



# THE ICF BUGLE

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## Reintroduction of Sandhill Cranes to the Wild

Robert Horwich, ICF Ethologist

A tall, baggy crane-like figure, its scraggly feathers drooping, plods through the fields as it calls its chicks with low grunts. The three chicks keep close as the group moves quickly toward the east kettle marsh on the ICF grounds. Such strange sights have been frequent at ICF during the last two spring seasons. This odd "mother" has been part of an unusual but effective method of hand-rearing cranes for reintroduction into the wild.

Research on reintroducing captive cranes has the goal of bolstering populations of endangered cranes. Most of the work has focused on the Whooping Crane and the Mississippi Sandhill Crane, an endangered subspecies of the widespread Sandhill Crane.

In the case of the Whooping Crane, researchers from the U.S. Fish & Wildlife Service, the Canadian Wildlife Service, and the University of Idaho have used a cross-fostering technique. They have removed one of two eggs from Whooping Crane nests and transferred them into Sandhill Crane nests to be reared by foster Sandhill parents. This effort aims at re-establishing Whooping Cranes in areas where the species has disap-

peared from its former range.

In other reintroductions, with the Mississippi Sandhill Crane, gradual "soft" releases of captive parent-reared birds have been used to increase wild populations (see the article on page 2 of this *Bugle*). Researchers speculated that birds between one and two years of age that were *parent-reared* in a captive situation had the best chances for a successful release.

Early studies had suggested that *hand-reared* birds were not good candidates for release. Such birds showed attachment to humans and an inability to find natural foods for their survival. But workers at ICF have been trying to develop a successful method for hand-rearing crane chicks. If we could learn how to prepare these birds for the wild, they would offer a less costly, more efficient way to increase endangered crane



Leading captive-produced cranes into the wild is not easy. For the last two seasons, ICF researchers have met the challenge dressed in a crane costume. This issue of *The ICF Bugle* features two articles concerning the release of cranes into their natural

habitats. Now that captive breeding has achieved consistent success, conservationists are exploring methods for sending some of these valuable chicks back into the wild. Photo by Rob Horwich.

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## Reintroduction

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populations.

One of the main problems with hand-reared chicks is that they become imprinted on human caretakers: they orient to humans instead of cranes as their species and, consequently, show no fear of people. This confusion could lead to the death of an introduced crane because cranes are hunted in many areas of the world. A second problem has resulted in the death of released birds in the past—young birds didn't know enough about feeding and surviving in a wild situation when reared in captivity.

When George Archibald asked me to attempt to solve these problems and prepare hand-reared cranes for life in the wild, I had only rudimentary knowledge of cranes. But I had been studying young birds and mammals for the last 20 years, with a particular interest in young primates. I had found from my studies that young mammals pass through behavioral growth periods in which they emphasize certain behaviors at specific ages. Sometimes these behaviors recur in cycles as the infant develops.

Earlier studies showed that cranes also had these cyclic periods in development. I felt that if I could introduce crane chicks to the experiences they needed at the correct times during their development, they would be more apt to develop and learn the normal

skills needed for survival in the wild. This is what parent cranes normally do while they protect their chicks from predators. I would have to find a parental substitute that looked like a crane and could teach and protect the young crane chicks.

### Problems of Imprinting

Young precocial birds — such as crane chicks, that hatch feathered and active — go through a rapid identification with their parents. Within the first day or two after hatching, they recognize their mother and will follow her in preference to all other things in their new environment. It is necessary that imprinting occurs early, or else the young chick will be confused and follow the wrong "mother." Some precocially born mammals similarly show the imprinting process. Occasionally, a newborn zebra has been known accidentally to follow a jeep instead of its mother; the nursery rhyme "Mary Had a Little Lamb" tells of a misdirected lamb that had imprinted on its mistress.

The imprinting process is certainly an important one for the young chicks' survival but it may also be important for some species later in life when they become sexually mature. At that time, if they have maintained an incorrect species attachment, they may attempt to court and breed with a member of the wrong species. This was the basis for George Archibald's famous dancing with Tex, the Whooping Crane so imprinted on humans that she showed no interest in her

own species. Such misidentification may also prove to be a problem in the cross-fostering of Whooping Cranes. The birds, after years of living with Sandhill Cranes, possibly may not recognize other Whooping Cranes as potential mates.

To combat this problem of mistaken identity, I devised models of Sandhill Cranes from cloth and feathers or used real mounted crane bodies where possible. The crane chicks were exposed to these mounted cranes, with realistic eyes and painted red head patches, for the first one to four weeks of their development. At the same time we fed the chicks through a hole in the door using puppets that resembled an adult crane head; we played brooding crane calls from speakers built into the model bodies. Thus the chicks imprinted on the crane-like models during the early, critical period in development.

At the same time or shortly following the removal of these models, we introduced the chicks to humans in a crane costume. The costume used the same puppet head and brooding call so that the chicks easily transferred their maternal attachment to this ugly costumed "mother." She was doubly interesting to the chicks because she moved and reacted to them. They quickly began to follow her when she called them.

This costume, that provided ICF staff with a continued source of hilarity, has solved the main problems for reintroducing crane chicks into the wild. The chicks identified with a facsimile of their species and could be introduced to what they needed to learn when they needed it, while still being protected from dangers during their early vulnerable period. One main question was still unanswered: would these chicks, after following such an ungainly parent, make the final reattachment to their own species when the time came for their release into the wild?

My assistants and I began taking the chicks out of their pens and into the east kettle marsh on the ICF grounds. At six to eight weeks of age, the chicks thought of little but foraging, so we wanted to introduce them to areas where they could find an ample variety of plant and animal foods. They especially liked foraging for insects and trying various plant materials. They became very excited when fed insects by the mother. They would watch intently as she pecked at a potential food source and then join her in pecking at it.

By ten weeks of age, we moved the chicks to a release site at Necedah National Wildlife Refuge located 55 miles northwest of ICF. We selected this area because it is a staging area for migrating cranes in the fall. As many as a thousand cranes may congregate here on the way to their Florida wintering grounds.



A puppet feeds the young chick in the presence of its mounted "mother." In this two parent family, the puppet provided food, while the model gave the physical contact essential for the young chick. Photo by Tom Ulrich.

## The Chicks Fly Free

By the time of their arrival at Necedah, our chicks were beginning to fledge. First they were flying over the five foot corral fence. The costumed mother encouraged flight by running and flapping her one wing. They would follow closely, sometimes rising off the ground in short flights.

They also began to show a strengthening attachment to their costumed human mother. They followed her more closely and even pecked at her body and feathers. In a sense they were regressing, acting again like small chicks even though they were now almost adult size and could fly. As they perfected their flight they made longer and longer flights in a group around the marsh, but these flights were circular with the chicks always returning back to the cage site to be with their "mother." My original fear that we might lose the chicks once they could fly, now seemed almost absurd. The chicks became so attached that it was impossible to lose them, and they were spending less time foraging on their own. We felt like harassed mothers whose pesty children would not leave us alone.

Faced with the crucial time all parents must face, we knew we must release the chicks to go on their own. We were haunted with worries about their survival, but when the chicks were three and a half months of age, we entirely removed all vestiges of captivity including the all important costumed "mother." The moment of truth for the experiment was at hand. Would the chicks now see other cranes as their own species and join wild flocks?

Almost immediately we saw short and temporary liaisons with wild birds. Sometimes wild cranes would join our chicks and interact with them. Sometimes the flights and flight calls of the wild cranes would stimulate our chicks to fly after the wild flocks. Gradually these interactions increased. A month after the "release," three of our chicks began consistently to associate with a somewhat stable flock of wild cranes.

This was an exciting time. I worked with John Wood, a graduate student at the University of Wisconsin-Stevens Point, who was following the chicks that had earlier been fitted with radio transmitters. Not only were our chicks associating and feeding with wild birds, but they were learning to fear humans as well. Once they had joined this wild flock, the chicks would fly away when we humans came closer than 100 yards. Another problem had been solved. The chicks had accepted their own species and had learned fear of humans from them.

As the weather grew colder and the fall colors brighter, two of the chicks were seen by



A chick broods in the folds of its "mother's" costume. For this older chick, the active role of the costumed human made the costume more attractive than the mounted crane model. Photo by Rob Horwich.

themselves and then disappeared from the area. Two other chicks had flown south and west. We feared they were lost and flying into an area where there were no other cranes. Our study seemed to be fast disappearing into thin air. But a week later a crane researcher called ICF to report seeing two of our chicks at Jasper Pulaski Wildlife Area in Indiana, the largest staging area in the midwest for Sandhill Cranes. Our chicks had begun the migration.

John Wood and his advisor, Dr. Ray Anderson, journeyed to Florida and searched by air for the chicks in all areas where cranes were known to winter. They could not find our birds. It wasn't until the following spring that the full success of the study became evident. In May of 1986, four of our five released crane chicks were rediscovered back in Wisconsin. They had successfully survived the winter and returned to the release area with the wild cranes. We don't know where

they had been, with whom, or what they had been doing. We do know that they have been part of a highly successful method for releasing hand-reared cranes into the wild.

### Post Script: 1986 reintroduction

In 1986 we attempted a second release with eight chicks hatched from eggs collected in Marquette County, Wisconsin. The chicks developed similarly to the chicks of the preceding year and were just beginning to fly large circles around the release site. But the final health check, that we expected to be just routine, indicated that all eight chicks were carriers of a form of Salmonella. We postponed the fall release and the chicks were returned to ICF for treatment. If we are successful in treating this problem, the birds will go into the wild next spring. Although disappointing, this delayed release will give us an opportunity to compare a spring release with the successful release of last fall.