

SURVEY AND MONITORING OF BIRDS ON THE TIMUCUAN PRESERVE

TIMUCUAN PRESERVE, DANIEL R. TARDONA



Figure 1 (left). The Timucuan Preserve features diverse habitats that include marshes and upland areas, which are important for birds.

Figure 2 (below). The Wood Stork is an endangered species that nests within the preserve.

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NAMED FOR THE NATIVE AMERICANS who lived here for more than 3,000 years, the Timucuan Ecological and Historic Preserve on the Atlantic coast in northeast Florida encompasses hammock uplands, coastal marshes (fig.1), salt flats, islands, tidal creeks, and the estuaries of the St. Johns River on its southern perimeter and of the Nassau River on its northern perimeter. Almost 75% of the lands in the preserve are wetlands and waterways. The preserve teems with a wide variety of plant and animal species.

The preserve is especially important for birds (fig.1). It is the lower breeding limit of many northeastern bird species; it is in the Atlantic flyway and offers habitats for wintering and migrating birds; it provides habitats for birds that depend on estuarine and maritime environments; and it is a refuge for many birds that are increasingly threatened by land development and recreation along coastal areas (fig. 2).

Sound management of bird habitats in the preserve and region requires knowledge about population sizes, seasonal and annual species compositions, and the relative abundance of species across specific sites. The preserve began collecting such data in 1996 with plans to maintain these efforts as a permanent avian monitoring program. Survey results are recorded in an automated management database, provided by the U.S. Fish and Wildlife Service, which provides resource managers

with a tool to track population trends and evaluate avian responses to specific management actions to various habitats.

STUDY SITES

Two sites in the preserve were selected for the collection of data. The 159-ha (392 acre) Cedar Point area consists of tidal marshes, upland oak (*Quercus spp.*) forests, hammocks, pine (*Pinus spp.*) flatwoods, and a remnant pine plantation. The upland areas are interspersed with small freshwater wetlands (fig. 1). The approximately 243-ha (600-acre) Theodore Roosevelt area consists of tidal marshes, brackish sloughs, and a relatively undisturbed maritime hammock community. A recently acquired third site, the 474-ha (924-acre) Thomas Creek area, will be added in the spring of 1998. The mixed-forest wetland at Thomas Creek includes a 106-ha (262-acre) hardwood freshwater wetland, an 11-ha (27-acre) lake (borrow pit), and important upland areas. The north end of the area is bordered by saltmarsh and has been managed as a pine plantation of mostly loblolly pine (*Pinus tadea*). This area will be important to survey and monitor for birds as it will be transformed to a more natural vegetative state beginning in approximately six years.

METHODS

Because the small staff compliment of the preserve was not available for the survey and monitoring of birds, we placed a call for volunteers in the *Opportunities for Birders*, an annual publication of the American Birding Association, and was promptly met with numerous responses from experienced birders. The local chapter of the Audubon Society and area ornithology students also augmented our volunteer roles to expand and maintain the program.

The number of birds by species in the study sites is estimated with point counts (Hamel et al. 1995; Ralph et al. 1993). A point count is a tally of all birds detected by sight or sound by a single observer from a fixed station during a specified time period. The survey points are distributed as evenly as possible throughout each of the two study areas at a minimum separation of 250 m (820 ft.). The points were established by overlaying a 250-m x 250-m scaled grid on detailed maps of each study area. Intersections of trails in the preserve and accessible areas at grid nodes



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were potential sampling points. The maximum number of intersections in each site were generated by moving the grid. One of the intersections was chosen as a starting point from the grid. By drawing a 250-m circle around a random point, the next point was located at a trail intersection or at an accessible area on a grid node and the circle. In the field, each sampling point was marked with a stake (fig. 3) and a map of the points was given to each observer.

During a point count, each observer (one or two) makes a series of 10-minute observations beginning 30 minutes before dawn until 10:00 a.m.

The observation periods are separated into segments of the first three minutes, the next two minutes, and the final five minutes, for a total of 10 minutes of observation per location. The distance between the observer and birds is recorded in one of four categories: less than 25 m distant, 25-50 m distant, over 50 m distant, and flyovers. Data are recorded using a bull's-eye data record sheet (fig. 4) for each count station. The observer orients the sheet, records date, time, observer, and wind and sky conditions, and then begins the count using a timer. Each bird that is seen or heard is recorded, noting distance and approximate azimuth (i.e., compass bearing). A multicolored pen is used to record data for the different time intervals: green for the first three minutes, blue for the next two, and red for the final five. Each bird observed or heard is recorded just once with a mark (using a

species code); thus, observers must judge whether subsequent songs are from new or already mapped individuals. All flyovers are recorded outside of the bull's-eye underneath flyovers. The field notations from the bull's eye data sheets are transcribed to bird count data forms at the end of the day, and the data are then entered into the U.S. Fish and Wildlife Service GSB-Base Bird Monitoring Database. One survey is made at each site during the spring migration, fall migration, breeding season, and during the winter.

RESULTS AND DISCUSSION

Preliminary data collected suggest that the Timucuan Preserve study areas contain one of the highest concentrations of nesting Painted Buntings (*Passerina ciris*) in northeast Florida. This species is of particular concern in the region as a result of habitat loss. In addition, the data suggest that compared with other point counts in the southeast our study areas have a lower concentration of the Brown-headed Cowbird (*Molothrus ater*).

The cowbird is a brood parasite that lays its eggs in the nests of other bird species. Its eggs hatch earlier than those of its host, and the chicks grow faster, reducing the food intake of the host species. As a result, the cowbird threatens the survival of many other bird species especially warblers, flycatchers, vireos, and finches. Further data collection and analysis over the



Figure 3. The first author stakes one of the bird survey points



Figure 4. Park VIP Carol Richards collected survey data in the field using the bull's-eye data record sheet. Data from each observation point were later consolidated on another form and entered into a database for analysis.

years in conjunction with other habitat studies will yield important information to consider in future habitat management decisions.

CONCLUSION

In order to achieve many important resource management objectives within funding and staffing limits, resource managers must continually seek creative and nontraditional alternatives. As we have shown with the Timucuan bird survey, important and viable natural resource management programs can be accomplished with the assistance of knowledgeable, skilled, and dedicated volunteers. In addition to the benefit gained from the data gathered during the surveys, involvement of people from the local community can also strengthen and expand support for park goals and management activities.

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