

TEACHING GEESE, SWANS AND CRANES PRE-SELECTED MIGRATION ROUTES USING ULTRALIGHT AIRCRAFT, 1990-2004 - LOOKING INTO THE FUTURE

William J. L. Sladen, Swan Research Program - Environmental Studies at Airlie, PO Box 3014, Warrenton, VA 20188

Glenn H. Olsen, U.S. Geological Survey, Patuxent Wildlife Research Center, 12302 Beech Forest Road Laurel, MD 20708.

ABSTRACT

We are summarizing efforts made from 1990 to 2004 to restore migration routes to the once endangered Trumpeter Swan, *Cygnus buccinator*, and the endangered Whooping Crane, *Grus americana*; first using the Canada Goose, *Branta Canadensis*, and Sandhill Crane, *Grus canadensis*, as test birds.

INTRODUCTION

Geese, swans, and cranes are large, vocal, long-lived and flocking birds that remain in family groups during their migrations and in winter. Unlike the instinctive behavior of warblers and many other migratory birds, their young learn a migration route from their parents when they first fly south from their breeding areas. If parents are flightless, their offspring will form resident populations similar to the now nuisance resident Canada Geese. These geese, originating generations ago from pinioned or crippled birds, are now abundant from Alaska to Florida. But it has taken them more than 40 years with high initial mortality to form new migratory routes from breeding regions that freeze up in winter to warmer southern climes. In contrast, the resident Canada Geese in Virginia's more temperate climate do not migrate, remaining in the breeding area year round.

According to the U.S. Fish & Wildlife (USFWS) 2005 Survey there are now approximately 4,600 trumpeters in the Interior Population (IP), all from restoration programs (Moser, in press). However, restoration of lengthy traditional migratory flocks of, for example 1,000 miles, such as can be witnessed in the Pacific Population has yet to be established despite more than 30 years of release programs in the IP. Our aim was to establish a pre-selected migration route for Trumpeter Swans in the Atlantic Flyway, a flock we believe existed in pre-settlement days (Lumsden 1984, Rogers and Hammer 1998).

There was a different objective for the Whooping Crane Eastern Partnership program (www.bringbackthecranes.org). Because the only remaining traditional Whooping Crane migratory route from Wood Buffalo National Park, Alberta, to Aransas National Wildlife Refuge (NWR), Texas,

was vulnerable, it was decided to create a new 1,200-mile pre-selected route between Necedah NWR, Necedah, Wisconsin, and Chassahowitzka NWR, Crystal River, Florida (Clegg and Lewis 2001, Whooping Crane Eastern Partnership 2003, 2005).

In the Canada Goose and Sandhill Crane experiments, the aim was to demonstrate that the birds would come back on their own if led one way south by the aircraft. The same applied to the Trumpeter Swan experiments since there was as yet no Management Plan for release of these birds in the Atlantic Flyway. However, with full support from USFWS and seven states along the proposed migration pathway, the Whooping Crane Eastern Partnership in 2001 was given approval to train 10 flocks of Whooping Cranes during seasons 2001 through 2010. In the four Whooping Crane experiments so far completed, a 2,400-mile (4,000 km) round-trip migration has been established by the ultralight technique. From a total of 51 cranes that landed safely in Florida, 41 (80%) are now migrating back and forth each year between Wisconsin and Florida (Whooping Crane Eastern Partnership 2001 – 2004).

GENERAL CONCLUSIONS

The general conclusions from a total of 29 experiments (7 goose, 6 trumpeter, 11 Sandhill Crane and 5 Whooping Crane) are:

1. To learn the route, the greater proportion of the birds had to follow the ultralight the entire way.
2. If the occasional bird fell out, but remained in the group during the journey and subsequent winter, it would usually join the trained birds in finding their way home.

3. If all the birds are trucked the entire route (as controls) or the majority are trucked part of the way, they will remain in the winter area and become residents.
4. To avoid aggressiveness and attachment to humans, crane handlers wore uniforms, following a strict routine (Ellis *et al.* 2000). With the geese and swans, uniforms were inconsistently used in earlier experiments, but later not found necessary; the important need was to regularly haze them from hatching or, in the third swan experiment, acquire young a few weeks after being hatched by their natural parents in Alaska (Sladen *et al.* 2002).
5. Following an ultralight takes the birds on an extremely unnatural "migration", yet they somehow learn the route.
6. The ultralight technique is very expensive, costing over 1.5 million dollars every year.
7. The migration between Wisconsin and Florida also takes a long and unnatural time of 8 to 10 weeks.
8. Using an ultralight that can only fly safely with birds in the morning and in almost calm weather is potentially dangerous for the pilots and birds.

THE FUTURE

Looking into the future, we believe "*Passive Migration*" should be tested, where the young learn a route by traveling in cages under an airship during the peak of the migration season, observing migratory birds and the land below without flapping a wing. A preliminary experiment was conducted in 2001 using a gas balloon (Sladen 2002). Airships are Federal Aviation Administration certified, can fly day and night, and could show experimental birds in cages a route during a typical migration. The experiment would be over in 1 or 2 days, costing a fraction of that spent on the ultralight technique. Moreover, in some instances, the birds would be flying and vocalizing with their kind.

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Editors' note: In 2006, a pair of the ultralight-led Whooping Cranes hatched and fledged a chick in Necedah NWR, Wisconsin.