

REINTRODUCTION OF WHOOPING CRANES: THE ULTRA(LIGHT) IN ANIMAL TRAINING EXPERIENCE

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The Whooping Crane Eastern Partnership includes the following agencies and organizations that are leading the effort to reintroduce a migratory flock of Whooping Cranes to the eastern United States:

- Canada/US Whooping Crane Recovery Team
- Friends of Necedah National Wildlife Refuge
- International Crane Foundation
- National Fish and Wildlife Foundation
- Natural Resources Foundation of Wisconsin
- Operation Migration
- US Fish and Wildlife Service
- USGS National Wildlife Health Center
- USGS Patuxent Wildlife Research Center
- Wisconsin Department of Natural Resources

The Partnership is grateful for a migration network of AZA-affiliated veterinarians, who stand ready to volunteer services should such an occasion be needed during the migration to Florida.

*Photo #1:
Ultralight aircraft leading cranes*
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*Photo #2:
Cranes lifting off for flight on a foggy morning*
© 2001 Heather Ray, Operation Migration



The whooping crane, one of two crane species of North America, has come back from the brink of extinction through the extraordinary efforts of Canadian and United States conservationists. In a historic event last July, ten whooping crane juveniles, destined to be taught a migratory route from Wisconsin to Florida, flew (via a volunteer's private jet) from a breeding center in Maryland to Necedah National Wildlife Refuge in central Wisconsin. Their arrival marked the return of whooping cranes to Wisconsin, which had been extirpated since 1878! Until now, the only remaining migratory population of whoopers migrates from its breeding grounds in Wood Buffalo National Park, in the Canadian Northwest Territories to Arkansas National Wildlife refuge along the Texas Gulf coast.

Several attempts have been made to re-introduce whooping cranes into their former range, but no successful method has yet been developed to teach the birds a safe migration route. Migration in many birds is learned by following the previous generation to a traditional wintering site. That route is lost forever when the last of a population dies. Much hard work by many individuals from multiple organizations is currently focused on returning whooping cranes to the eastern United States.

In spring 2001, the International Whooping Crane Recovery Team recommended that Operation Migration's pioneered technique to teach migration routes to precocial birds using ultralight aircraft should be used to reintroduce a migratory flock of whooping cranes to the eastern United States. Operation Migration had already successfully conducted similar migrations in experimental studies with Canada geese and Sandhill cranes. Following the Recovery Team's recommendation, the Whooping Crane Eastern Partnership, established in 1999 to plan and carry out this project, moved into high gear. This Partnership of both government and private sector organizations includes ten agencies, six sub-teams and over seventy people—What a flock! Necedah National Wildlife Refuge in Wisconsin and Chassahowitzka National Wildlife Refuge in Florida were selected as the northern reintroduction site and wintering grounds for this experimental reintroduction of whoopers.

There are inherent challenges for humans to act as substitute parents and teach birds to migrate. Maintaining wildness and avoiding false imprinting on humans necessitates a complex and restrictive protocol. Previous ultralight studies indicate that the key to developing and maintaining wild behavior is to provide a natural experience with minimal human contact. A goal of the Partnership is to replicate the natural rearing process as much as possible by using adult sexual imprinting models, digital recordings of wild whooping crane calls and minimal contact by handlers who wear baggy costumes to disguise the human form. The aim is to release birds that have never seen a human face nor heard a human voice, and as much as possible, that are accustomed only to natural environments with all things human

removed, camouflaged or concealed.

The USGS Patuxent Wildlife Research Center in Laurel, Maryland, the International Crane Foundation in Baraboo, Wisconsin and the Calgary Zoo in Canada are the primary captive breeding centers of whooping cranes for release into the wild. Whooping cranes for the 2001 ultralight-led reintroduction were hatched from the captive flock at Patuxent, which currently produces more than two-thirds of captive-reared whooping cranes. About a day before hatch, when the chick pierces the inner shell membrane and begins to peep, the process of imprinting and conditioning cranes to follow ultralight aircraft begins. Recorded whooping crane vocalizations and aircraft engine sounds are played frequently to the hatching birds to establish the initial bond between crane and machine. The next important step begins within 24 hours. As substitute parents, our team uses life-like crane puppets, digital recordings and heat lamps suspended over stuffed brooding models to provide basic necessities. A chick, or crane colt, instinctively bites at the tip of the adult's bill when the proper vocalization is heard. A costumed caretaker manipulates the tip of a puppet bill in food and water dishes. This action entices the colt to eat and drink while a crucial imprinting process is bonding the colt with the puppet, costume and recorded crane calls. At approximately ten days, the colt is ready to be taken outside to forage with the puppet and be introduced to the aircraft. The scenario loosely mimics the activity of wild whooper families: follow parent in open and safe habitat, be fed and feel secure.

The Operation Migration team developed and refined the ultralight training method with Canada geese and Sandhill cranes. First came the use of a 30-foot diameter circular pen to keep young colts confined and safe from wandering under the wheels of the wingless aircraft in motion. Next, a megaphone speaker was mounted on the rear strut of the aircraft to vocalize recorded crane calls to the colts over the sound of the revving engine. To complete the experience, "Robo-crane" was invented. Robo-crane is an elongated crane puppet, suspended from the ultralight cockpit over the side of the wire pen, designed to drop mealworms like a Pez candy dispenser with the squeeze of a trigger. It also has an additional built-in vocalizer. Several times a week, as weather permits, the colts are led into a circle pen adjacent to the wingless aircraft parked just outside of the pen perimeter. As the aircraft taxis around the pen, the colts follow the auditory cues, stopping frequently to forage mealworms pointed out on the ground by Robo-crane's bill. Training at this stage usually lasts about 15 minutes per session. Each bird's following response, foraging and other behavioral data are collected and evaluated. Using positive reinforcement to enhance the colt's natural abilities and behaviors is paramount to having well-conditioned, behaviorally compatible birds.

Raising birds at propagation facilities like Patuxent or the International Crane Foundation provides around-the-clock

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*Photo #1:
"Robo-crane," a crane puppet, drops mealworms to crane colts in a circle pen.
© 2001 Jim Carpenter, Wildbirds Unlimited, Inc.*



*Photo #2:
Ultralight aircraft leads cranes during the migration
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*Photo #3:
Mature whooping crane eating fish
© 2001 Heather Ray, Operation Migration*

Successful reintroduction of a second migratory flock of whooping cranes is anticipated to take approximately ten years. People can support this effort by making financial contributions. Financial support this year came equally from private and government agency contributions.

To follow the daily success of migrations, contribute, learn more about the project and see intriguing photos, please visit the following Web sites:

***www.operationmigration.org
and
www.bringbackthecranes.org***

health care and insures higher survival rates during the most vulnerable period of a young bird's life. Furthermore, it is believed that precocial birds learn the geography of their natal area during and after fledging, or in other words, from the air. Therefore, prior to fledging, the colts are transported from Maryland to the Wisconsin release site where they become familiar with the habitat, learn to fly and identify with their future nesting grounds. They are kept in pens of small cohorts at separate sites closed to the public. Each facility consists of a predator-proof night pen, a top-netted day pen built into the marsh and a flight training area where ultralights can take off and land. Training in the calm air of early morning progresses from high speed taxiing with the birds running behind the aircraft, through elongated steps and short hops until the birds become fully-fledged around 90 to 100 days of age. Birds are released (under watchful eye) later in the day to feed on natural prey items in the surrounding marshes.

In order to fly as a cohesive flock behind the ultralight, cranes must establish their dominance structure. Often a bird will attempt to challenge the aircraft for the lead and the pilot must assert his authority over the front position. Once this jurisdiction has been enforced, the birds fly in a predictable order. Occasionally birds develop bad habits that disrupt the training routine. Our team looks for early signs of behavioral incompatibility and employs several techniques to correct undesired behaviors. One example is the invention of a "swamp monster" costume to frighten errant birds into returning to the safety of the aircraft and their flock-mates. This cures them of wandering into dangerous habitats and teaches awareness of predators while reinforcing the parental bond to the aircraft and pilot.

Managing the flock throughout the summer has its challenges, but leading them on a migration to Florida in 50 to 90 mile increments requires planning, cooperation from private landowners and luck. We expected to make 30 stopovers and cover 1200 miles in approximately 40 to 60 days. However, after 5 months of preparation for one autumn journey, migration progress is largely determined by the weather. For insurance, forty-five or so stopovers have been identified, approved and programmed into our GPS navigation systems. Each has been selected for its isolation from human environments and its accessibility by ultralight aircraft. During a typical flight, two ultralights take turns flying the lead and chase positions, while a third flies scout. Importantly, a Cessna 182, flown by Canadian volunteers Don and Paul Lounsbury, provides top-cover assurance and communicates with both the ground crew and air traffic control as needed.

Cranes are soaring birds and normally climb in thermals to altitudes as high as 10,000 feet or more and then glide to the next column of rising air. When following ultralights, they learn to surf on the vortices created by the air flowing over the wing of the aircraft. This can only happen when the air is

smooth. If the winds pick up and the air becomes turbulent, the birds are no longer able to fly closely; they lose the benefit of the wake and they must flap-fly. Under these conditions, they tire easily. Our flights are dictated by winds and last only as long as the air is calm. Once we arrive at a stopover site we circle several times before landing, then walk the birds to a visually isolated holding area until the ground crew arrives and assembles the travel pen. A large perimeter area around the enclosure is protected from predators by an electric fence.

In Florida, the whooping cranes will be released into a 1.5-acre, open-topped pen constructed in a brackish estuary. They will be able to freely fly in and out of the pen, but are encouraged to stay in this area by placement of a costumed dummy, an ample supply of food and visits by costumed humans. Visits will be gradually reduced until all observations are made by remote video cameras, from a blind or by radio tracking transmitters.

Based on our experience with Sandhills, we anticipate that the whoopers will adjust to their new migratory lifestyle and expand their range at their own speed. After the initial migration, it will be up to the birds to survive and integrate into the wild. Next spring, if we see wild whoopers gracing the landscape of central Wisconsin when we return with a new generation of candidates, we will know that our initial efforts have succeeded. Most importantly, through a renewed relationship between people and wildlife, we might feel a sense of wellness in a natural world that has long been plagued by misunderstanding.

On 6 November 2001, the day this article was submitted for publication, the Operation Migration team left Morgan County, Indiana at 8 am with six birds in tow. They traveled 43 miles in one hour and 40 minutes, landing in Jennings County, Indiana. By this point in the migration, they had traveled a total of 444.4 miles, with 782 miles remaining ahead of them. 🐦