

THE ICF BUGLE

Volume 11, Number 4 November, 1985

World Center for the Study and Preservation of Cranes



Caring for Cranes

by Lisa Hartman, Aviculturist

A day in the life of an aviculturist

As soon as I woke up this morning, I was thinking about cranes. Crane thoughts pervade my waking moments more often than coffee, newspapers, or toast. That's no surprise. I spend every day fulfilling the needs of these tall, agile birds.

An aviculturist is a person who "cultivates" birds. The aviculture responsibilities at ICF are many, shared by Scott Swengel, myself, and the Curator of Birds, Claire Mirande. While the work has year-round intrigue, breeding season is busiest and most exciting. Especially at this time, we rely on the help of interns and our volunteer chick mamas and chick papas.

Since no special attention was required by any crane, I did not have to be at work until 8 o'clock. The first thing I noticed when I arrived at the office was a panel of three red lights above the door to the aviculture lab. The lights connect to our two incubators and hatcher, and indicate that these machines are operating. The lights were on, so I assumed the eggs and hatching crane chicks had rested comfortably through the night. To make sure, I went into the incubator area to check up on things.

Checking on chicks

A calendar on the desk indicated that Red-crowned Crane egg #15-27-01 was on
continued on page 4

This *Bugle* features the management and breeding of captive cranes. Crane care involves exacting procedures, well designed facilities, and ongoing research. But technical sophistication is not enough. Aviculturists rely heavily on the intuitive bonds they develop with the birds: caring

for cranes.

ICF's programs are part of a worldwide conservation effort. Recent advances in captive management have resulted largely from the close cooperation of many individuals and institutions, all working on behalf of cranes. (Photo by Scott Freeman).

Health Care

by Claire Mirande,
Curator of Birds

When a crane in the wild becomes sick or injured, there is usually little likelihood of survival. In captivity, however, the crane's chances are much better since there are opportunities to treat the illness and protect the bird from starvation and predation. Unfortunately, a sick crane cannot tell us what is wrong, so we must watch our birds closely.

The basic foundation of all ICF's health care lies in nurturing the bonds between the aviculturist and the cranes. Careful observation of the birds twice daily enables the aviculturists to discover individual personalities and activity patterns. Subtle changes in behavior or physical traits are frequently the only clue we have that something is wrong.

We learn to watch for unusual patterns such as reduced activity, separation of a crane from its companions, or a change in the consistency of fecal material. The aviculturists have a lengthy list of "warning



Dr. Paul Howard of the Wisconsin School of Veterinary Medicine prepares blood samples for diagnostic tests. He assisted ICF with its health check for young Sandhill Cranes before their release into the wild.



The weight of growing wing feathers causes some crane chicks to develop "angel wing." Here, aviculturists gently support a Red-crowned Crane's wing with tape to ensure normal development.

signs" imbedded in their brains for daily reference.

This sensitivity to the cranes is also a key ingredient in our breeding program. Poor pair bonds can retard breeding or even result in males killing their mates. By understanding crane behavior, we can manipulate the captive environment to promote desired behavior and facilitate pair bonding.

Diagnosis and treatment

If a health problem is detected, we take action immediately. For injuries, a field first aid kit is kept well stocked and handy, and all aviculturists and interns are trained in crane first aid. For illnesses, we begin a series of diagnostic tests. The staff collects fresh fecal samples and examines them for parasites in our laboratory. We may also collect blood samples and send them out to appropriate health facilities for analysis. We place birds suspected of illness under close supervision, and may isolate them from other birds to reduce any risk of disease transmission.

Whenever possible the bird is treated right at ICF in order to reduce stress and the risk of further injury through transport. In

our new laboratory, we now screen for certain parasites, prepare blood samples, and perform basic hematological tests. Local veterinarians provide assistance with x-rays and with injuries requiring on-site care.

We are currently expanding our abilities for in-house diagnosis and treatment with the advice and assistance of the National Wildlife Health Laboratory (NWHL) of the U.S. Fish & Wildlife Service and the University of Wisconsin School of Veterinary Medicine (SVM), both in nearby Madison, Wisconsin. NWHL performs necropsies and diagnostic tests for disease monitoring and control. Because information on the health care of birds is so frequently unavailable, we regularly consult with other veterinarians working with cranes, primarily at the Patuxent Wildlife Research Center of the U.S. Fish & Wildlife Service. Their advice has been invaluable to our program.

In some cases ICF transports the bird to the SVM. Close proximity to the state-of-the-art facilities at the SVM has been a tremendous asset to ICF. We have access to teams of specialists trained in areas such as radiology, anesthesia, neurology, or cardiology. The staff at the school has been

highly interested in and supportive of our programs.

Annual health checks

In addition to daily checks, we routinely examine and screen all birds. Our Annual Health Check, held in the fall, involves about 30 people — veterinarians, vet students, researchers, ICF staff, interns, and volunteers. In one long, busy day we catch, weigh, and examine each of the birds. We trim toenails and beaks if needed and draw blood for serological screening for diseases.

The serum goes to the SVM for storage. This serum bank is a valuable tool in diagnosis of illness. Normal blood values in healthy birds have not been determined for most crane species. But when one of our birds becomes ill, we can compare current blood values to values of older samples in the blood bank to determine if key parameters have changed.

We test each of the birds at least once a year for fecal parasites. The birds are also wormed preventatively once a year. This reduces the risk of parasites becoming established and spreading through the collection. It may also eliminate parasites missed by our detection program. Whenever possible, we allow two pens for each bird or pair of birds and rotate the birds between the pens in alternate years. This ensures that harmful organisms living in the soil die off and do not reinfect the birds. One benefit of our Baraboo location is the reduction in parasites resulting from sandy soils and long, cold winters.

Cranes pose special problems

Both sexes of cranes look alike, so that sexing of individuals can be difficult. Generally, adult birds can be sexed by observing their unison call. This method, however, isn't helpful with young or unpaired birds or even with paired adults in some species. We sex these cranes by surgical examination of sex organs.

Due to dangers of using general anesthesia in birds, our cranes are usually sexed using local anesthetics or manual restraint. To help reduce anesthesia related deaths, ICF is currently working with researchers at SVM on anesthetic techniques.

"Hardware disease" has been another health problem. Cranes, due to their curiosity and probing instincts, find small metal objects in the soil in their pens and eat them! To reduce the danger of ingesting metal

objects, we periodically scan our pens with a large magnet and a metal detector. We also metal detect the birds themselves.

Because we work with such large numbers of similar birds, ICF takes extreme precautions to reduce the risk of disease transfer between cranes. Aviculturists are assigned daily to specific areas and use disinfectant footbaths at pen entrances. We quarantine all incoming birds in special pens. Aviculturists must wear coveralls and rubber boots while servicing these birds, and disinfect everything going in and out of the pens including buckets, clothing, and themselves. Such extremes — aviculturists occasionally go through several showers and clothes changes in a single day — are particularly important for ICF since we are releasing birds to the wild.

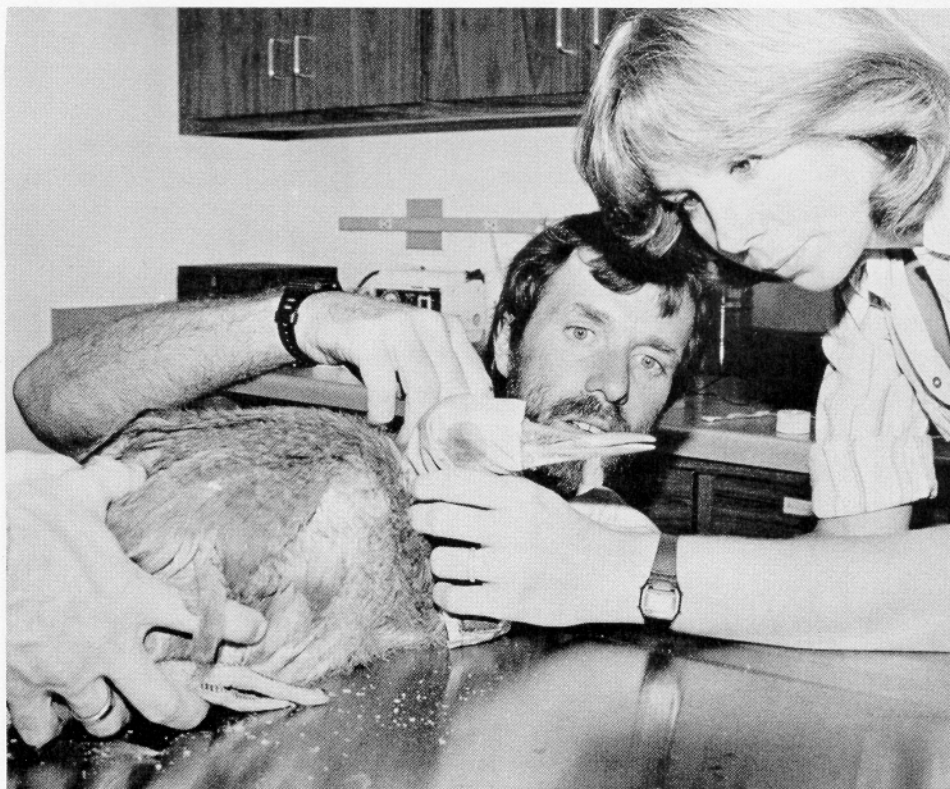
Future directions

Health care is expensive, but critical to captive breeding programs. We will continue to develop our surgical and diagnostic facilities, and eventually build a special hospital unit equipped with closed circuit

television so we can watch the birds without stressing them by our presence. In the next few years, ICF will consider hiring a veterinarian whose responsibilities will be divided between clinical care and research.

Health care of cranes is also improving because of cooperation among breeders, researchers, laboratories, and veterinarians. In the past, various centers have kept isolated case histories, providing limited information on what treatments have been tried and their success. ICF is collecting these case histories and literature references. As part of the White-naped Crane Species Survival Plan, we are compiling a medical care section for the White-naped Crane Management Protocol. This section will be distributed to veterinarians working with cranes for review, and will ultimately provide a baseline for future research and cooperation.

ICF is progressing steadily in its efforts to optimize the quality of health care we provide our birds. This progress results primarily from the staff's devotion to understanding cranes and their behavior, and to the support and cooperation of our consultants.



ICF staff examine a broken bill prior to attaching a splint. Our new surgery room provides an excellent location for performing first aid and minor surgical procedures.

Caring for Cranes

Continued from page 1

its 30th day of incubation and would soon begin the hatching process. I opened the incubator, removed this egg from the tray, and held it up to my ear. Faint scratching sounds came from within the blunt end of the egg. This sound meant that the chick inside would soon begin breathing oxygen with its lungs, rather than by gaseous diffusion through the shell pores.

In the next room, the hatcher hummed steadily. I peeked in just as Scott entered and asked, "Did he make it?" On the carpeted floor of the hatcher a Siberian Crane chick lay wet, exhausted, and newly hatched. "Looks good so far!" I answered, always glad to greet another Sibe. I made a purring sound similar to a parent crane's brood call, and the chick lifted its head. We checked him all over to make sure he was intact and healthy ... feet, legs, umbilicus, body, wings, neck, ears, head, and bill. He weighed in at 104 grams; we knew that every one of those grams would soon be running around the chick yard chasing other crane chicks.

A White-naped egg was also hatching, and a small pip-hole was visible on the blunt end. I set this egg on the table and purred to it. The egg trembled in response. The chick inside then emitted a few peeping whistles that moved the flaps of shell forming the pip briefly up and down. By

this time, Scott and I were beaming. We conversed with the egg a little longer and evaluated the strength of the chick inside. Part of the art of hatching cranes successfully lies in the ability of aviculturists to understand the hatching process and to recognize if chicks are incapable of hatching on their own. Occasionally there are chicks that need assistance. Fortunately, this White-naped Crane was doing all right.

Our next stop was the chick house. There we found the chicks wide-eyed and ready to eat. No doubt they had been waiting for us for hours. Claire was feeding a day-old Sandhill Crane, gently offering him crane starter crumbs from a red spoon. The chick was unsteady on his legs, teetering back and forth on his way to the outstretched spoon.

Eric Taylor, the chick's human papa for the morning, was busy purring to "You-yi," a four-day-old Red-crowned Crane.

"I think this guy's a little dehydrated," Eric explained, holding a spoon full of water up to the chick. Sure enough, a fold of loose skin at the base of the chick's toes — as if his socks were falling down — indicated his need for fluids. Eric's encouragement of the chick to drink was all that was needed to correct this condition. "Some chicks need to be shown what to do every step of the way," I commented.

The brooder room was full. Each of the seven brooder boxes was complete with

feather duster, mirror, carpet, food and water bowls, and a rambunctious, downy crane chick.

"We'll have to move 'Miller' out to a chick pen to make room for 'Samar,' the new Siberian Crane chick," said Scott, as he caught the ungainly Red-crowned, almost all neck and legs. In the chick pen, Miller would have plenty of room to move around.

We led the chicks out to the corral for exercise and socialization. They did not hesitate to follow when we made the familiar purring call. I looked at the legs and toes of each chick as it filed past. Because the chicks have such a rapid growth rate they sometimes develop leg problems. When a chick's middle toes are parallel to one another, the legs are growing straight and normal. I was pleased to see parallel-toes on each one.

At the breeder site

Jere Gale poked his head out of the window and told me he had thawed a sample of "Casey's" semen and that he and Claire were ready to do artificial insemination (A.I.) on the cranes at the old site. He also reported that White-naped Crane "Ise" and Sandhill Crane "Pasque" had both laid their eggs. Jere has been collecting semen from several males, freezing it, and later inseminating their mates with the thawed samples.

It is important to do A.I. early when the day is cool and the cranes are most active. We visited Ise first. Jere took the egg box, handed the syringe of Casey's thawed semen to Claire, and the three of us entered Ise's pen. My job was to catch the nest-defending Ise. She was on the nest and did not get up to greet us. Instead, she spread her wings slightly, pressed the tip of her bill into the nest grasses, and began purring loudly.

I talked to her as I stuck my foot out to entice her from the nest. As she rose and lunged at my foot, I grabbed the base of her neck and drew her into the A.I. position. Once there, I began stroking her back, in response to which she relaxed, raised her tail, and began purring. Claire inseminated her, then took routine measurements that help indicate how close females are to egg-laying.

While Ise, Claire, and I were thus engaged, Jere donned a plastic glove, snuck up to the nest and removed the egg. He placed it in the egg box and left the pen.



Siberian Cranes had never nested in captivity until ICF installed floodlights in their pens. Apparently the artificial lighting provided an essential stimulus for breeding: in the wild, Siberian Cranes nest under the midnight sun on the tundras.

Claire and I followed . . . with Ise hot on our heels. During the breeding season, the cranes treat us as intruders: they defend their pen as wild cranes would a marsh.

We entered Casey's pen then, to collect more semen for freezing. Casey stood right at the doorway, not unlike a barrier.

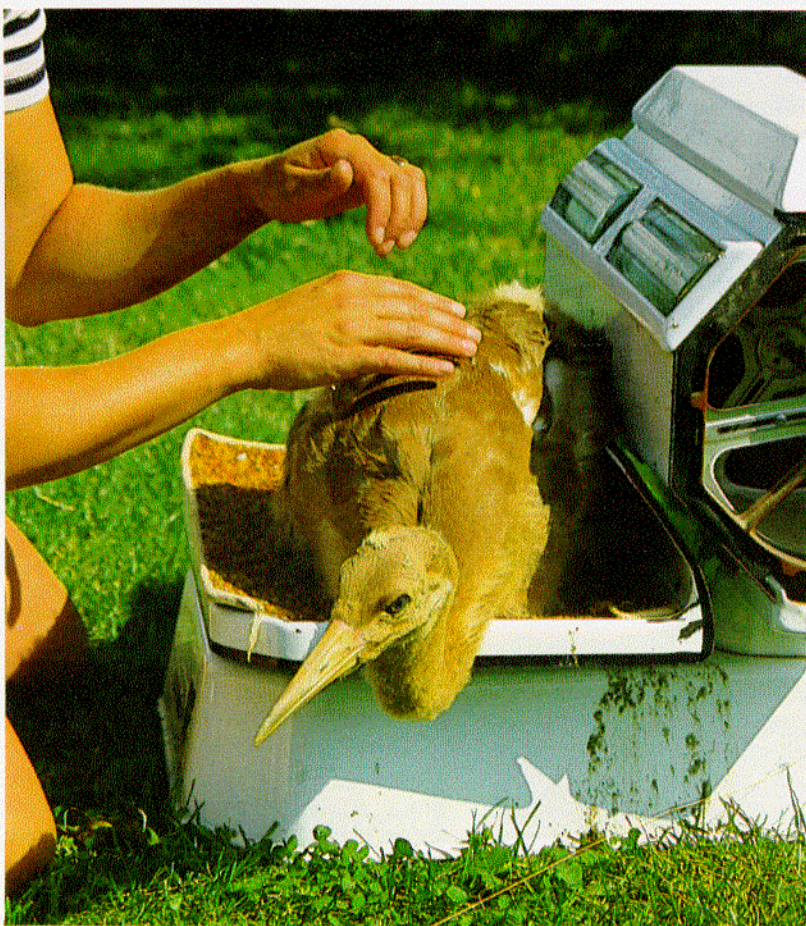
"One gets the impression he doesn't want us here," I observed. Casey threw his head back and gave a deep growl. I took this opportunity to apprehend him, impressed once again by the great strength of these delicate-looking birds. Casey has always responded well to A.I., and in four years we have collected 24.5 ml semen from him. Compare that with 0.4 ml from a Siberian Crane over the same time period. Claire collected the semen in a shot glass, drew it up in a syringe, and set it in an ice bath until we could freeze it in liquid nitrogen.

We spent the next hour collecting semen to be inseminated directly into the females, and palpated the abdomens of all the females to feel for hard-shelled eggs. We felt an egg in "Vladimiria," a Siberian that began laying eggs last year at age seven. Whenever we feel an egg in the reproductive tract, we can expect it to be laid within 48 hours.

Once A.I. was finished we had one final team project, to remove Pasque's newly laid egg and replace it with a dummy egg. She would then complete the clutch and when we were sure she was incubating well, we would replace her eggs with Siberian eggs. Sandhills do a much better job incubating Siberians than do our artificial incubators.

As soon as we entered the pen, Pasque and "Oscar" charged (this late in the breeding season, we begin to feel like Swiss cheese from all these encounters with defensive crane bills and claws). We restrained the cranes and Jere exchanged the real egg in their nest for a dummy. After fleeing their pen, we waited outside and peeked in to see if Pasque had returned to the nest. Sure enough, she stood over the dummy egg, prodded it gently with her bill, pulled a few bits of vegetation into the nest, and settled down to incubate.

Claire returned to the office with the eggs, while I joined Scott and intern Caroline Wilkinson to feed and water the adult cranes. We spot-cleaned the shavings, replenished food and provided clean water, made sure egg-laying females had ground oyster shell for supplemental calcium, and scrutinized each crane from head to toe. We recalled the playful words of a friend



Chick parents weigh crane chicks daily, so that any growth problems can be identified and corrected.

who had assisted us with these tasks, "Wherever you go, whatever you do, remember . . . there are cranes to be fed!"

Afternoon duties

After the last pen, we returned to the ICF offices just in time for the noon incubator check and egg-weighing. The eggs are weighed every other day and the weights are graphed so we can monitor the percent weight loss. Theoretically, an egg loses 13-17 percent of its initial weight through the course of incubation. Deviations from this range can result in chicks incapable of hatching due to excessive fluids or dehydration. Water loss can be manipulated by increasing or decreasing the humidity in the incubator.

I found Eric in the corral with his charges — six Sandhills, three Red-crowns, and one Siberian chick. He mentioned that "Gole" had to be watched closely. This cinnamon-plumaged, blue-eyed Siberian Crane stood quietly beside us, looking innocent, but downy feathers sticking to the tip of his bill betrayed that he'd just taken a few pecks at another chick. Miller strolled

past pecking insects from the grass. Gole darted toward him but Eric was quick and put his hand between the two chicks — never a dull moment! Eric left, and I stayed in the corral, supervising the chicks until Dave Erickson arrived for the afternoon shift.

For the afternoon we had several things going on — mostly our own research and projects. The breeding season doesn't afford much time for these tasks because of the record upkeep involved.

Caroline had taken fecal samples from all the chicks and sat down to evaluate them microscopically for parasites. Ann Boyce, another intern, was analyzing the sex ratio of ICF's cranes and its implications on reproductive management. Scott and I worked on the final drafts of papers we were submitting to the 1985 Crane Workshop Proceedings.

The last public tour of the day had come by and it was time for us to put the chicks away. Those less than 30 days old needed to be weighed, so while I held down the fort in the corral, Dave took the youngest

crane inside. Through the window of the brooder room I watched him set the chick in a bucket on the scale. I could barely see the little brown head peeking over the rim, always a favorite sight. Dave recorded the weight and calculated the change since the previous day. After the weighing, the chicks were returned to their individual pens for the night. They looked so charming and peaceful as they settled down beneath their lamps, you'd never guess they could be so feisty those first weeks of chickhood.

Scott and Caroline had gone to check the birds at the old site. I wondered if Vladimiria had laid her egg. If so, we'd have to collect some semen from her mate, "Basov," and inseminate her right away to ensure fertility of the next egg.

I found Claire checking up on the hatching eggs. The White-naped was still struggling its way out of the shell . . . such a seemingly exhaustive process. The Red-crowned Crane was still peeping away in its egg, and it would be several hours until it pipped the shell. ICF residents Konrad Liegel and Karen Atkins would check on the eggs again at 10 p.m. and call us if it seemed either of these hatching chicks needed help.

Scott and Caroline returned with the news that Vladimiria had not yet laid her egg . . . good news for aviculturists who have already put in a long day and would just as soon wait until morning to perform A.I. again. Ann reported that all was well with the cranes at the Johnson Pod. So we closed up and went home. But we always come back, for we never forget that there are cranes to be fed.

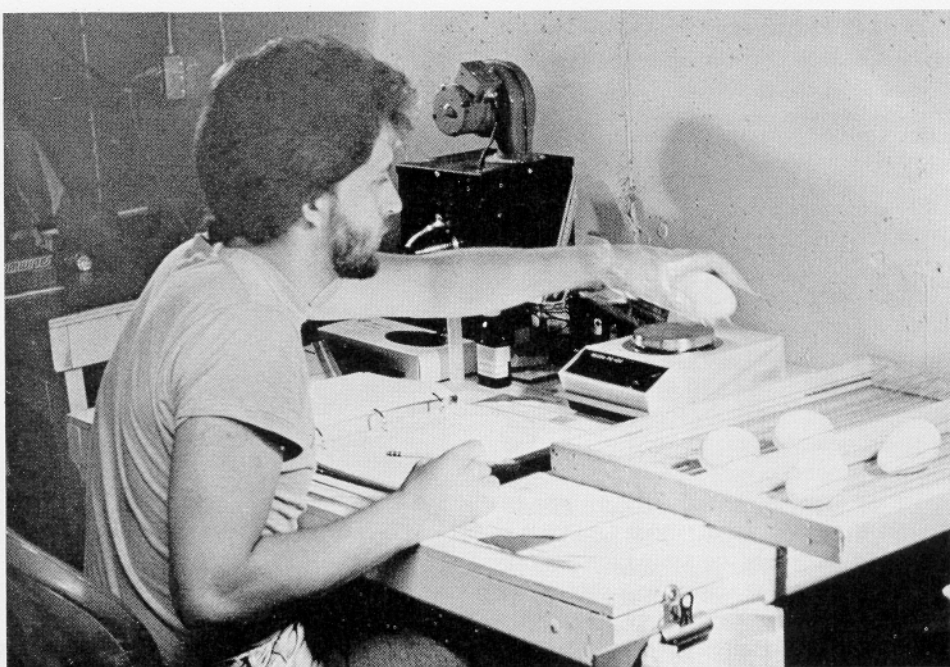
The ICF BUGLE is the quarterly newsletter for members of the International Crane Foundation (ICF). Production and mailing costs are being met by a special grant from Clairson International of Ocala, Florida. Articles review ICF programs as well as crane research around the world.

**Co-Founders: George Archibald
Ron Sauey**

Editor: Jim Harris

ICF offers memberships at the following annual rates:

Individual	\$15	Foreign	\$20
Family	\$25	Sponsor	\$500
Associate	\$100	Patron	\$1,000



By keeping careful records on egg development, ICF staff can detect abnormalities. Over the years, these records have helped us improve the conditions we provide for artificial incubation.

Update on ICF Research Projects

by Scott Swengel, Aviculturist

In our work with cranes, we often come up with questions about crane management or with ideas for improving our efforts. Sometimes ICF's accumulating aviculture records yield valuable answers or we can modify the ways we handle our birds to test possible new procedures. These research projects evolve out of the day-to-day practical challenges of crane conservation.

Artificial insemination, for example, is an essential technique because many of our female cranes do not lay fertile eggs after only natural copulation. But *when* should we inseminate? The timing is critical to our success. Aviculture records have provided excellent clues to the fertile period in female cranes.

Our records show several instances where females laid fertile eggs seven to nine days after their last inseminations. Then in 1983 we separated pairs of Common Cranes after they laid their first clutch of eggs so that the females could not copulate with their mates. We found that a female could lay a fertile egg at least 10 days after being separated from her mate.

Last year Mike Putnam, a graduate student at UW-Madison, studied egg formation in some of ICF's cranes by using ultrasound (see Mike's article "Watching Eggs Form with Ultrasound" in the November

1984 *Bugle*). The ultrasound equipment enabled Mike to see what eggs look like as they develop inside the cranes. He found that eggs begin forming about two days before they are laid, and acquire a hard shell in just a few hours. Eggs become fertilized during this short ovulation period, so we try to inseminate females shortly after they lay the first egg of a clutch.

Another way we have increased the success of our artificial insemination is by tailoring the insemination schedule to each female's egg-laying pattern. Our records show that most females have the same egg-laying schedule year after year. Our Red-crowned Crane, "Abs," for example, lays two-egg clutches at about ten-day intervals. Some cranes, like "Hirakawa," a Siberian Crane, lay single eggs at regular intervals throughout the breeding season. Our records allow us to predict when a female will lay her next egg and time her inseminations to get maximum fertility.

ICF's sperm bank will become increasingly important for our management of crane breeding. The sperm bank started in 1983 when Shirley Russman began freezing semen late in the breeding season. In 1984 Jere Gale, a researcher from the University of Wisconsin-Madison, began freezing semen at ICF as part of his Master's research (see Jere's article "Some Cold Facts About Cryogenics" in the March 1985 *Bugle*).

This year we split up several pairs of cranes so Jere could inseminate the females with frozen semen without the males being able to copulate with them. Four of the eggs

were fertilized by the frozen semen and one hatched — a Red-crowned Crane named "Cryopais" (from the Greek for "cold child").

In 1985 Jere and the aviculture staff froze 135 semen samples from six different species of cranes. This growing sperm bank will be invaluable to the genetic management of our cranes in the future.

Other ICF studies have focused on the incubation and hatching of eggs. Since eggs are such an important part of our breeding program, we keep detailed records on each egg's progress. Recently ICF Aviculturist Lisa Hartman, Aviculture Intern Steve Duncan, and Director George Archibald analyzed six years of hatching data on seven species of cranes at ICF. They described the steps in the hatching process and created tables summarizing the incubation period and the duration of each phase of hatching in the seven species. They also described our methods for helping weak or malpositioned chicks to hatch. This study will provide significant baseline information on hatching cranes for zoos that are starting crane breeding programs.

Some of our research hunches yield negative results. From 1981 to 1983, for example, we artificially cooled half of the eggs in our incubators at regular intervals to simulate the effect of the periodic nest exchanges that wild cranes make. The eggs that were cooled had the same hatching rate as eggs that were not cooled: there was no advantage to cooling the eggs.

Reintroduction could become an important tool for crane conservation. ICF's isolation-rearing study (see Claire Mirande's article "Are You My Mother?" in the May 1985 *Bugle*) is now in the experimental release stage. In mid August, researcher Dr. Rob Horwich, and his assistants John Wood, Cathy Owen, and Martha Moore moved

their isolation reared Sandhill Crane chicks to the release site at Necedah National Wildlife Refuge in central Wisconsin. They gradually reduced artificial feeding of the chicks, allowing them to adjust to natural foods.

As of early October, the chicks were flying freely and living entirely on their own. We are hoping they will join the cranes at a nearby staging area and migrate with them. Each chick wears a small transmitter attached to one of its legs. If the chicks move south, Rob and John will track them with radio-telemetry.

Studies like these form an integral part of ICF's aviculture program. The research takes time and sometimes special equipment, but provides major benefits for our conservation efforts.

Help Needed to Count Cranes in China!

February 1 - 21, 1986: ICF is undertaking an expedition to southern China to count the wintering populations of Red-crowned, White-naped, Hooded, Siberian, and Common Cranes. Ron Sauey, ICF co-founder, will lead the team and eventually join George Archibald and Jim Harris at their field camp at Poyang Lake. Ten team members can travel with Ron and interpreter-guide Dr. Rhoda Sun.

If you are interested in viewing several of earth's most important wetland sanctuaries teeming with cranes, swans, geese, ducks, storks, spoonbills, pelicans, bustards, and shorebirds, please contact Joan Fordham, Administrator, ICF. Costs for the expedition are tax-deductible.

Contributions

Received June - September, 1985

Grants and Awards: George Archibald; Mary Livingston Griggs and Mary Griggs Burke Foundation; Dellwood Foundation; Exxon; Findley Adhesives; General Services Foundation; Helfaer Foundation; Hershey Foundation; Institute of Museum Services; Johnson Controls Foundation; Kopmeier Family Fund; MacArthur Foundation; Oscar & Elsa Mayer Charitable Trust; Charlie and Mary Nelson; John Edward Nobel Foundation; Rotary Club of Baraboo; Norman Sauey; Mrs. John Stedman; Joanna Sturm; Webcrafters Frautschi Foundation; Wildcat Foundation; and Fern Young.

Patrons: Oscar and Rosalie Mayer; and Mary Burke.

Sponsors: Anonymous; Mrs. Kenneth W. Jacobs, Jr.; and Mr. and Mrs. Kenneth Nebenzahl.

Associates: Ed and Dorothy Alexander; Ida and Paul Babington; Mr. and Mrs. David Beckwitt; Judson Bemis; May Berger; Charles and Nina Bradley; Ernst Conrath; Bob and Verene Crane; Garth and Sally Dimon; Mr. and Mrs. Frederick Dohmen; Noel Dunn; Dean Fitzgerald; Bernice Roth Flanigan; Mr. and Mrs. G.W. Foster; Dr. Thomas France; Mrs. David Gamble; Harriet Gleaton; Gompers Elementary School; Sawaka Goto; Mrs. L.S. Greene; G.W. Grohmann; Mr. and Mrs. Robert Hallam; Mrs. Jean Harris; Paul Hendrick; Clare and Nancy Hutson; Industrial Coils, Incorporated; Joan Kruse; Lakeland Audubon Society; Anthony Lapham; Elizabeth Leach; Mrs. Rowland C. Levering; Miller, Brussell, Ebben and Glaeske, Incorporated; David Morton; Neco Hammond Corporation; Mr. and Mrs. Kenneth Orchard; David Pearson; Robert N. Rasmus; Campbell Read; Otto Ritzenthaler; H. Jean Rowley; Robert Sabin; Beth Schuett; William and Eleanor Schwab; Sewickley Academy; Mrs. Harry Shaw; Mr. and Mrs. David Siefert; Wharton Sinkler; Dorothy Sinykin; Charles Sivelle; L.R. Sjoblom; Mrs. Harry Steenbock; Cynthia Stewart; Yosiko Tanaka; Mr. and Mrs. Bruce Thorne; and Roger and Dorothy Wimans.

The Bottom Line

by Robert Hallam

ICF recently embarked on a capital campaign, "A Gift to the World." Of the \$3 million goal, almost two-thirds of the capital needs will be for aviculture. Of paramount importance is the construction of Crane City, a complex of 50 crane pens. We then can move our breeding flock over from the old site and expand our species bank for further research and reintroduction programs.

Our aviculture program also needs an on-site quarantine building for shipping and receiving cranes and for isolating highly contagious birds. An isolation-rearing building, erected away from the public, would greatly facilitate raising chicks for release into the wild. Other capital needs include a hospital room for treating sick or injured birds, a rare species breeding facility for Black-necked and Whooping Cranes, security fencing, and additional equipment for

the new facilities and for research.

The breeding and study of cranes in captivity is critical and costly. The capital campaign, "A Gift to the World," will have a profound effect on ICF's captive management program. As the campaign progresses, we hope you will be able to support this effort.

Crane Centers Around the World

by George Archibald, ICF Director

People have kept cranes captive as long ago as ancient Egypt. Apparently a few of these birds have bred — Plutarch mentions such nestings from the first century A.D. But deliberate, intensive efforts at crane breeding did not begin until after World War II.

At that time, Tokyo's Ueno Zoo was unable to import wild caught cranes from the mainland. Zoo Director Tadamichi Koga started a captive breeding program for cranes to maintain the captive stock. Dr. Koga noticed that when nesting cranes lost their eggs to weather or predators, the cranes renested. If the same thing were to happen after people collected the eggs, then artificially hatched them and reared the young, the production of cranes could be escalated. Dr. Koga tested his hypothesis. It worked. Today, many zoos in Japan continue to breed cranes, although in recent years new genetic material has once again immigrated from the mainland.

Intensive crane breeding began in North America after researchers with the Canadian Wildlife Service noticed that Whooping Cranes laid two eggs; both of them usually hatched, but typically only a single chick survived. Since 1966, one egg has been collected in most years from each nest with two eggs. Some of the eggs were taken to the Patuxent Wildlife Research Center in Maryland, where the U.S. Fish & Wildlife Service manages a captive flock of about 40 Whoopers to maximize production, Japan-style, furnishing eggs and birds for reintroduction schemes.

Following the examples of Japan, Canada, and the United States, ICF was founded in 1973 to help catalyze efforts for crane con-

servation worldwide. ICF has maintained all 15 species of cranes, bred 13 of them, and has sent Eastern Sarus Cranes back to Thailand and fertile Siberian Crane eggs to the USSR.

ICF's early successes were greatly facilitated by the cooperation of zoos that sent cranes to us on breeding loan. During the past decade, several zoos have upgraded their own efforts with endangered cranes. The Vogelpark Walsrode in West Germany and the Bronx Zoo and Washington National Zoo in the United States have been particularly successful. And special crane breeding centers have been established at the Serendip Wildlife Research Center (Australia), the Zha Long Nature Reserve (China), the Kushiro Zoo (Japan), the Oka State Nature Reserve (USSR), and the Sarus Center (Thailand). To minimize potential

impacts of disease outbreak or other catastrophes, the breeding centers exchange birds and thus avoid concentrating a species at a single location.

If it were not for captive cranes at the Alberta Game Farm back in 1966, my own interest in these fascinating birds might never have been ignited. Although the caged cranes cannot soar on the thermals, they are important ambassadors from the wild cranes to humanity. They are a living link through which the general public can develop an interest in these ancient creatures. Scientists answer questions using captive cranes that would be impossible to resolve in the field. And captive breeding, dependent on the cooperation of facilities and aviculturists from many countries, is another means by which the cranes help promote international goodwill.



Research and successful propagation of the highly endangered Whooping Crane at Patuxent Wildlife Research Center have greatly contributed to the conservation of this and other crane species.



International Crane Foundation

Route 1, Box 230C Shady Lane Road
Baraboo, Wisconsin 53913

Address Correction Requested

Nonprofit
Organization
U.S. Postage
PAID
Permit No. 179
Baraboo, WI 53913

