

# Reproductive Success and Habitat Use of Painted Buntings on Golf Courses in Coastal South Carolina

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## Objectives:

1. Locate nests of Painted Buntings during two breeding seasons via nest searching on study courses.
2. Measure various metrics of reproductive success.
3. Measure various metrics of nesting habitat at the nest, patch, and territory scale (e.g. nest substrate and height, distance to edges, canopy cover, shrub density) and relate to reproductive success.
4. Conduct surveys of Painted Buntings and other songbirds on golf courses in coastal South Carolina and relate presence to landscape-scale and patch-scale habitat variables.

**Start Date:** 2008

**Project Duration:** three years

**Total Funding:** \$60,000

The Painted Bunting (*Passerina ciris*) has been placed on the Audubon Watch List due to a steady population decline since 1966. Painted Buntings also are a high priority species in Wildlife Action plans in both North and South Carolina. Painted buntings have established two breeding populations in the US, one in the southcentral states and one in the coastal southeast. The southeastern distribution ranges from southern North Carolina to northern Florida.

Survey data show that many buntings inhabit urban and agricultural landscapes in the northern coastal and southern and central inland portions of their range. Within the coastal counties of South Carolina, golf courses and golf course communities are common and becoming more prevalent. This region was historically characterized by a mix of forest, agricultural land, and rural communities. The coastal counties are now characterized by a highly developed urban matrix with large parcels of isolated green space comprised of golf courses. This changing landscape presents management concerns for Painted Bunting populations.

Our research seeks to assess the potential conservation value of golf courses in the Beaufort County area of South Carolina for Painted Buntings. During the breeding season of 2008 and 2009, we searched the Spring Island and Chechessee Creek Clubs in Okatie, South Carolina for nests of Painted Buntings. Once found, nests were monitored until they succeeded or failed. We recorded signs of success or failure, nest height, nest plant species, and GPS location.



By locating individual buntings over the course of several days and carefully plotting their locations and activities, a home range map and a better understanding of the habitats being used during the nesting period was achieved.

During these two seasons, we only located 18 nests. Of these, 13 were located in wax myrtles or shrub/scrub habitat and the remainder in trees. Three nests occurred in clumps of Spanish moss that were located high in mature oaks. This appears to be a unique nesting substrate for Painted Buntings and one that maybe restricted to habitats with mature, large oaks.

Most nests were located during incubation. The best cue for nest presence was behavior of adult birds around the nest, although capturing brief windows of adult activity near nests over the study area was difficult. Nest failure was common during both incubation and chick-rearing. Brown-headed Cowbirds (a nest parasite that lays its eggs in nests of songbirds) were common on golf courses and cowbird eggs and chicks were regularly identified in Painted Bunting nests. We also located and mapped the habitat use of 14 groups of Painted Bunting fledglings from summer 2008. Data from both the nest locations and fledgling groups are being incorporated into GIS data layers.

During 2010, we will incorporate a new analysis that will use GIS data to

examine small- and large-scale landscape characteristics of Painted Bunting locations on golf courses in the region. We will assess vegetation characteristics with presence/absence of painted buntings, thus lending insight to land management techniques for southeastern coastal golf courses. Unlike our previous efforts of nest searching which focused on two courses, we will instead conduct surveys on a number of courses (10-20) in the region.

Habitat variables and landscape features to be considered that also are of interest to golf course managers include presence of salt marshes, presence or density of houses, connectedness to other golf courses or undeveloped habitats, presence of buntings in adjacent habitats, vegetation type and species composition of out-of-play areas, shape, size, and extent of out-of-play areas, and extent of developed land cover within the course.

## Summary Points

- Only 18 Painted Bunting nests were located in two breeding seasons; nests were difficult to locate and well-hidden.
- Nests were located in a variety of plant types/trees/habitat structure ranging from low, dense scrub to moss nests in upper reaches of mature oaks.
- Nest failures were common and occurred during both incubation and chick-rearing.
- Brown-headed Cowbirds, a nest parasite of songbirds, were common on golf courses and cowbird eggs and chicks were frequently identified in nests of Painted Bunting.
- A new research focus for 2010 will use surveys from multiple golf courses to determine landscape- and patch-scale habitat variables associated with Painted Bunting occurrence.