

THE ICF BUGLE

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World Center for the Study and Preservation of Cranes

PIECING TOGETHER THE STORY OF AN AFRICAN FLOODPLAIN: Water, Wetlands, and Wattled Cranes

By Rich Beilfuss, Africa Program Director



Yearling Wattled Crane on the Okavango Delta, Botswana. Wattled Cranes may serve as indicators of the health of some of the great floodplains of Southern Africa. ICF Photo

"Chicks! Chicks!" Carlos yelled from his side of the plane, and suddenly they were everywhere below us. Pair after pair of Wattled Cranes, each fiercely protecting its lone chick, scattered along the western edge of the Zambezi Delta. At last, with this discovery, we had pieced together a story of this African floodplain—a story of dams, water, wildlife, people, and the

plant that links them all together. And this had led us to one of the largest known breeding grounds of the endangered Wattled Crane.

A few months earlier, ICF Research Associate Carlos Bento of the Museum of Natural History in Mozambique headed out to the delta in hopes of observing Wattled Cranes on their breeding grounds. We'd spotted many Wattleds

from the plane during our aerial surveys together-sometimes in large flocks numbering 80 or more-but had failed to find chicks or any other evidence of their reproductive success. The large, conspicuous, and surprisingly elusive birds had remained inaccessible on the ground. We knew little of their breeding or feeding ecology.

Braving crocodile-filled stream crossings and grasslands stalked by lions and leopards, Carlos and his assistants slogged for weeks through the vast Zambezi Delta. Each day they slipped slightly deeper into the nearly five hundred thousand acres of open floodplain before stopping to sleep under the infinite night skies. They followed leads from passing villagers and hunting camps, and listened sharply for distant calls. At last, they came across a lone Wattled Crane, then another, and then a flock of five birds close by. They observed the

Our cheers rose loudly above

the hum of the Cessna

propeller. As we headed back

to our base camp, we

considered our story as a

piece of a much larger puzzle.

birds for hours under the camouflage of tall grasses, carefully recording their feeding activities. When the birds moved out of sight, Carlos collected samples of their food sources and monitored soil and water conditions. Although he still saw no clear sign of chicks on his

fieldtrip, Carlos discovered something that proved to be far more important. The main food source of the Wattled Cranes was the underground tuber of the Eleocharis spike rush.

Eleocharis spike rushes are a group of emergent wetland plants that form extensive stands in many freshwater marshes. More than 200 species of Eleocharis occur worldwide, from the prairie potholes of Wisconsin to the tropical wetlands of Africa, Asia, and Australia. In tropical floodplains, species of Eleocharis are sensitive indicators of natural water level fluctuations. Each year, if flooding conditions are right, many species produce large fleshy tubers to store their carbohydrate reserves below ground. The tubers enable plants to survive the harsh dry conditions on the plains before the next flooding season.

The productivity of Eleocharis marshes in undisturbed wetlands can be astonishing. At Kakadu National Park in Northern Australia, extensive beds of Eleocharis tubers provide food for thousands of Brolgas and more than three million Magpie Geese (see ICF Bugle November, 1994). Each year, the Brolgas and geese work systematically across these floodplains, probing for tubers until little is left unturned. And each year, the natural cycle of flooding followed by the subsiding of water, until just moist soil remains, stimulates the production of new tubers and rejuvenates the Eleocharis beds.

When the hydrology of wetlands is disturbed Eleocharis and other water-sensitive species soon disappear. In the Mekong Delta of Vietnam, most of the original wetlands were lost when large canal schemes drained the delta floodplains converting the land to agriculture. In an effort to save a remnant area of Eleocharis marsh for Eastern Sarus Cranes and

other species, conservationists built dikes to trap rainwater and maintain wet conditions throughout the year (see ICF Bugle May, 1991). At first,

> Eleocharis flourished crane and numbers soared. Over time, however, the permanently flooded conditions within the dikes led to a drastic reduction in

Eleocharis tuber productivity and the plants began dying out. Not until the waters were managed to mimic natural flooding and drying patterns, using water gates, did the tubers and Sarus flourish.

The wetlands of the Zambezi Delta are at the opposite extreme of the hydrological spectrum. They suffer from too little water rather than too much. The delta floodplains no longer receive the annual pulse of floodwaters from the Zambezi River. The massive Cahora Bassa Dam captures the floodwater peak upstream and instead releases a constant, steady flow of water downstream through most of the year. As a result, mostly local rainfall rather than the

great Zambezi floods of the past now feed the wetlands. The delta is parched during the long, hot dry season. Species of shrubs and bunch grasses from relatively higher ground, intolerant of the prolonged flooding that once characterized the delta, have invaded the floodplain from all sides.

Given these changes in the Zambezi hy-

drology, we assumed that healthy Eleocharis wetlands, as in Vietnam, must be quite rare in the Zambezi Delta. Although many factors, such as soils, water quality, and fires, contribute to the distribution of vegetation in floodplains, it seemed likely that hydrology

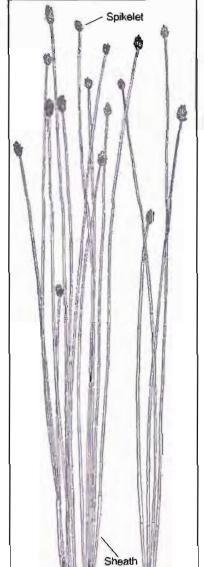
> would have an overriding influence on a plant species so clearly linked to natural flood patterns. Even if small pockets of plants occurred, certainly tuber production would be very low and the parched soil would be nearly impenetrable to probing Waitled Cranes.

Perhaps the degraded delta had already lost it's breeding Wattled Cranes. Mozambican birds could travel to Zimbabwe or Zambia to breed and return to the delta only as wintering or non-breeding flocks. Without an understanding of why the cranes disappeared, it would be impossible to know whether or not crane abundance could indicate wetland health. Another possibility was that compared to other foods, Eleocharis tubers were only a minor part of the diet. Either of these options suggested that linking Wattled Cranes to the hydrology and ecology of the delta would be difficult. But if Wattled Cranes were indeed dependent on Eleocharis tubers for their livelihood, and for raising their chicks, they could be our

We were left with three possibilities.

guides to understanding the delta. We wondered what secrets the cranes could reveal.

Across the immense Zambezi Delta, only a narrow strip of wetlands on the far-western edge of the floodplain suggested an answer. Here, small perennial streams that drain from the nearby Cheringoma Plateau fan out along



Eleocharis

Flootstock

the floodplain margin, delivering floodwater during the rainy season and maintaining high water table conditions and moist soils throughout the dry season. Even in the past, Zambezi waters only reached this part of the floodplain during years of very exceptional floods, floods so large that even the Cahora Bassa couldn't contain them. It was clearly the area of the delta least-affected by upstream dams.

Here, we predicted, was our best chance to find healthy Eleocharis stands, and our only chance to find breeding Wattled Cranes if they still existed. To test our hypothesis, we conducted aerial surveys back and forth across the entire delta. We mapped the floodplain vegetation and learned that Eleocharis spike rushes were absent from almost all of the delta floodplain. And Wattled Cranes--as well as most other wildlife-were similarly absent. But as we reached the western edge, small patches of Eleocharis appeared. The mats of deep green stalks were unmistakable in contrast to the surrounding grassland vegetation. As small patches gave way to large rings of Eleocharis in shallow water, pairs of Wattled Cranes appeared. And as our plane zoomed in lower, we spotted a chick with each pair. Bingo! Our cheers rose loudly above the hum of the Cessna propeller.

As we headed back to our base camp, we considered our story as a piece of a much larger puzzle: how best to manage the waters of the great Zambezi Delta. The fantastic populations of waterbirds and large mammals that once graced the delta floodplains have now vanished or retreated to the margin. How were they affected by the loss of the flood? The camps that once harvested the wealth of fish deposited on the floodplain by the annual flood pulse, and the crops that once extended far inland to capture the steady rise and fall of the flood, are now confined to the banks of the river's main channel. Can the retreat of people from the floodplain, like that of the Wattled Cranes, be reversed? If the cranes, wellands, and people of the delta share a common past, they may share a common future. Perhaps the first step is as simple, and as challenging, as restoring the natural hydrologic conditions that will ensure a continuous supply of underground tubers.

We are grateful to the Disney Wildlife Foundation, the John D. and Catherine T. MacArthur Foundation, Luc Hoffman, Howard Walker, Jeff Short, Sam Evans, and the Foundation for Wildlife Conservation who have shared in this discovery by supporting our long-term efforts in the delta.



Each year, almost half of all the people fiving in the United States volunteer their time and energy to assist a cause to help others, and to help solve problems that will make our world a better place. It is through this time, this energy, and these people that the future of our world is bright. The International Crane Foundation's (ICF) volunteers have extended our ability to work with and teach not only our local community, but the global community as well. Your membership alone helps the cranes, but do you ever feel like you should be doing more? The ICF volunteer corps is made up of dedicated people doing extraordinary things and you can be a part of it!

Opportunities abound for the year 2000:



Millernium Midwest Sandhill Crane Count is one of the world's largest single-species wildlife surveys and you can

make a difference by participating. Crane Count will be held April 15, 2000 from 5:30 a.m. to 7:30 a.m. New and veteran counters are encouraged to contact their county coordinator for details and site assignment. If you do not know who your county coordinator is, please call 608-356-9462 ext. 142.

Volunteer naturalists (tour guides) lay the cornerstones of our education programs by sharing the exciting story of ICF and crane conservation with children and adults alike.

Chick parents form the framework for our captive breeding program by protecting, teaching, and exercising chicks while sharing information with the public.

The Ron Sauey Memorial Library houses one of the world's largest collections of crane related literature, photographs and videos. Help is needed archiving, and organizing this collection. Learn more about the library by visiting www.savingcranes.org/library/library.htm

Managing ICF's Prairie is an on-going effort of restoration and management. Get involved and help Field Ecology manage over 90 acres of restored prairie.

And remember- meetings and special events will be held throughout the 2000 season for you, the volunteer! If you have any questions regarding our volunteer program, upcoming training, special events, or the benefits of working with ICF, please contact me at (608) 356-9462, extension 127. I look forward to sharing the ICF adventure with you... and so do our visitors!

Find out more about volunteering at ICF!

March 11th, 10 a.m. to 3 p.m.: Baraboo Public Library in Baraboo, Wisconsin. ICF will host a day of storytelling and conversation for the entire family.

Official volunteer training at ICF!

March 18th, 25th, and April 1st, 9a.m. to 1 p.m.: ICF's Ron Sauey Memorial Library in Baraboo, Wisconsin. Refreshments provided. These three volunteer training sessions will build on one another. If unable to attend one or all, don't fret, the Education Dept. is willing to work with you one-on-one.

Courtney Haggard, volunteer chick parent, tends to O'Keefe, a Siberian Crane chick. Chick parents help the chicks grow up healthy and strong by exercising them daily. They also help the public understand how chicks grow and what projects ICF is working on to help cranes survive in the wild. Photo by John Haggard.

SCYORPHOOK OF MPW

My Favorite Story about Ron Saucy

memory courtesy of Scott Swengel, Curator of Birds

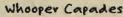
The worst wisconsin cold spell I'd ever seen before January-February 1996 was December 24-26, 1983. It was -35 to 40 degrees Feach day with wind chills as cold as -80 to -100 degrees F. None of us poor aviculturists had cars good enough to start in -35 weather. It was so cold that I drained the oil from my car and boiled it three times, each time pouring it back into the car to warm up the engine Even that didn't help. So for three days, Lisa Hartman, Scott Hereford, and I had to walk the 1.6 miles to ICF's old site. Fortunately, on one of the days Norman Saucy spotted Scott Hereford and me walking up East Street and gave us a vide to clip a mile off our walk to work.

But my story is about Ron Sawey's car, not Norm's or ows. Ron walked over to ICF on the third day of the cold spell and asked the aviculture staff to help him get his car pushed into the garage, so he could try to warm it up and eventually get it started. Always up for a winter challenge, several of us

walked back to Ron's and helped him push the car up a short stippery stope and into the gavage. SUCCESS! Then Ron showed us his breeding pair of Barn Owls in the silo above the gavage, and rewarded us with huge helpings of Christmas cookies, brownies, cake, and you name it.

It was always a blast to visit Ron's house. He had all manners of interesting items bying around and he could hold a conversation as few others can. The snacks and Ron's company were so good that we just wanted to stay there all day and pig out. After all, no one was going to check up on us to see if we had accomplished any more work that day. After two hours or so we walked back to ICF. We wished that Ron would have many car troubles the rest of the winter and that we could help him out, just as an excuse to get more snacks and priceless conversation.

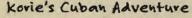
- Photo: ICF Photo Archives



Memory courtesy of Marianne Wellington, Assistant Curator of Birds

As many of you know being a pavent provides many challenges, as does the weather. Combine the two and see what fun we have! This cohort of Whooping Crane chicks being reared for velease in Florida took to voosting in water, as well as on ice. Staying free from freezing water is a survival skill that is difficult to teach. I was glad they figured it out on their own. Maybe they were ready to be on their own in Florida. For now 1 could egjoy the sight and anxiously await tomorrow when I too could join the ice capades.

- Photo by Marianne Wellington

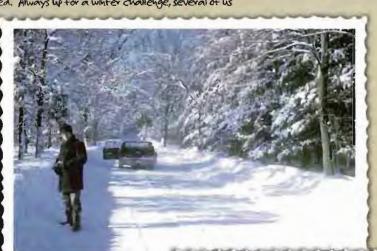


Memory courtesy of Korie Harder, Visitor Programs Coordinator

This photo was taken at the Zoological Gardens in Havana, Cuba. School children from Havana prepared an amazing program for the 1999 ICF Cuban Expedition, including singing, poetry, storytelling, and artwork, all focused on las grullas Cubana (the Cuban Sandhill Crane). ICF brought rubber crane stamps to use as a fun educational tool. As it turned out, children and adults alike left the Gardens covered with crane stamps!

Ron Meyers

Because of these children, and the friends that I made during the 1999 ICF Cuban Expedition my life will never be the same. They have left footprints on my heart! - Photo by



"Kids Say the Darndest Things!" Memory courtesy of Betsy Didrickson, Librarian

Last year at our first Crane Fest, Claire Mirande, Conservation Services Director, was stationed at the Whooping Crane Exhibit: Her experience at ICF began 16 years ago when she was hired as cwator of birds. Her talk at the Whooping Crane Exhibit was a big hit—answering questions, telling her favorite stories and educating the public about ICF's Whooping Cranes. That morning, I stopped up to see how she was doing and found her with several teeny bopper girls. She was talking solemnly about how many years it takes for a pair of Whooping Cranes to reproduce and that it takes a lot of tries to be successful. One of the girls, looking thoughtful, calmly stated, "oh yeah, that's how it was for my parents too!"

— Photo by Gordon Dietzman



Santa Claus Came to Town!

memory courtesy of George Archibald, Director

This is a photo I keep on my desk, because it reminds me of the wild day when Santa and Mrs. Claus came to town. ICF friends John and Ruth Nugent did a wonderful job spreading the holiday cheer to staff, foreign guests and volunteers. Their spirit lifted ours and reminded us how fun a visit from the Claus' can be. Thanks for bringing us the gift of laughter that day, John and Ruth!

- Photo by George Archibald

The Only kid That Would Sit On My Lap

Memory courtesy of Jim Harris, Deputy Director

Crane conservation affects, for better or worse, the lives of all people dwelling by the crane marshes. I have been fortunate to spend time with some of these families in their homes. My dreams and hopes for our natural world have been humanized by Miao Tao (seated in my lap), his family, and other friends who will never have the chance to visit my home in Wiscousin.

- Photo by Deng Yi



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Want to help? Call Deputy Director Peter Murray at 608-356-9462 ext. 153

- AG/RT600A real-motion, time lapse recorder/player (VCR) used to record and view videos of crane pairs housed in Crane City
- 2 Front loading, commercial size washing machines
- 2 Commercial size clothes dryers
- Canon GLI Digital video camera
- Auto-focus 35 mm camera
- Boombox with dual cassette and CD player
- Low-mileage van
- Quality binoculars
- Portable projection screen
- Golf Cart

Creative Generosity

In the last issue of the Bugle, we asked for a slide projector carrying case. Just last week a custom-made carrying case equipped with lens and cord holders came in the mail. ICF member, Suzanne Hall Johnson created the carrying case to fit our needs and even used some material adomed with beautiful cranes. Now our presentations will be carried in style! Thanks for your effort, Suzanne!

ICF's **Bird-A-Thon GET INVOLVED**

Last year's Bird-A-Thon raised over \$24,000 for the Ron Sauey Conservation Fund and for ICF operations here in Baraboo. Since 1989, the Bird-A-Thon has raised over \$205,000.

Please help the cranes by joining in the 2000 Bird-A-Thon. In March, ICF will mail you information about ICF's Twelfth Annual Bird-A-Thon and how you can help.

CLICK AND CONNECT

www. savingcranes .org

It's an address you can easily remember, so spread the word!

The ICF Bugle is the quarterly newsletter for members of the International Crane Foundation (ICF). Burle comments or questions? Please write me at kate@savingcranes.org or P.O. Box 447, Baraboo, WI 53913

Editor: Kate Fitzwilliams Memberships are vital to ICF. Please join

or give a membership to a friend at the folfowing annual rates:

Student or Associate \$100 Senior Citizen ... \$20 Sustaining \$250 Individual \$25 Sponsor \$500 Foreign \$30 Patron \$1,000

LOW WIND WAY WING OU



This year, three new staff members joined ICF. We are happy to introduce (from left), Tori Kaldenberg, Dietrich Schaaf, and Barry Hartup. Photo by Betsy Didrickson.

Welcome to the Flock!

Tori Kaldenberg —Aviculturist

Tori received her BS in Biology at the University of Wisconsin-Stevens Point. After graduating in 1997, she received a position as a chimpanzee keeper at the

Kansas City Zoo. Besides the general care of the 22 chimpanzees at the zoo, she concentrated on behavioral enrichment and operant conditioning. In December of 1998, she received the title of Senior Chimpanzee Keeper. When

It was ICF's privilege to receive the Certificate of the Honorable Award presented RAHTTEON by the State Committee on **Environmental Protection** (Goskomekologia) of the Russian Federation. The Certificate recognizes ICF for the many years of service and special contribution to the cause of crane conservation in Russia.

ICF's aviculturist position opened, she applied in hopes of being closer to Baraboo, her hometown. As an aviculturist, she is in charge of socializations and behavioral aspects of the flock. Tori spends a lot of her free time tending to her beloved Bitsie, a potbellied pig.

Dietrich Schaaf —Director of Education

Early in his career, Dietrich spent two years as Education Officer in Uganda's Murchison Falls National Park. His role was similar to that of a park naturalist in this country. He conducted tours for visiting school groups, upgraded a local museum, and managed the construction of a new education center. After obtaining his Ph.D., Dietrich joined the Philadelphia Zoo as Curator of Mammals before moving to Zoo Atlanta in 1985. As General Curator and later Director of Collections, he was part of a team that rebuilt Zoo Atlanta, making it one of the leading zoos in the country. Dietrich believes that creating public awareness of environmental issues like wildlife conservation is one of the most important services that ICF can provide. He looks forward to working with staff and trying new ideas as Director of Education. Dietrich is married to Cherie, and has one daughter Megan, and two sons Daniel, and Dieter.

Barry Hartup —Veterinarian

In 1986, Barry was an aviculture intern, and today he is our full-time veterinarian. He is excited about returning to ICF after 14 years and working to protect the health of cranes and their habitat. His educational background includes: B.S. Zoology, 1985; M.S. Conservation Biology, 1989; D.V.M., 1993; Ph.D. Wildlife Diseases, 2000. Throughout his academic career, Barry has focused his interests on the conservation and health of wildlife. His experience ranges from Black Howler Monkeys in Belize to the rehabilitation of native wildlife and reintroduction of River Otters in New York State. Besides working with ICF's cranes, Barry's other bird experiences include Hawaiian forest birds and the study of diseases in North American House Finches. He is married to Merri and has two daughters, Madison and Catherine.

SOAR TO THE HIMALAYAS WITH ICF!

Say Nor to E or tic hay y E

Say "YES!" to adventure in November 2000 and travel to Bhutan and either Nepal or India where the International Crane Foundation has worked for many years to help Sarus, Black-necked and Siberian Cranes. Since 1998, ICF has taken members on special two

week tours arranged by our colleagues living in each country. The breath-taking Himalayas, intriguing cultures, and spectacular wildlife amaze participants. This year George Archibald, ICF's director, will take a group of 14 ICF members to visit the cranes in Bhutan and India, and Jim Rogers, ICF veteran tour leader, will lead another group to Bhutan and Nepal. We hope you will consider joining George and Jim to meet the cranes, rhinos, tigers and other treasures of the Indian subcontinent. If you are interested in joining an experience of a lifetime in November of 2000, please contact Executive Assistant Susan Finn, P.O. Box 447, Baraboo, WI 53913, 608-356-9462 ext. 118, email: sfinn@savingcranes.org.







International Crane Foundation Photos: Right: ICF member Dr. Harold Albers meets a Sarus Crane chick in Nepal. Above: Bhutanese dancers celebrate the King's birthday and the arrival of the Black-necked Crane at their annual Crane Festival. Top Left: The Black-necked Crane appears at the Crane Festival!

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