

Golf Courses as Hotspots for Biodiversity in the Desert Southwest

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Objectives:

1. Evaluate the possible role of golf courses in mitigating the loss of riparian habitats for resident and migratory birds.
2. Determine how the type and distribution of vegetation on golf courses may influence its value as habitat for resident and migratory birds.

Start Date: 2000

Project Duration: 3 years

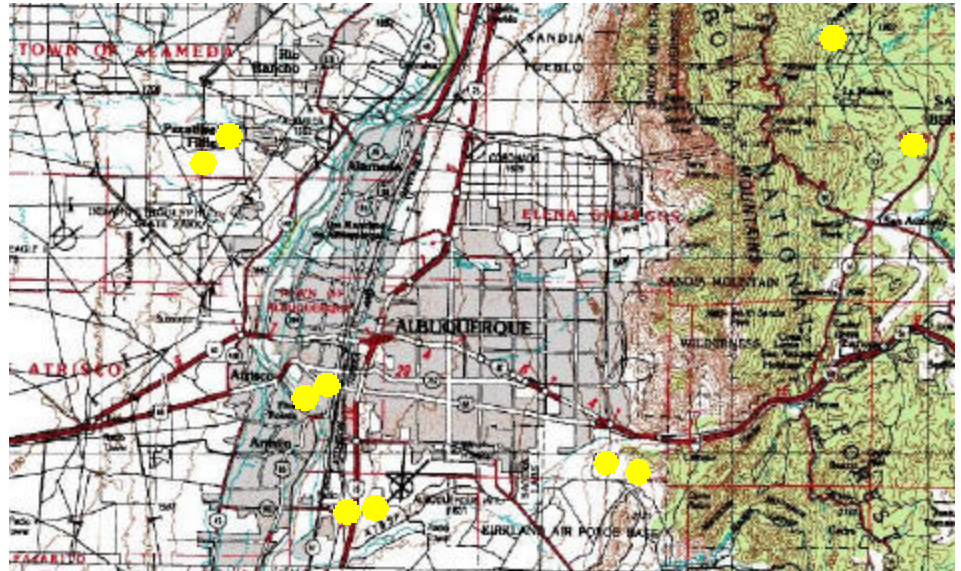
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Riparian systems serve as critically important wildlife habitat in the desert environment, and are also one of the most endangered ecosystems in the western U.S. With permanent water sources and vegetation that is similar in composition and structure to that of riparian systems, golf courses in the Southwest may be providing important habitat for wildlife that normally utilize riparian systems.

Ten study sites are involved in this research project, five golf courses and five natural reference sites, all situated in the Albuquerque, New Mexico, area. The golf courses were chosen to vary in factors such as overall size, shape, type and extent of vegetation on course, and presence of standing water. Each of these courses is paired with a natural control area, an area of nearby open space that as closely as possible represents the natural habitat that existed at each course site prior to the construction of the course.

Bird surveys by point counts are conducted at each site once a month throughout the year over a period of two years. Measures and analyses of the types of vegetation on each of the courses will be collected in the field and will also be assessed using aerial photography and GIS technology. The correlation of vegetation measures with bird abundance and/or species richness (number of species) will provide managers with important information regarding how to best manage their courses to provide quality habitat for both resident and migratory birds.

Preliminary analysis of the results from breeding season bird surveys (April - August, 2001) indicates that, as expected,



Map of ten sites used in study, five golf courses and five paired reference sites.

the species composition on golf courses is significantly different from that of the natural reference sites. The proportion of total species observed that are unique to the golf courses (found only on the golf course, and never on the paired reference site), ranged from 33% to 57%. In three out of five cases, the golf course had a significantly greater number of species than its paired control site. In one case there was no significant difference, and in the last case, the reference site had significantly greater species richness than its paired golf course.

Field work will continue on this study for one more year. At this time we will also have the vegetation data in hand to determine which aspects of the golf course habitats are contributing to the increased species richness and abundance of birds observed thus far. Finally, we have added nest box monitoring on six of the ten sites. This data will allow us to determine which species are actively nesting on the courses, and to compare nest success between the courses and reference sites. The data analyzed to date continue to support the hypothesis that golf courses may play an

important role in the desert environment by acting as surrogate riparian areas for many bird species.

Summary Points

□ Bird survey data has been collected monthly on five golf courses and five control areas in the Albuquerque, New Mexico area for a period of one year; surveys will continue for one more year. Vegetation data is currently being collected and will continue into the next study year.

□ Preliminary analysis of results demonstrates that golf courses support a high number of unique species compared to the reference sites, and that most of the golf courses have greater numbers of birds and higher numbers of species than their paired reference sites.

□ The golf courses differ significantly from one another in terms of bird species composition and abundance. We hypothesize that these differences will be correlated with differences between the courses in terms of vegetation structure and presence of water. Vegetation data will be available to test this hypothesis at the end of the next study year.