Assessing the Conservation Value of Golf Courses for Fox Squirrels in Coastal South Carolina

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Objectives:
1. Survey a representative sample of golf courses from the South Carolina coast for fox squirrel presence and abundance.
2. Collect data on landscape metrics and habitat features from these same courses.
3. Develop statistical models that relate fox squirrel abundance to landscape and habitat variables.
4. Develop management recommendations for fox squirrel habitat on existing and developing courses.

Start Date: 2004
Project Duration: two years
Total Funding: $60,000

The fox squirrel is a charismatic species that appears to be declining in numbers and is experiencing loss of native habitat throughout the southeastern US. Fox squirrels are known to inhabit golf courses throughout the southeastern US and in some situations attain very high population densities. This research investigates the relationships between the abundance of fox squirrels on golf courses in coastal South Carolina and various landscape and habitat variables.

The research is be conducted along the South Carolina coast because the rapid pace of landscape change there is frequently associated with golf course developments. The presence of fox squirrels provides a unique opportunity to define golf course management and development plans that offer high conservation value as well as an opportunity to create a flagship conservation program for golf courses.

Clemson University researchers are determining landscape features that favor fox squirrel populations in hopes of developing management recommendations for fox squirrel habitat on existing and developing courses in coastal South Carolina.

This region is the fastest growing area of the state, has a national reputation as a golf destination, and, given the number of courses in this region, has the potential to serve as a model for maintaining adequate habitat for a highly visible species that may benefit from urban habitats if they are properly managed.

The project was initiated in mid-June, 2004 with the hiring of a graduate student at Clemson University. The student focused on class work, study design, and GIS development through the fall and early winter of the year. In addition, questionnaires developed to collect basic data about course layouts and squirrel abundance were mailed to golf courses along the entire coast at the beginning of 2005.

The first season of field work began in spring, 2005 and continued through early summer. Fifty courses were surveyed and data were collected on squirrel abundance (both fox and gray) as well as habitat features such as dominant vegetation types and amount of understory cover. Squirrel locations were marked using a GPS and the data were then integrated with the GIS. This allowed us to map the actual locations of the squirrels observed during surveys. Population data from the surveys are currently being combined with landscape metrics derived from the GIS at both patch and landscape scales to build preliminary models of the effects of spatial variables on fox squirrel presence and abundance.

The second field season will begin in mid-autumn, 2005 and will conclude in early winter, 2006. The addition of these data will increase the accuracy of our squirrel population estimates and also allow us to test and refine the first set of models. Management recommendations for preserving maximum habitat functionality for fox squirrels will be generated

Population data from surveys are being combined with landscape metrics to determine what variables are most important for the presence of fox squirrels on golf courses in the Southeast.

using the final models. An outreach program centered around a website featuring several types of educational media also will be developed in 2006.

Summary Points

● Fifty courses were surveyed and data were collected on squirrel abundance (both fox and gray) as well as habitat features such as dominant vegetation types and amount of understory cover. Squirrel locations were marked using a GPS and the data were then integrated with the GIS.

● Population data from the surveys are currently being combined with landscape metrics derived from the GIS at both patch and landscape scales to build preliminary models of the effects of spatial variables on fox squirrel presence and abundance.

● An outreach program centered around a website featuring several types of educational media will be developed in 2006.