and

U.S. Fish and Wildlife Service
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Project Title: Avian Community Response to a Golf Course Landscape Unit Gradient

Principal Investigator(s): Dr. David H. Gordon and
Graduate Research Assistant, Stephen G.Jones

Address: Department of Aquaculture, Fisheries, & Wildlife, G08 Lehotsky Hall, Clemson University, Clemson, SC 29634

Phone: 843-727-4707 **Fax:** 843-727-4092 **E-mail:** david_gordon@fws.gov

Purpose and Goals: Golf courses are a frequently occurring landscape unit within the South Atlantic Coastal Plain. Although golf course construction significantly alters the natural wildlife habitat matrix, in many cases the post-construction complex of remnant, disturbance, and introduced habitat patches can provide valuable habitat for avian species including neotropical migrant land birds. Golf courses in this region are typically planned and constructed as an integral component of private unit residential developments. Thus, the golf course landscape unit per se consists of the course itself (fairways, greens, rough, and out-of-play areas), areas occupied by human habitations, and relatively undisturbed managed and/or natural areas. Management of this landscape unit is influenced by independent and joint actions of course operators and property owner associations. Both parties have a vested interested in maintaining an aesthetically pleasing tract of "green space" often with a coincidental interest in wildlife values.

This project is assessing the value of golf courses to breeding bird species by evaluating how birds occupy golf courses with different designs and habitat configurations. Objectives of the project are to: 1) determine the composition and species richness of breeding bird communities occupying a gradient of golf course landscape units and associated habitats, 2) examine the influence of landscape characteristics on the composition and species richness of bird communities found on golf courses, and 3) produce a set of outreach products including a technical publication with management and design recommendations, a brochure, and color poster targeted at golf course stakeholder groups.

Cooperators in the project include participating golf courses, Clemson University, U.S. Fish and Wildlife Service, South Carolina Cooperative Fish and Wildlife Research Unit, South Carolina Turfgrass Foundation, and Winyah Bay Focus Area Task Force.

Methodology: The 2-year study is being conducted on golf course developments located along the upper coast of South Carolina near Myrtle Beach. The area has over 100 courses and the highest density of championship yardage golf courses in the world. A sample of golf courses was selected for study representing a landscape modification gradient ranging from highly altered sites with limited habitat values to sites with less alteration and the highest habitat values.

Meetings were then held with golf course superintendents to: 1) discuss and plan the design of the study, 2) insure collection of information relevant to golf course management for practical application of study results, and 3) plan field sampling techniques to avoid conflicts with normal golf course activity and play .

Selection of study sites was accomplished through a combination of field reconnaissances and examination of color-infrared aerial photography. Habitat or vegetation features of each golf course were determined using GIS technology integrated with remote sensing and image analysis technology to further analyze photography. Habitat features include the composition, size, shape, type, number, heterogeneity, and boundary characteristics of vegetation patches occurring on golf courses.

During May and June, breeding birds on each golf course are surveyed using a random sample of fixed station point counts plotted on maps produced from color-infrared aerial photos. Between 6:00 am and 10:00 am in the morning, observers stand at each station for 5 minutes recording all birds detected visually or aurally.

Results: During the Year 2000, a total of 301 bird point counts were conducted on 12 golf courses along the north coast of South Carolina (see attached map). Participating golf courses included The Reserve, Tradition, Heather Glen, Glen Dornach, The Witch, Hummingbird and Falcon at Wild Wing, Moorland at Legends, Indigo Creek, Pawleys Plantation, Quail Creek, and Wedgefield Plantation. The number of bird species per golf course ranged from 36-49 and the total number of birds ranged from 170-620 per course. Eighty-five bird species were detected of which 27 were neotropical migrants. Bird count stations were revisited to collect habitat (vegetation) measurements. Preliminary data analyses will occur during Fall 2000.

Importance to Golf Industry and Conservation: This project is important to the golf industry as golf course superintendents and developers are seeking information to enhance wildlife habitat values on existing and planned golf courses. Technical information from the study will help the conservation community work with the golf industry and private unit residential developments to enhance avian/wildlife habitat values. Direct involvement of the golf course industry and the conservation community in the study will help establish a new dialogue and partnership that has real potential to produce wildlife benefits in the design and management of golf course landscape units. Information will be available to educate residents of golf course communities about the contributions to wildlife conservation they can make in their own back yards and by working in consort with golf course managers. The conservation community will better understand how golf course landscape units can contribute to large-scale landscape conservation initiatives

Dissemination: The project will provide a set of specific recommendations for managing and enhancing habitat for avian species that will be communicated through a set of outreach products targeted at golf course stakeholder groups. The products will be designed to increase awareness and actions by golf course managers and property owners to accomplish on-the-ground

enhancement of avian/wildlife habitat values on golf courses. These products will include a technical publication with management and design recommendations, a brochure, and color poster. Additional outreach will involve features in local, regional, and national print and television media venues.

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