



THE ICF BUGLE

Volume 18, Number 1

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World Center for the Study and Preservation of Cranes

Solving The Mysteries Of Whooper Breeding

by Ann Burke, Aviculturist

DISCREET PRIVATE EYE needed to solve several mysteries occurring in Crane City, WI. Must be nearly invisible, and able to work with a variety of avian personalities while searching for clues.

Back in the summer of 1991, as aviculturist charged with stimulating Whooping Crane breeding, I was at my wit's end. I was ready to place an ad like the one above because of mysterious happenings at Crane City, ICF's breeding facility and home to 28 of the world's 213 Whooping Cranes. The following is an eyewitness account of events as they unfolded, and how we eventually decided to solve the mystery. If our plan works out, it will lead to better understanding of Whooping Crane behavior and reproduction. Solution of the mystery is important, because ICF hopes to produce as many Whooping Crane chicks as possible in the years ahead, to assist with the recovery of the species from the brink of extinction.

The case of the missing yolk

The first mystery began on April 7th, when Ursula became the first Whooping Crane to lay an egg at ICF since we received Whoopers from Patuxent in 1989. Before laying, Ursula and her mate Ulysses frequently engaged in unison calls and were always side by side. In the presence of humans, the temperamental Ursula would growl and approach menacingly, then scowl from the doorway. From there she would stand guard stiffly, and occasionally assert herself by giving the door a good, swift peck. These

behaviors showed the pair was confident in defending their territory and had a strong pair bond, two prerequisites for breeding.

Their first egg was abnormally small. Although cranes normally lay two eggs within 48 hours, Ursula's second egg did not arrive until 35 days later. During this interval, she became withdrawn and shy. The second egg was about half the normal size and did not contain a yolk. It's a mystery why Ursula's behavior changed from aggressive to shy, and why she produced abnormal eggs.

The case of the hatching egg

The second mystery involved a pair named Riva and Rattler. Riva laid three eggs during the season, and each egg was given to a pair of trusty Sandhill Cranes to incubate so Riva would be free to continue egg-laying. To maintain reproductive behavior, we placed a dummy egg in Riva and Rattler's nest, located inside their building. Then on May

9, the pair was given their own chick to hatch. It was peeping loudly through a small hole in the shell and moving inside as we carried it in a padded box out to the parents. After switching the real egg for the dummy egg, we observed their behavior to ensure they had accepted it and were incubating.

We wanted Riva and Rattler to raise their own chick, so it would be as wild as possible—a good candidate for a reintroduction effort planned for Florida. But parent-reared chicks have a higher mortality rate than those hatched in incubators, because they are more exposed to possible disease, injury, and bad weather, particularly during the first few weeks. The increased danger requires frequent checks, but observation proved difficult because both parents were extremely protective. Rattler seemed prepared to tear down the building if we got too close. How to observe the fragile chick was a mystery to be solved.

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Riva and Rattler, a pair of Whooping Cranes that immigrated from the Patuxent Wildlife Research Center to ICF in 1989, hatched and reared a chick named Wisconsin in 1991.

Financial Good News

by David Thompson,
Education Director

Last April, the International Crane Foundation (ICF) had its annual financial checkup, performed by a team of independent auditors. The patient was found to be in fine financial health, and still growing at an astounding rate. And now, the unaudited figures for 1991 show continuing vigor.

A thorough financial checkup looks for a number of financial indicators. The most obvious is income, and 1991 was a good year for ICF, despite the recession. The largest income category, grants and awards, was up by 20% in 1991, compared to 1990. With increased visitation and expansion of the gift shop, revenue from admissions increased by 15%, while gross sales increased by an impressive 41% to \$107,463. And despite the fall in interest rates, investment income increased by 19%. The only disappointment was a drop in contributions and fees from members by 4%. Although the number of members increased by 8%, the total amount given decreased, perhaps reflecting the recession. Overall, though, ICF's total income was up by 23% to \$1,505,487 in 1991 (\$882,129 for operations, \$504,048 for special projects, and \$119,311 for capital projects).

Excellent long-term prognosis

But ICF's checkup went beyond the good news of income to look at long-term measures of financial stability. With income having exceeded expenditures for many years, our assets have continued to grow, while debt has decreased dramatically. This past year's growth of ICF's two endowments will provide increased stability in the years ahead, making long-range planning possible.

The Ron Sauey Conservation Fund is used for support to the Ron Sauey Memorial Library for Bird Conservation, and for overseas conservation efforts. In 1991, the Sauey Fund increased to \$96,818. The Owen and Anne Gromme Fund, created in late 1990, will provide stable income in years ahead for ICF's operational expenses. Today, the fund has grown to \$188,457. Income from the endowment will be used for ICF's operational needs. All bequests to ICF are now deposited in the endowment, for investment in long-term stocks and bonds.

Growth in ICF's membership to 4,835 and visitation to 30,533 in 1991 reflects public support for ICF. Our wonderful members are an important part of the team. Members contribute more than membership fees and donations—they also help spread the word

about cranes and conservation by bringing friends to ICF, reading the newsletter, volunteering, and helping in many other ways. Together, revenue from members, tours, and sales provided 44% of ICF's operational income in 1991. Clearly, members and visitors share the whole world's enthusiasm for the tall, graceful birds.

Many solid achievements

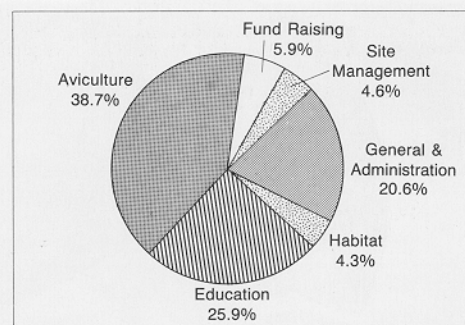
All this support from foundations, corporations, government, and members is a response not only to ICF's international reputation, but also to our solid program achievements in 1991: The Ron Sauey Memorial Library was finished, visitation increased dramatically, we published our first book (*Reflections: The Story of Cranes*), our first Whooping Crane chick since Gee Whiz fledged, and the Field Ecology Department hired a second person, wetland ecologist Rich Beilfuss, who will assist with our conservation work in Baraboo, Vietnam, and elsewhere overseas.

ICF's robust financial health will allow us to increase our effectiveness in the fight against extinction and habitat destruction. Our support is growing, but so are the conservation problems and our budgetary needs. According to George Archibald, "We saw a need that required our time and resources, we told our friends the story, and they responded by providing support, through which we could help the cranes. Each year, we face our budget with trepidation and resolve. There's an enormous amount of work left to be done. ICF must grow to meet that challenge."

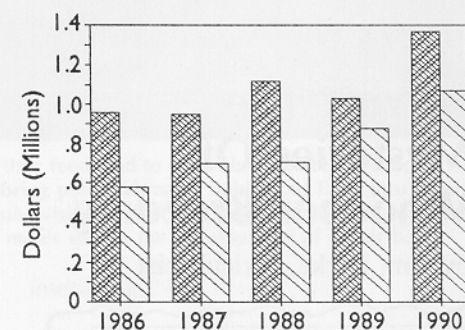
ICF is grateful to our former Trustee, James Kuehn, our current Treasurer, Tom Donnelley, and our former Administrator, Joan Fordham, for developing effective financial management procedures. Our superb Financial Manager, Terry Brooks, ensures accurate accounting and supervises sales, while Development Coordinator Bob Hallam manages advertising and fundraising. Bob helps set income goals and, amazingly, achieves them every year.

Our fundraising target for 1992 (including our first operational budget of \$1,000,000, plus capital and special projects) is \$1,717,713, a 14% increase over 1991. ICF continues to need the support of all our members. We look forward to working with you to make the world a better place!

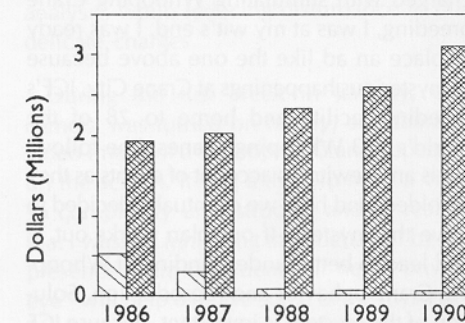
One way to help is by making a bequest to ICF. A clause like the following can be used in your will: "I give and bequest (cash or description of property) to the International Crane Foundation, having its principal offices at (ICF's address), to be used for the general purposes of the organization.



ICF's operational expenses in 1990. This chart does not include special or capital projects.



At ICF, sound financial management has kept us in the black, with expenses under income. All charts show audited figures.



ICF is in good financial health, with assets exceeding debts. Our remaining debt is a land contract with low interest payments.



ICF's financial team, from left: Terry Brooks, Linda Gerez, and Bob Hallam. Photo by D. Thompson.

New International Guest House and Training Center

by Jim Harris, Deputy Director

Two days after Thanksgiving, five people left ICF's Sauey Hatchery, and walked into the wide field on the east of ICF's property. ICF Director George Archibald and I had come out especially to accompany architect Herb Fritz, who has designed the recently completed Ron Sauey Memorial Library and most of the other ICF buildings. Accompanying George were Zachary and Natalie Scott, six and three years old, who were visiting George for the day.

To Zachary and Natalie, it must have seemed that we three adults were lost. We paced back and forth over the irregular rises and falls of the land. We had a method, however; we were choosing the location for the International Guest House and Training Center, the next building for our headquarters site. Before we had finished, George and I were carrying Zachary and Natalie. Natalie was explaining proudly that she had not lost either mitten.

"Finishing the Campus"

Locating a building always forces a long-term perspective. But ICF increasingly has gained a long-term vision for its planning. Our growing financial strength and the stability of our basic operations have allowed us to look far ahead. In 1990, we began a five-year Capital Development Program called "Finishing the Campus." The total program goal is \$1,200,000. To date, we have already obtained \$580,221 of that total in gifts and pledges.

"Finishing the Campus" focuses on two major buildings, the Ron Sauey Library (see *ICF Bugle*, August, 1991) and the Guest House. The library is allowing us greatly to expand our collections of written and photographic materials on cranes and their habitats worldwide. The spacious building offers quiet space for study, with windows looking out on the chick yard and beyond to our prairie restorations. The International Guest House and Training Center will provide simple but comfortable accommodations both for our foreign guests and our American student interns.

The upper level will consist of a central living area with kitchen, dining and living rooms, and two wings with a total of eight bedrooms for sixteen people. The lower level will have two classrooms, a training

laboratory and computer room, and four offices for our field ecology and training staff, with windows opening onto a prairie which will be established in the east field. The building will nestle into the rolling land, while on top will perch a small apartment where a staff member will live to provide site security.

Plans call for the Guest House to be constructed in late 1992 or 1993. The lower level will not be fully utilized until later; the field ecology staff will work out of offices in the lower level of the library for the next several years until our library collections expand. The classrooms, however, will find immediate use. The building will allow us to integrate both training and residence experiences for our foreign and American guests, with benefits to both programs.

The Guest House will host foreign scholars regularly, conveniently, and inexpensively. Visiting scholars will have the leisure to analyze data, explore crane literature, and interact with our program staff. The Guest House, together with the library, will strengthen both ICF's on-site and worldwide operations, allowing ICF to live up to its mission as a world center for the study of cranes.

"Finishing the Campus" has other important projects. The first to be completed was an expansion of the Cudahy Visitor Center in the winter of 1990-91, tripling the size of the gift shop, expanding our reception area to accommodate more visitors, and adding an education office. Gift shop sales have soared due to this timely investment.

Wetland will house Whoopers

ICF staff are already hard at work on planning for another project, a Whooping Crane Exhibit to be constructed in the field to the west of the Johnson Exhibit Pod. This exhibit will achieve our dream of displaying a pair of cranes in a small wetland, allowing us to teach visitors of the connections between cranes and their beautiful habitats.

Development of this exhibit will require several years of effort. This past autumn, ICF invited a landscape architecture class taught by Dr. Evelyn Howell of the University of Wisconsin-Madison to initiate planning for the exhibit. Nine students interacted frequently with ICF staff to develop plans for a wetland exhibit, an adjacent grassland restoration, an overlook for tours, and exhibit areas. During 1992, graduate student Heather Shepard, working under Dr. Howell, will design educational aspects of the exhibit.

ICF staff have discovered that, as with the Guest House, planning the Whooper Exhibit has required long-term thinking. The exhibit will be a significant expansion to our visitor offerings, and is being designed so that ICF can continue to expand visitation without compromising ICF's emphasis on tours led by well-trained and friendly guides. The wetland and overlook will be near the Pod but not too near, so that tours and visitors can spread more evenly over the site. This part of our development program provides a response to ICF's startling 42% increase in visitation since the spring of 1990.

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A model of the International Guest House and Training Center, with ICF's east hill in the background, shows the proposed facility and its location. Photo by D. Thompson

Meeting Develops Plans for Siberians

by George Archibald, Director

In mid-December of 1991, 20 crane specialists from five nations met in Karachi, Pakistan, to discuss last-ditch efforts to help the western flocks of Siberian Cranes. As the meeting convened, there were perhaps fewer than 20 cranes left on their wintering grounds in Iran and India. During the past decade, the Iranian flock has numbered 10 or 11 each winter, including one or two juveniles. In contrast, despite excellent breeding success, the Indian flock has plummeted during the same time from 38 to 6.

We met around a U-shaped formation of tables in a hotel in Sind Province beside the Arabian Sea. Each delegation shared their information, and then as a group we discussed a conservation action plan for the species. Each country will have a role:

Iran: Last spring's rumor that several of ten cranes had been killed proved false when eleven cranes returned this winter to the Caspian Lowlands. Since Ellen Tavakoli started studying these cranes in 1985, a total of 13 chicks have arrived with their parents. The adult population apparently has kept at a steady nine, including four pairs and a single unpaired adult. This constancy of adult population suggests that something is happening to the chicks after they migrate north. But it has not been proven where these cranes breed or where the young cranes go after they leave their parents in spring. To answer this



November 22, 1991, a family of Siberian Cranes and a gaggle of Greylag Geese on a wetland of the Caspian Lowlands. Photo by Mr. S. A. Motallebi-Pour of the Department of the Environment of the Islamic Republic of Iran.

question, Finnish researchers, who have successfully monitored the migration path of Eurasian Cranes, are willing to apply their skills to the Siberian Cranes in Iran. Iranian officials are now considering the proposal.

India: The decline of the famous flock that winters at Keoladeo National Park near Bharatpur has undoubtedly been a consequence of the massacre of migratory cranes as they traverse Afghanistan and mountain passes in northwestern Pakistan.

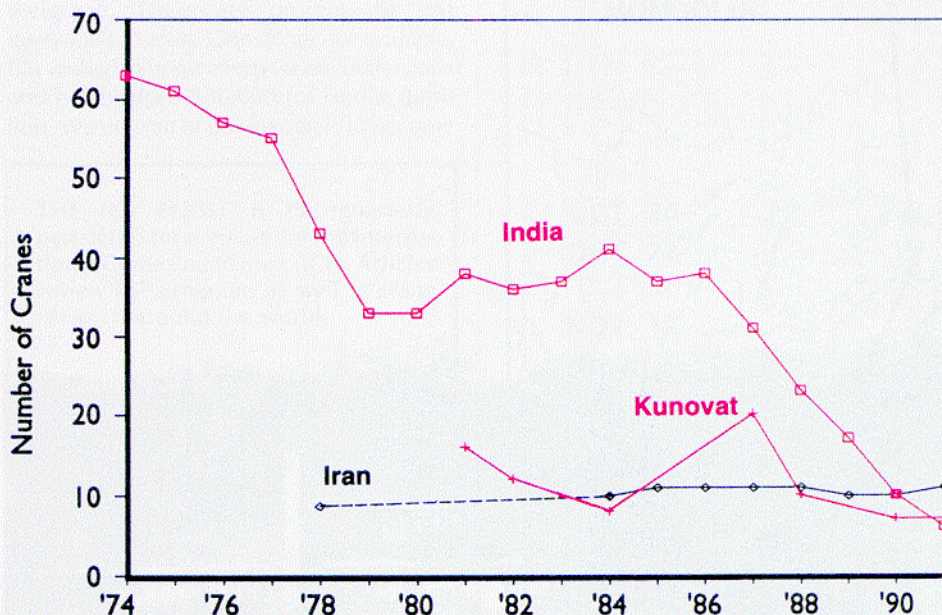
Since grazing by water buffalo was discon-

tinued in the wetlands at Keoladeo in 1982, dense growth of grasses has reduced habitat quality, possibly influencing the cranes to go elsewhere. In the winter of 1989-90, two Siberian Cranes were found wintering outside of Keoladeo. With the hope that there are more undiscovered cranes wintering at other locations, this winter Dr. S.V. Bhawe hopes to conduct aerial surveys of wetlands across the former range of the species.

Pakistan: Each spring and autumn, when thousands of Eurasian and Demoiselle Cranes migrate through passes of the Hindu Kush, the local people perform an age-old custom of trapping the cranes to keep them as pets. Tamed cranes are used as decoys; approaching wild cranes are then ensnared by weighted cords thrown into the air. Last year, with crane hunting becoming increasingly popular, more than 4,000 cranes were taken.

At the Karachi meeting, I was impressed by the enthusiasm of the Pakistani specialists. They are attempting to persuade hunters not to harm a handful of Siberian Cranes that share migration with their more abundant cousins. Along the Kurram River Valley, an important migration corridor, a crane reserve has been established where crane hunting is forbidden. Decoy captive cranes are used to encourage wild cranes to use the reserve.

Under the excellent leadership of Mr. Abeeudullah Jan, the Pakistanis hope to enforce a total ban on the shooting of cranes in areas controlled by the federal government. They also hope to encourage people in hundreds of villages that hold captive cranes to breed more cranes, and then each



The parallel declines in the numbers of Siberian Cranes wintering near Bharatpur, India, and the numbers of cranes on the nesting grounds of the Kunovat Basin, Russia, suggest that these are the same birds. The flock that winters in Iran is holding steady at 10-11 cranes. Their breeding grounds have not yet been discovered. Graph by Gordon Dietzman.



Mr. Douglas Hykle, participated in the crane discussions at Karachi. The Karachi participants decided that it was necessary to get together on a regular basis to share information and to coordinate efforts. Consequently, we hope the Government of Pakistan will serve as host for an "Agreement on the Conservation of the Siberian Crane," and that the Bonn Convention will administer the Agreement, thereby allowing specialists from the Party Nations to convene every two years, to carry out a united international conservation effort.

Now ICF must assist in drafting a recovery plan for the Siberian Crane, a document that will be distributed to the nations in which Siberian Cranes live. Doug Hykle and I then hope to visit governmental officials of the 11 "range nations," to invite them to become parties to the Agreement.

From the tundra to the subtropics, few endangered species involve so many complex conservation problems in so many countries as does the Siberian Crane. Like the Whooping Crane that over a half-century has slowly increased from just 15 wild birds to 132, let us hope that ICF, in company with the Bonn Convention and the range states, can help save the Siberian Crane.

We wish to thank the following for their generous support of Mini Nagendran's work: World Wide Fund for Nature, Luc Hoffman, and the Brehm Fund for International Bird Conservation. We also thank David Ferguson with the U.S. Fish & Wildlife Service, and the International Waterfowl and Research Bureau, for support of the Karachi meeting.

Among the most abundant of cranes, the Demoiselle Cranes feed on dry uplands when wintering in India. In contrast, Siberian Cranes are restricted to shallow wetlands. Hunting of Demoiselle Cranes and Eurasian Cranes in Afghanistan and Pakistan, together with the loss of wetlands in India, have caused the demise of the Indian flock of Siberian Cranes. Photo by Subhash Bhargava.

August to release these parent-reared youngsters in two spacious, fenced enclosures inside the Kurram River crane reserve. After becoming accustomed to their wild surroundings, the young cranes will be freed to join the wild cranes that migrate through that valley en route to India. It is hoped that these release efforts might help replace losses from hunting.

Nonetheless, Dr. Steven Landfried, a researcher who has studied Siberian Cranes in Pakistan for a decade, is making plans for educational activities aimed at local people along the migration route.

An international agreement

Under the auspices of the United Nations Environment Program, a "Convention on the Conservation of Migratory Species of Wild Animals" was initiated in Bonn, Germany, in 1983. The administrator of this convention,

Russia: Although he is leader of the Siberian Crane project, Dr. Alexander (Sasha) Sorokin was unable to attend the meeting. Mini Nagendran described her three months in the Siberian wilderness last summer, rearing to fledging three Siberian Crane chicks at a field camp located near one of the last breeding pairs of the wild Siberians. In late August, they were released to the wild but after Mini's chicks had been with the wild cranes only three days, the wild family migrated, leaving the isolation-reared chicks behind. Next year, Sasha and Mini hope to rear more chicks and release them with the wild cranes earlier, so they will have enough time to socialize before the wild birds migrate. If successful, the effort may bolster the numbers of this flock, which is believed to fly the gauntlet en route to India. Satellite transmitters attached to their backs may reveal both the route and their resting areas, information that is vital for developing education programs at critical stopover locations.

Afghanistan: The weakest link in the chain of Siberian Crane survival is uncontrolled hunting in Afghanistan, particularly in Parwan Province. The strife in Afghanistan makes any conservation efforts difficult and hazardous.



Mini Nagendran, the jack of all trades, together with our Soviet colleagues achieved the impossible by implementing in the remote wilderness of Siberia the delicate isolation-rearing procedure for cranes. Drawing by Max Sorokin. To schedule a slide lecture by Mini about her adventures, call 209-384-0766.

Guest House and Training Center

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First, the grassland surrounding the wetland exhibit will be restored. The following year will see creation of the small wetland. We hope visitors will begin to enjoy the area in one more year, although wetland vegetation will still be maturing at that time. Ultimately all tours will visit the site, to glimpse how Whooping Cranes once lived in the Midwest, and to understand the "nuts and bolts" of a functioning wetland.

Other improvements for our site

The other projects in our Capital Development Program stress the long-term safety and security of our site. Growing visitation will demand expanded parking and better access. We plan to create a new auto entrance close to the Cudahy Visitor Center, with additional parking spaces to replace the current intern lodge, which will be moved. Our present visitor entrance will become an exit only. The Capital Development Program will fund the new entrance, parking, gates, and a larger fence across the entire front of the property.

Lastly, ICF sees the need to protect certain critical edges of our property through a buffer zone. For the long life of our breeding facility, we need to assure that human disturbances or development will never disrupt the courtship of cranes. We will gradually develop our buffer zone through purchase and easements.

Currently, ICF staff and trustees are actively raising the \$550,000 needed for the International Guest House and Training Center. To date, we have \$190,224 in gifts and pledges. But donations for the other projects are also welcome. There are projects to suit everyone's interest. One donor, for example, has wished to boost efforts for our buffer zone and has pledged \$30,000 for land acquisition. We urge all of our members to become

involved in "Finishing the Campus."

As I walked across the east field with Zachary and Natalie, I thought about our 160-acre site as it had once appeared. When ICF purchased the property in 1979, it was worn-out farmland. The Sandhill Cranes migrating overhead saw just one barn, where the Hatchery now stands. Now, the migrating cranes see a half-built campus.

In the future, the migrating cranes will see the Guest House standing in prairie grass. And maybe Zachary or Natalie, college aged, will be living in the Guest House as an ICF intern. Who can guess?

Plan Now for Fourth Annual Bird-a-thon

Watch your mail in March for an announcement of ICF's Fourth Annual Bird-a-thon. Last year, participants raised over \$14,000 for ICF operations and the Ron Sauey Conservation Fund. This year, all the money raised by the Bird-a-thon will go into the Sauey Fund. Income from the Sauey Fund supports the Ron Sauey Memorial Library for Bird Conservation. Since 1989, the Fund has grown to over \$97,000.

The Sauey Library will be central to ICF's conservation work, helping to develop our knowledge of cranes, their habitats and their human neighbors. We hope you will consider participation this year in the Bird-a-thon.

Spring and Summer Programs and Trips

Starting this May 1 and extending through October 31, ICF will be open daily for members and the general public from 9 a.m. to 5 p.m. During July and August, hours will be extended on Thursdays to 8:30 p.m. Guided tours are available at 10, 1, and 3 on weekends in May, September, and October, and daily from Memorial Day through Labor Day. On Thursday evenings in July and August, there also will be a tour at 6:30 p.m.

"Special Saturdays" offer extra incentive to spend a whole day exploring the world of cranes and conservation at ICF. On the last Saturday of the month from June through September, we'll be offering a number of special workshops and tours of the cranes.

Here's a brief listing of classes or field trips: Sandhill Wildlife Demo Area, April 18-19. Birding at Horicon Marsh, 8-10 a.m., May 23. All About Horicon Marsh, 10:30 a.m.-5 p.m., May 23. Birding by Ear, 6:30 p.m., July 9, 16, & 23. All About Butterflies, July 2, 30, & Aug. 27. See the May ICF Bugle or write Rose Blada at ICF for details. Registration required.

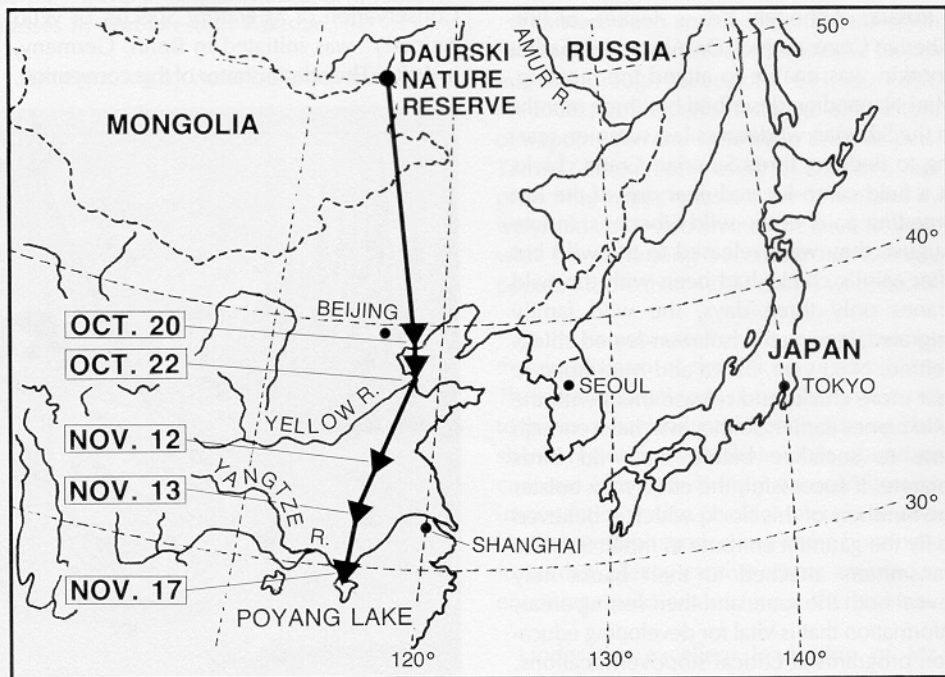
Don't forget "Wings Over the Platte" in Grand Island, NE, March 13-15, 1992. Call 800-658-3178 for details.

THE ICF BUGLE is the quarterly newsletter for members of the International Crane Foundation (ICF). Articles review ICF programs as well as crane research around the world.

Co-Founders: George Archibald
Ron Sauey
Editor: David Thompson

ICF offers memberships at the following annual rates:

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|------------|-------|---------|---------|
| Individual | \$20 | Foreign | \$25 |
| Family | \$30 | Sponsor | \$500 |
| Associate | \$100 | Patron | \$1,000 |



In September of 1991, a tiny radio capable of communicating with a satellite was attached to a White-naped Crane in Dauriski Nature Reserve near the Russia-Mongolia border. The satellite monitored the migration of the crane across China to a resting area at the mouth of the Yellow River. Finally the crane flew to the well-known wintering ground for Siberian Cranes and White-naped Cranes on the mud flats of Poyang Lake. Congratulations are extended to the Wild Bird Society of Japan and to researchers at the Dauriski Nature Reserve for this historic work.





Lufthansa Helps Keep Cranes Flying

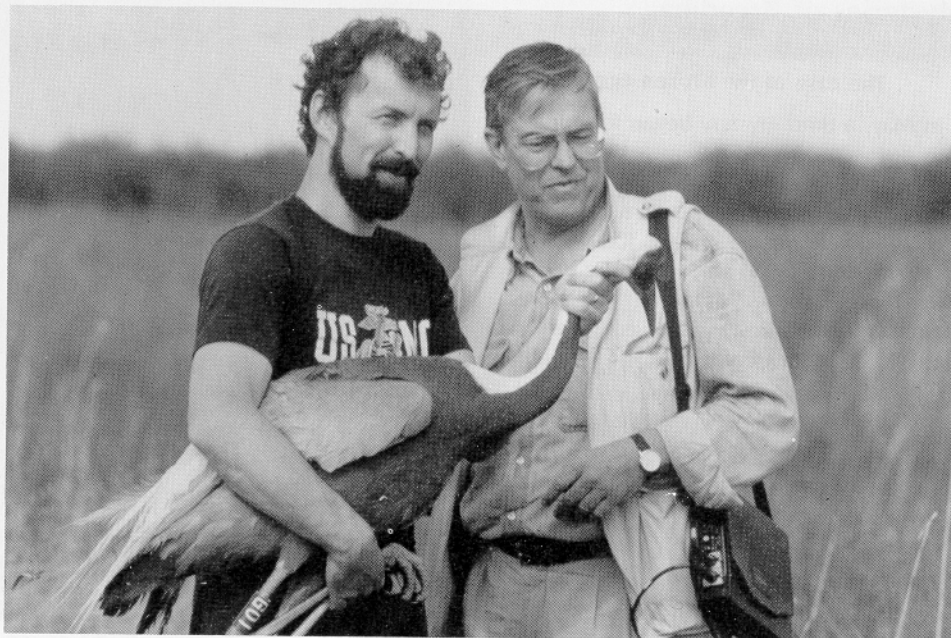
Lufthansa German Airlines, the carrier with a crane for a logo, is committed to helping the cranes. Through an annual contribution to ICF of \$25,000 in complimentary tickets, Lufthansa now carries crane conservationists through the skies of the five continents where cranes are found. Thank you, Lufthansa.

Contributions

Received October through December 1991

Grants and Awards: Donald & Letitia Archibald; George & Kyoko Archibald; Abigail Avery; Mrs. James P. Balding, Jr.; Mark Steven Barres; Tommy Bartlett, Inc.; Helen Best; Mrs. Phillip D. Block, Jr.; Joseph & Karen Branch; Buchanan Family Foundation; Chicago Metallic Corp.; Chicago Zoological Society; Victoria Cohen; Dellwood Foundation; Arthur Donald Family Foundation; Gaylord & Dorothy Donnelley Foundation; Mr. & Mrs. Thomas Donnelley; Albert J. & Flora H. Ellinger Foundation; John Erffmeyer; Findley Adhesives; Marshall & Ilsley Foundation; Chappie, Sophie & Barbara Fox; Frank Freese; Griswold Frelinghuysen; General Service Foundation; Miss Mary Griffith; Griggs Burke Foundation; Donald & Janet Groschel; Haffner Foundation; Yvonne Henze; Harry & Marion Hill; David & Barbara Houghton; The Hubbard Foundation; Institute of Museum Services; Mr. & Mrs. Kenneth Jacobs, Jr.; Walter & Louise John; Charles Krause Foundation; Mr. & Mrs. Harold Kubly; Col. Edward G. Kurdziel; Leslie Paper; John D. & Catherine T. MacArthur Foundation; Helen Mackensen; Joyce Martin; McCormick Foundation; Mrs. Hope McCormick; Michael & Susan McDonald; Charles W. Miller; National Audubon Society; Mr. & Mrs. Kenneth Nebenzahl; Neenah Foundry Foundation; Dorothy Nichols; Oshkosh B'Gosh; Fred Ott; William & Sis Piel; J. A. Puelicher; George Ranney; Juhani Rinne; James & Janet Rogers; James & Marilyn Sachtjen; Kenneth Schultz; Douglas Seaman Family Foundation; Seebee Charitable Trust; Dr. & Mrs. Richard Shannon; J. R. Short Milling Co.; Stackner Family Foundation; Joseph Stone, M.D.; Arthur Strelow Charitable Trust; Joel & Florence Teigland & Family; Stuart & Ann Tisdale; Sally Tongren; U.S. Fish & Wildlife Service; Mr. & Mrs. Jacque Vallier; Jack & Nancy Westman; Windway Foundation; Dr. Margaret Winston; Wisconsin River Power Co.; John P. Wright; Irvin Young Foundation.

Patrons: Anonymous; Mary Burke; Myrtle Busse; John Henry Dick; David & Barbara Houghton; Reinhardt & Shirley Jahn; Mr. &



Russian ornithologist Dr. Vladimir Krever, and American journalist Bill Kurtis, have just jumped from a helicopter to catch this molting, adult male White-naped Crane on the wetlands of Dauriski Nature Reserve. Kurtis Productions was filming for the *New Explorers* series, to be broadcast throughout the USA this winter.

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Mysteries of Breeding

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The case of the broken egg

In May, a third mystery began to unfold. The suspects were Fred and Wanda, a recently established pair. On May 13, Wanda laid her first egg, but to our great disappointment, one of the parents broke it. (Cranes will sometimes break eggs when they are under stress.) Because we could not risk more broken eggs, the pair was observed 24 hours a day for signs of egg-laying.

All three of these mysteries needed careful surveillance, but monitoring of behavior during the breeding season is challenging. The birds are intensely alert and easily disturbed by human activity, leading to abnormal behavior.

Observing Fred and Wanda was particularly difficult. I remember sitting on the floor of a nearby building, my legs in knots, peering through a crack in the door. Earlier that day Wanda had been nest calling, and even more encouraging, we had felt an egg in her abdomen. We knew she would lay soon. At night, Wanda was only a shadowy figure under the glow of floodlights. I worried whether I would be able to observe when she laid the egg, and whether she might break it before I could retrieve it. As she paced restlessly between the nest and pen perimeter, the minutes and hours ticked by. After six hours, Marianne arrived to take the next watch. Eventually, over the next 14 days, we succeeded in retrieving two unbroken eggs, but unfortunately, both were malformed.

Minimizing disturbance

It was painfully obvious that a superhuman observer or detective was needed, a specialist who could collect more information about pair behavior and interaction, while at the same time minimizing disturbance. That's when a new video surveillance system came to the rescue. Through funding from the U.S.



Whooping Cranes are attracted to wetlands where they feed, and to low ridges where they secure a commanding view. Using these two "magnets" to bring potential mates Bubba and Faith into close proximity, ICF built an artificial wetland along the subdivision of their pen, and also a mound of earth for Faith to stand on. Close proximity of potential mates speeds the development of a pair bond.

Fish & Wildlife Service, ICF was able to purchase this special "detective." This January, wiring for a closed circuit television system is being installed in 14 Whooping Crane pens at Crane City. The system includes cameras, television monitors, and VCRs. The cameras will enable us to record and observe the behavior of several pairs from a remote location, day or night. We hope this discreet "private eye" will help us better understand Whooping Crane reproduction, so we can improve our management of pairs and chicks.

We are especially interested in discovering what causes females to lay undersized eggs with abnormal yolks. We also want to tune in on Ginger and Napoleon (see *ICF Bugle*, February 1991) to see if chicks are in their future. We also plan to monitor other pairs to better synchronize artificial insemination with egg-laying, and to determine how well new pairs are developing and

interacting.

Closed circuit television has been used effectively with captive Pandas, California Condors, Peregrine Falcons and wild Mississippi Sandhills. It is a valuable tool which will increase our ability to take quantitative measurements of behavior, and to store large amounts of information for later analysis, while reducing disturbance to our delicate charges.

During the first week in January, one camera was turned on briefly, and the first video image of a Whooping Crane appeared on the screen. It was a thrill to have a view so completely unobstructed and to realize that I was not inhibiting their behavior by my presence. I am confident our new "private eye" will help us solve some of the mysteries of crane reproduction and help ensure Whooping Crane survival into the future.

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