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MISSISSIPPI SANDHILL CRANE CONSERVATION UPDATE 2006-2008

SCOTT G. HEREFORD

U.S. Fish and Wildlife Service, Mississippi Sandhill Crane National Wildlife Refuge, scott_hereford@fws.gov

LAUREN E. BILLODEAUX

U.S. Fish and Wildlife Service, Mississippi Sandhill Crane National Wildlife Refuge

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MISSISSIPPI SANDHILL CRANE CONSERVATION UPDATE 2006-2008

SCOTT G. HEREFORD,¹ U.S. Fish and Wildlife Service, Mississippi Sandhill Crane National Wildlife Refuge, 7200 Crane Lane, Gautier, MS 39553, USA

LAUREN E. BILLODEAUX, U.S. Fish and Wildlife Service, Mississippi Sandhill Crane National Wildlife Refuge, 7200 Crane Lane, Gautier, MS 39553, USA

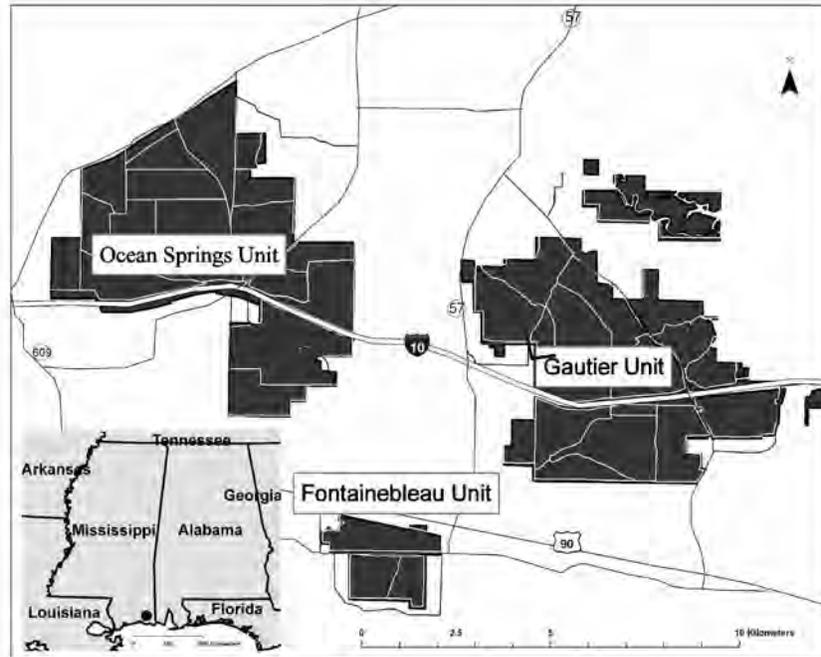


Figure 1. Map of the Mississippi Sandhill Crane National Wildlife Refuge.

The Mississippi sandhill crane (MSC, *Grus canadensis pulla*) is an endangered non-migratory subspecies found in the wild only on and near the Mississippi Sandhill Crane National Wildlife Refuge (MSCNWR) in Jackson County in southeastern Mississippi (Gee and Hereford 1995). The MSC is adapted to the wet pine savannas and open pinelands of the Southeastern Outer Gulf Coastal Plain. By the 1970s, their numbers had decreased to 30-40 individuals including only 5-6 nesting pairs. The fire-maintained savannas, once a dominant feature of the landscape, were converted to pine plantations and human development or had degraded to overgrown pine scrub. The MSCNWR was created in 1975 to protect and recover the nearly extinct subspecies, restore and maintain the savannas, and provide compatible wildlife-oriented recreation.

Here we briefly describe continued intensive MSCNWR conservation measures over the past 3 years in support of crane recovery (U.S. Fish and Wildlife Service 1991) and rebuilding of infrastructure after Hurricane Katrina (August 2005). Management activities included protection and law enforcement, prescribed burning, mechanical vegetation removal, pest plant management, hydrological restoration, farming, predator management, supplementation, and public education.

The 8,000-ha MSCNWR is subdivided into 3 units and 40 management compartments (Fig. 1), each of which is on a 2-4 year prescribed burn rotation. To maintain open savanna, 5,230 ha were burned from 2006 through the spring of 2008, including 54% burned during the growing season. To restore open savanna, woody vegetation from 212 ha in 24 areas was removed using mechanical methods such as chainsaw or gyrotrack machine.

To restore hydrology, we cleared 2 citronelle ponds

¹ E-mail: scott_hereford@fws.gov

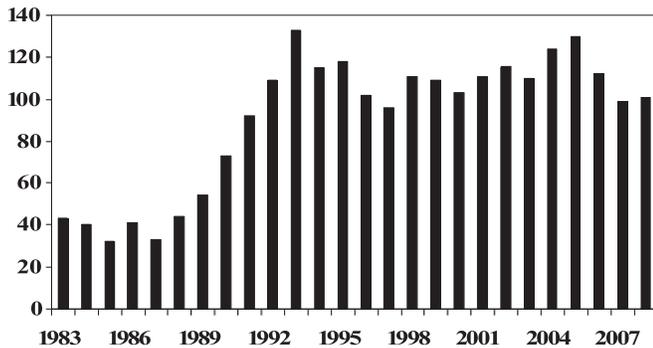


Figure 2. Mississippi sandhill crane autumn population, 1983-2008.

or small upland depressions. To provide additional roost habitat, we created 2 0.2-ha ponds in the Gautier Unit and expanded 1 in the Fontainebleau Unit to 0.2 ha. All 3 are in new crane pens. For 2 of the ponds, we installed shallow wells, solar panels, and solar-powered water pumps to provide year-round water.

The MSCNWR contains 14 small food plots and 1 larger pasture totaling 57 ha to provide supplemental food for the MSC. We bush-hogged all areas 2 or 3 times annually. We planted 10 ha with chufa (*Cyperus esculentus*) yearly during the summer, including the Fontainebleau Crop Unit for the first time in several years. To reduce invasive plant infestation of MSC habitat, we chemically treated 24 hectares of cogongrass (*Imperata cylindrica*) and 250 Chinese tallow trees (*Sabium sebiferum*).

The MSC population has been supplemented annually since 1981. The supplementation program remains the longest and largest of its kind in the world. The Audubon Species Survival Center (New Orleans, LA), and White Oak Conservation Center (WOCC, Yulee, FL) provided the captive-reared juveniles. We released 6 cohorts of captive-reared juveniles totaling 27 individuals during the last 3 release years from 5 locations. To date, 414 cranes have been released.

To protect cranes, nests, and young, the U.S. Department of Agriculture Wildlife Services conducted 4,730 trap-nights of predator control under an Interagency Agreement in 2006, removing 199 predators including 56 larger predators such as coyotes (*Canis latrans*), bobcats (*Lynx rufus*), and foxes (*Vulpes vulpes*, *Urocyon cinereoargenteus*). No trapping was conducted in 2007 after the agreement was discontinued. Refuge staff removed 4 large

predators during 104 trap-nights in 2008.

We conducted year-round monitoring, including radio-tracking, visual observations, and an annual nest census to assess several life history parameters and MSC response to management. We collected data on over 4,200 crane observations including 775 radio-fix locations during the 3-year period. To attach or re-deploy radio-transmitters, we captured 34 after-hatch-year cranes and 1 juvenile, including 29 with nooses and 5 with a coffin trap. Leading known causes of mortality were trauma (54%) and predation (38%). There was a documented range expansion as cranes were first monitored in the Grand Bay National Wildlife Refuge and farther east in Alabama for the first time in at least 40 years. The autumn population remained stable at 100-110 individuals (Fig. 2).

Nests declined nearly 50% in 2006 to 14 during a prolonged drought after Hurricane Katrina, but increased to 30 in 2007 and a record 33 in 2008. Recruitment remained extremely low with only 4 young fledged. Ten new active composite nesting territories were established. There was the first recorded nest east of the Pascagoula River in at least 45 years, the first nest on The Nature Conservancy property between the Gautier and Ocean Springs Units, and the first fledging from the Fontainebleau Unit. There were at least 10 new nesting pairs, including the first 2 pairs from cranes reared at the WOCC. We documented the first known pair nesting 4 times in a season, with incubation of the last nest extending into August. A pair nested inside a new 1-ha acclimation pen in 2007 and 2008 and fledged a chick both years. We will consider using small temporary fences around some future nest sites and monitor results.

Rebuilding of MSCNWR infrastructure in the wake of Hurricane Katrina continued with over \$3.8 million worth of projects. The replacement of 16 crane observation blinds was completed. Four 1.0-ha chain-link crane acclimation pens were constructed to replace degraded and damaged large pens at original sites in the Gautier, Ocean Springs, and Fontainebleau Units. Repairs on the Fire Center and Maintenance Building were completed. In May 2008, a new 930 m² Headquarters and Visitor Center opened that includes a volunteer station, bookstore, auditorium, and exhibit hall. The first 2 park rangers were added to the staff which, along with the new visitor facility, added greatly to visitor services and outreach functions.

Several other notable events occurred in the last 3 years that have an effect on crane conservation. The non-profit Southeast Wildlife Conservation Group signed a cooperative agreement with MSCNWR to provide support to various conservation and education functions. The U.S. Fish and Wildlife Service designated MSCNWR as 1 of only 24 “focus” national wildlife refuges in the Southeast Region because of the significance of the natural resource values and where FWS will strive to maintain or enhance field operations. The MSCNWR Comprehensive Conservation Plan (U.S. Fish and Wildlife Service 2007) was completed; it will guide management programs and actions for the ensuing 15 years and identifies the need to enhance several habitat and population management projects to increase progress

towards recovery.

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