



THE BROLGA BUGLE

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AFRICA



The Kafue Flats and Lochinvar National Park in south-central Zambia. — Map by John Wessinger

AN AFRICAN WETLAND SAFARI

by Paul Konrad

EDITOR'S NOTE: This winter Paul Konrad spent four months in southern Africa censusing crane populations, particularly those of the Wattled Crane on the Kafue Flats in south-central Zambia. His study, the first by an ICF researcher in Africa, was funded by the New York Zoological Society.

As I drove down the dusty road through the wooded portion of Lochinvar National Park, the early morning songs of Zambia's bird life filled the clear October air. The sky was cloudless, and the sun, which was just beginning to peak over the horizon, created patches of gold and shadow between the numerous acacia and baobab trees. I drove as fast as I dared along the unpaved road for I was eager to reach the Kafue Flats, one of Africa's largest wetlands, at daybreak. The Kafue Flats is a seasonally-flooded riparian plane approximately 160 miles long and up to 35 miles wide with the largest known concentration of the majestic Wattled Crane, *Bugeranus carunculatus*, the primary subject of my four month study in Africa.

The sun rose bright orange in the east as I looked out upon a thrilling sight. The Kafue Flats stretched out before me to the horizon supporting a superabundance of animal life. On a water-covered layer of thick vegetation I could see literally hundreds of Kafue Lechwe (a semi-aquatic antelope resident only on the Kafue Flats) along with great flocks of wading birds including many species of storks, herons, egrets, ibises, plovers, and others. In areas of open water, Spur-wing Geese, Red-billed Teal, Knob-billed Ducks, and other species of waterfowl were active. Along the edge of the water, a pair of Gray Crowned Cranes stalked prey.

I felt totally enveloped by the sights and sounds around me as I set up my tripod and spotting scope. I began panning across the vegetative area, my scope bringing into full view numerous male lechwe with their large lyre-shaped horns that sweep gracefully back over their necks. Around them Blacksmith Plovers, Little Egrets, and African Jacanas walked atop the thick, mat of aquatic vegetation. Moving the scope along past Goliath Herons and Sacred Ibises, I saw a familiar pair of birds — Wattled Cranes. They were feeding among a group of lechwe, their bills probing furiously among aquatic plants for tubers and rhizomes. I looked up for a moment from the scope and scanned the whole wildlife panorama before me. It all seemed like a fantastic movie. Yet, as I had repeated to myself a dozen times since my arrival in Zambia, it was real, and I was a part of this African wonderland.

This particular morning, I was counting Wattled Cranes along the edge of the Flats as part of my general census of this species in the large wetlands of southern Africa. I began at the upper portion of Lochinvar Park and worked my way south to a large lagoon. In between I checked all areas which might harbor cranes, keeping notes on the size of each group and any behavior I observed.

The approach to the lagoon is dominated by a lone sentinel, a huge acacia known to the local residents as the Mulindi Tree. Beyond this tree on the dry floodplain ringing the wetlands grazed a

large herd of zebras, perhaps a thousand individuals. Closer to the water, an even larger number of lechwe fed on the abundant plants along the waterline with scores of birds in attendance. The zebras were spooked by my approach and galloped off amid great plumes of dust.

When I reached the water's edge, I could see dozens of Wattled Cranes spread out in a large semicircular area. This was by far the largest number of these birds I had seen in Africa. I set up my telescope again and spent the next few hours observing the displays and interactions of these cranes. My favorite behavior was their beautifully fluid dancing. Usually several birds would take part in these sessions; the participants would face each other, reel about with outstretched wings, bow, and leap high into the air. Occasionally a pair or family would suddenly become airborne and fly about the lagoon, their eight-foot wings sweeping the air with short wingbeats; the

(Continued on page 3)

Winter Whoopers Top Record

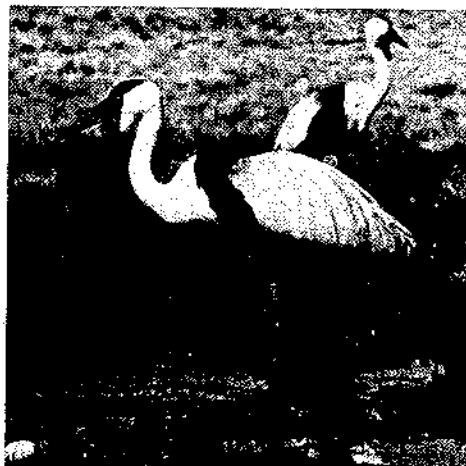
The hordes of bird watchers who took Captain Brown's boat "Whooping Crane" through the intercoastal waterways of the Aransas National Wildlife Refuge this winter were not disappointed by a paucity of the rare cranes — 74 Whooping cranes were present at the Texas refuge this year, the highest number since official counts began in 1938. This increase of 3 birds over last winter's count marks the fourth year that the Whoopers have gained in numbers. Prospects for the tallest bird in North America are now the brightest they have been since the 19th century when the Whooper's precipitous decline began.

Actually, 75 Whoopers arrived at Aransas this year, but one bird, a juvenile still in the charge of its parents, disappeared after mid-November. This chick, and another juvenile that never completed the 2500 mile Alberta to Texas flight, were the "runts" of the 1978 breeding season. They and six other juveniles had been caught and banded by Canadian and U. S. biologists last summer. While it is too early to make generalities about survival rates in smaller-than-average juveniles, the banding program for young Whoopers initiated in 1977 should make such information available in future years.

The new banding program has given us other interesting glimpses into the private lives of Whoopers. Four young cranes banded in 1977 were seen fraternizing as pairs at Wood Buffalo Park last summer, and this winter the same "pairs" were together in Texas. It will be fascinating to keep tabs on these birds to see if the pairs are sexually compatible and if they eventually reproduce. Such data may force us to alter our notions about the age at which Whoopers form their life-long pair bonds.

The banding program also revealed a remarkable adventure in the life of one of the nine young Whoopers banded in 1977. This bird apparently became separated from its parents during the fall

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A pair of Wattled Cranes at their nest. Natal, South Africa. Photo by William Barnes



James H. Kuehn



Charles W. Miller



John C. Wickhem



James R. Batt

ICF Completes Reorganization

Between two and three months of age, young cranes take their first big step toward adulthood. On a fine and windy day, the nearly full-sized birds spread their still-growing wings and launch themselves into the air. It is the start of an activity which they will soon come to master and for which their kind are justly celebrated.

Within the last six months, the International Crane Foundation has similarly completed a major step in its young existence. Last fall, ICF totally reorganized its governing body and changed its by-laws to permit an increase of its Board of Directors to 15 members. In addition, the office of Administrator was upgraded to include complete responsibility for the day-to-day functioning of ICF. We are hoping these changes will produce a more effective, more "mature" ICF in the years ahead.

The new Board of Directors includes: George Archibald, James Batt, Mary Bunke, Owen Gromme, James Kuehn, Charles Miller, Charles Nelson, Fred Ott, Fred Pullman, Norman Sauey, Ron Sauey, Willis Sullivan, John Wickhem, and Mary Wickhem. Members serve for a three year term and can be re-elected at the discretion of the Board. In the next few issues of *The Brolga Bugle*, we will introduce each of the new officers of ICF.

Two familiar names to ICF members, Forrest Hartmann and Mildred Zantow, are not included in the preceding list of Board members. Both were closely involved with ICF from its infancy and both contributed countless hours of their time and energy to make ICF prosper. We extend our deepest gratitude to them. Both Forrest and Milly are life members of ICF, and we are hoping to use their wise council often in the future.

Meet the New Board

We are happy to have this opportunity to introduce four of ICF's fourteen member Board of Directors. In Biology, diversity is often synonymous with stability. If this is true for non-profit foundations as well, ICF's new Board, as typified by the four individuals introduced here, should lend a great deal of stability and creativity to ICF.

James H. Kuehn

Jim Kuehn comes from a long line of distinguished Milwaukee businessmen. His grandfather, Otto L. Kuehn, immigrated to Milwaukee from Germany in the 1880's and promptly began a food brokerage firm. Grandpa Otto instinctively realized that while his numerous fellow-immigrants might be willing to sacrifice their homeland for the greater opportunities in the U. S., they certainly didn't want to give up their eating habits. Consequently Otto began making trips back and forth between the U. S. and the "old country" bringing smoked and pickled fish back to his German compatriots in Milwaukee.

The brokerage business prospered and Otto and his sons next acquired controlling interest

in a small cold storage company. After a few false starts, that business also prospered and grew into the largest cold storage company in the Milwaukee area. Today, under grandson Jim's guidance, Wiscold, Inc. has grown four-fold since 1964 and consists of three divisions: Wisconsin Cold Storage, Mohawk Cold Storage (both in Milwaukee), and the new Badger Cold Storage Division in Beaver Dam. And it appears the Kuehn line will continue in the business for some time to come. Jim's two sons, Doug and Dick are already co-officers in the firm.

Grandpa Otto also began another Kuehn tradition: involvement in the Milwaukee County Zoo. Whenever Otto Kuehn traveled to Europe, he made it a point to stop at the major zoos to enquire about the availability of animals for the small but growing zoo in Milwaukee. So together with herring and sardines, Otto used to return home with a small menagerie of exotic animals. Jim still remembers as a young boy watching a pair of polar bear cubs, the products of a recent trip to Europe, romping around his grandfather's office. In 1910, Otto Kuehn became the first president of the Milwaukee County Zoological Society, and later Jim's uncle, Otto R., also served in that capacity. Today Jim serves on the Board of the Society as well, the third generation of Kuehns to do so.

Jim and his wife, Jeanne, are inveterate travelers. They've been nearly everywhere in the world and the unvisited places are fond dreams. The Kuehns just returned from a trip to South America where they visited the Falklands, the Valdez Peninsula, and the Galapagos Islands. Jim even traveled for two months deep into the Amazon Forests on an expedition he financed for the Milwaukee Museum. The hardest part of the trip, he remembers, was trying to escape hordes of chiggers which were everywhere on the vegetation. One particularly hot and itchy day, Jim noticed a bunch of Indian boys swimming in a piranha-infested river. The water looked so inviting and the boys so oblivious of the savage fish that Jim removed his clothes and dove into the soothing water. The last words he remembers before hitting the water was a shout from the ichthyologist on the expedition: "Piranhas only eat white meat!"

Jim Kuehn's special interest in ICF, as one might guess, is with our captive propagation program. For the last two years he has supplied us with all the fish our captive birds can eat. He also hopes to be a part of an ICF expedition to China someday, ostensibly to see the seven crane species which are found there, but secretly because of a dream to see the Giant Panda in its home in western Szechwan.

Charles W. Miller

Charles Miller is a difficult man to categorize. Although he holds numerous degrees, both academic and honorary, from several universities and served as chairman of the Marketing Department at Marquette University, Dr. Miller also

"dabbled" extensively in business and for several years was the president of the Miller Brewing Company in Milwaukee. (Don't ask him, however, which of the Miller brothers he is. Despite his name, he is not related to the founders of the famous beer company, all of whom died many years ago. "I certainly hope I don't look that old," quips Dr. Miller to that oft asked question.)

Charles Miller is a native of Michigan, born and raised in Detroit. He enrolled at the University of Detroit shortly before the Great Depression, but the onset of that economic cataclysm prevented him from finishing his degree. The depression did open other doors, however, and soon Charles was demonstrating a talent that most academics lack: an ability to run a successful corporation. He started his business career in Appleton, Wisconsin in 1935 when he opened a food co-op. Soon, however, another cataclysm interfered with this new career — World War II.

During the war, Charles enlisted in the U. S. Navy and served in the Supply Corps where he earned the rank of Senior Grade Lieutenant. He also worked with the Civil Engineering Corps, "Seabees," in the Pacific. At the time of the war's outbreak, he married Bebe Steidel, an Appleton teacher and librarian. Fittingly, their son, David, is now a career Navy man.

After the war, Charles Miller returned to both business and the academic world. He completed his Bachelor's Degree in business at Marquette and continued his schooling at the University of Minnesota where he earned a Master's Degree and a Ph. D. in Business Administration. In 1952, Charles accepted a position as Assistant Professor of Marketing at Marquette University, and five years later he became chairman of the department.

For the next 20 years, Dr. Miller alternated between academic and business careers, and was eminently successful at both. Today, he retains an academic appointment at Marquette and remains on the boards of several large corporations.

In May of this year, Dr. Miller will travel to the People's Republic of China. He goes primarily as a tourist, but now that he is a new member of ICF's Board of Directors, Dr. Miller will also seek out new facts about China's cranes and opportunities for expansion of ICF's research into the Middle Kingdom.

John C. Wickhem

John Wickhem's occupation as a lawyer in the highly-respected Janesville firm of Wickhem, Consigny, Andrews, and Hemming, S. C. was something of a second choice. John actually started out as an animal trapper and became the preeminent "turtle catcher" of Lake Wingra. "I'd be surprised if there were any turtles left in that lake," he jokes. John was nine at the time, but his chelonian prowess was so celebrated the Greber Supply Company approached him with a proposal: could he streamline his catching

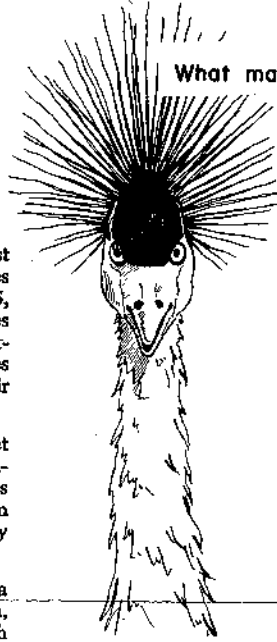
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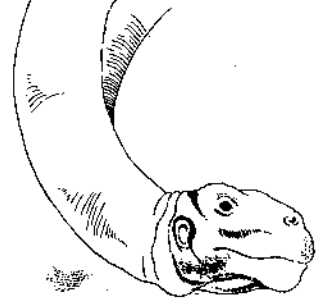
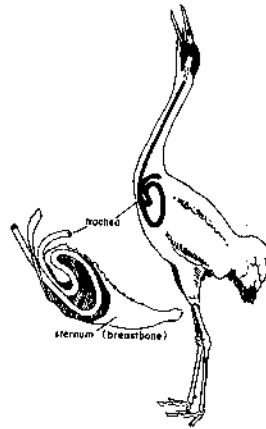
The education department at ICF has just produced a new, informative booklet on cranes called, appropriately, **CRANES, CRANES, CRANES**. This 20 page publication describes the general biology of cranes, points out interesting facts about these birds, and briefly discusses their endangered status and ICF's role in their preservation.

We are making this well-illustrated booklet available to the public for \$1.00 a copy. Members wishing to purchase one or several copies of **CRANES, CRANES, CRANES** by mail can send \$1.00 plus 40 cents postage for each copy to ICF.

We are very grateful to the Patrick and Anna M. Cudahy Fund and the Koehler Foundation, Inc. for kindly providing the funds to publish **CRANES, CRANES, CRANES**.

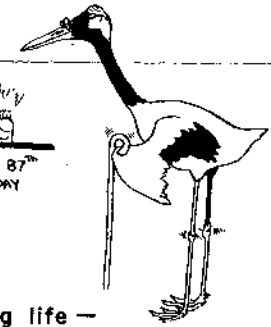


What makes a whooper whoop ?



Cranes and Dinosaurs ?

Crowned Crane - beautiful but primitive



Cranes symbolize long life -

How long do they actually live ?



Cranes are high flyers.



Winter Whoopers . . .

(Continued from page 1)

migration and never managed to find its way to Aransas to join them again. It was sighted alone on several occasions in South Dakota and Kansas and disappeared during the winter. Biologists were certain that the cold weather, lack of food, and loss of its parents spelled the end of the bird. But in some wonderful manner, the young crane made its way back to Wood Buffalo Park the next spring and was sighted by Canadian researchers. The crane, now a life-toughened veteran, successfully migrated to Aransas this year with the other Whoopers and probably spent a warmer and more comfortable second winter.

Whoopers don't arrive en masse at Aransas from Canada. This winter, for example, the first handful of Whoopers arrived in Texas in mid-October. On October 21, biologists counted 18 Whoopers on the refuge. By November 1, 32 additional Whoopers had appeared, and the full number, 74, were present by the first week of December.

Whooping Cranes migrating to Aransas from their Canada breeding grounds often stop at specific areas enroute. A study underway by Kurt Johnson of the University of Wisconsin's Wildlife Ecology Department will try to determine if certain stopping points are important enough to be designated "critical habitat" and so protected from undue disturbance by man. In a recent ruling by the newly appointed review committee for the Endangered Species Act, development of a dam along the Laramie River in Wyoming was given the green light despite protests from biologists who felt that the dam would have adverse effects upon Whooper habitat. However, the Rural Electrification Administration promised \$7.5 million for a trust fund to maintain Whooper habitat after the dam was built. This and other compromises reached between developers and conservationists should safeguard the Whoopers migration stop-overs for the foreseeable future.

Despite the continuing need for vigilance, biologists no longer talk so gloomily about the

African Wetland . . .

(Continued from page 1)

whole impression was one of delicacy despite their great size.

After totaling up the day's census I was amazed at the results - over 450 Wattled Cranes. This was in fact nearly one-sixth of the total population of the Kafue Flats according to a previous estimate made by British waterfowl expert Bob Douthwaite. From 1970 to 1973, Douthwaite conducted surveys of waterfowl along the Kafue Flats to gauge the possible effects of a hydro-electric dam on bird populations. The Iteschiteschi Dam which was completed in 1978 will cause permanent flooding of areas which originally had fluctuating water levels and in some seasons were completely dry. These natural flooding and drying cycles were important because they increased the shoreline zone of vegetation which in turn provided abundant food sources for Kafue's wildlife. Wattled Cranes may be the most affected inhabitants of the Flats because they rely heavily on the vegetative zone for their food, and, perhaps more importantly, for areas in which to nest.

Although my main task was to simply census Wattled Cranes within the Kafue Flats, I knew that many questions remained unanswered about the dam's effect on these birds. Will there be enough food for the birds during the critical wet and dry periods? Will the cranes find enough sites for nesting with higher water levels? It is still early to know the answers to these questions, but two biologists, Gerald Ellenbrock and Pete Conant are currently monitoring the effects of changing water levels on the Flats. If they can

Whooper's future and not one is ready to agree with the early 20th century naturalist Edward Howe Forbush who claimed in 1917 that the crane was doomed to extinction. In a century which has seen the demise of the Carolina Parakeet and the Passenger Pigeon, the Whooping Crane is an upbeat chapter in the otherwise bleak tale of America's declining wildlife.

continue their study over the next few years, we should eventually know how the dam will affect the Flats' flora and fauna.

As I looked out across the Flats again, some birds were off in the distance, detectable only as shimmering silhouettes beyond the rising heat-waves. Fishermen poled their dugout canoes in more open water, checking their nets periodically for the day's fish catch and pelicans lounged on the edge of a sandbar. The call of the fish eagle, so typical of Africa's wetlands, rang out at regular intervals. I reveled at the wildness of the scene and hoped these sights and sounds could continue forever in the eyes of Zambia and the world.

Aviculture Report Winter 1978-79

by Chris LaRue, Co-Curator

Two students enjoyed the Wisconsin winter weather at ICF this year. They are Sara Marshall from Lake Forest College in Illinois and Kevin Brennfleck from Taylor University in Indiana. Sara worked on a thermoregulation project, studying water consumption of cranes during cold weather. Kevin worked as an aviculturist intern learning some of the techniques used in the captive management of birds. We appreciated their work for both its scientific value and their contributions of labor while working with the cranes this past winter. We hope they benefited from their exposure to ICF and found it to be a valuable learning experience.

In an effort to improve our management practices, a study of crane diets was initiated which resulted in a new formula for our cranes' feed. Dr. Milton Sunde of the University of Wisconsin has been a great help to ICF in developing these new diets. He has formulated a new breeder diet, maintenance diet, and starter diet. We are eager to try these formulas with great

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New Directors . . .

(Continued from page 3)

technique so that he could provide them with turtles to use in their animal diets?

John worked on the problem and failed. "No matter what I tried, nothing seemed any easier than my well-mastered but time-consuming technique of sneaking up and dropping a net on them." Upon failing in turtle catching, John turned to law.

John Wickhem was born in Madison, Wisconsin. His father, John D. Wickhem, was a faculty member of the Law School of the University of Wisconsin and later served as a justice of the state Supreme Court. It was almost pre-ordained, therefore, that John would continue in his father's judicial footsteps. After serving a stint in the Pacific during World War II, John began the study of law at the University of Wisconsin. Law proved even easier than turtle catching. John graduated number one in his class in 1949 with the highest average in the history of U. W.'s Law School.

After earning his degree, John looked for a place to practice. Large firms in New York, Chicago, and Milwaukee all courted him because of his academic honors, but he just couldn't accept the thought of living in a large metropolitan area. Looking at a map one day with his wife, Mary, he decided that Janesville, Wisconsin looked like a small, clean town. Janesville it was, and John and Mary Wickhem, four children, and a long line of well-bred Labrador Retrievers have called it home ever since.

When not involved in legal matters, John enjoys the out-of-doors. He and Mary spend a portion of their time at one of two hideaways, a 190 acre weekend retreat near Briggsville, "Tree Haven," and a 2 acre island at the wild end of Lake-of-the-Woods fondly known as "Wickhem's Folly." There he and Mary hunt, fish, and observe the abundant wildlife.

John's introduction to cranes occurred in the early 60's with Owen Gromme, Wisconsin's famous wildlife painter, near Gromme's home in Briggsville. The cranes were rarer in those days, John believes, and more difficult to approach. Now, nearly twenty years later, he and Mary are sometimes thrilled to see the birds fly directly over them at Tree Haven. It is a pleasure which he and Mary, who is also on ICF's Board, are committed to preserve for their children and grandchildren.

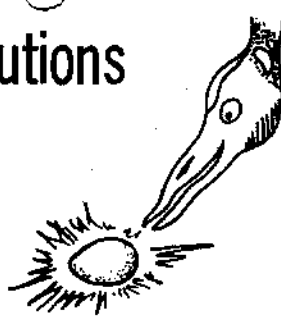
James R. Batt

Jim Batt should not find his new position as a director of the International Crane Foundation at all unfamiliar. For the last eight years, Jim has served as executive director of one of the oldest non-profit organizations in Wisconsin, the Wisconsin Academy of Sciences, Arts, and Letters (WASAL). WASAL was chartered by the state legislature in 1870 to promote research and to provide Wisconsin's citizens with information on every branch of scholarship. Jim Bratt brings to this post his own Renaissance appreciation for all forms of human learning and endeavor. He attended graduate schools at Boston University and the University of Wisconsin and holds numerous positions on scientific and educational committees throughout the U. S.

One would imagine that a person with the scholarly credentials of Jim Batt must originally hail from a cultural center like New York or Boston. No so. Jim is a Nebraskan, born and raised in the small city of Hastings, 100 miles from Lincoln. His youth was not spent immersed in Greek tragedies or modern science books, but out on the great prairies of Nebraska where he and a small group of friends would take long bicycle rides. The combination of grass, sky, and birds left a lasting impression. To this day, the sweet, flute-like calls of the Western Meadowlark or the black orange flash of the oriole flood him with images of his Nebraska boyhood. Jim retains a great interest in the out-of-doors and uses much of his free time canoeing, fishing, and botanizing with his wife Dorothy and their two children.

For the past year, Jim has co-hosted a series

Contributions



CONTRIBUTIONS TO ICF — January-March 1979

John Acomb, Dr. & Mrs. Robert Alexander, Mr. & Mrs. Harold Allen, Soren Ambrose, Mr. & Mrs. Gary Anderson, Hope Anderson (Walter Schroeder Foundation), Jean Andrews, Thomas Ashman, Mr. & Mrs. H. W. Baehr, Dr. Alice Baker, Roger Baker, James Balding, Bernice Bareta, Mrs. John Barrett, Dr. & Mrs. Paul Barrett, Mr. & Mrs. Ward Barrick, Mary Baxter, Karen & Larry Beach, George Becker, Elizabeth Beinert, Doris Belknap, H. R. Bird, Mary Anne Bishop, Chris Blakeslee, Andria Blattner, Gretel Bollas, James Bond, Barbara Ann Barman, Bower City Garden Club, Donald Brace, John Brakefield, Richard Brakefield, Ann Brodie, Iain Brodie, Howard Brokaw, Ray & Eleanor Brown, H. D. Bruhn, Richard Brune, Mary Jane Bumby, Betty Bunge, Kjell Bylin;

Emily Campbell, Library-Canadian Wildlife, Irma Chipman, Margaret Clark, Sandra & Robert Collins, Committee for the Preservation of Wildlife, Louise Connors, Ronald Crate, Mrs. George Croft, Dr. R. S. Cran, Rhoda Dadian, Jane Daniels, Deryck Day, Elizabeth Deakman, Bruce De Long, Ronald Devey, Dickerson Park Zoo, Philip Dickert, Bernard Dickinson, John Dick, Emily Dodge, Mary Daering, J. Doherty, Philip Doncheck, Rod Drewien, Kenneth Dubke, Cleo DuBois, Florence Edwards, Ruth Edwards, Robert Elgas, Wendy Eliot, Thomas Ellis, Mr. & Mrs. Fred Engelke, Laura & Russell Erickson, D. L. Evans, Co., James Farrar, Jeannette Feldballe, David Fenner, Thomas Fifield, Dennis Fisher, Fisheries & Environment — Canada, Dr. Jurgen Fohlmeister, John M. Forester, G. W. Foster, Jr., Clara Fountain, Osmon Fox, Warren & Sharon Gaskill, Lucy Gemlo, Theodore Glass, Dr. & Mrs. B. H. Glover, Verne Goodenough, Steve Graham, August Grams, Grede Foundation, James Griffin;

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Mrs. T. C. Kammolz, Don & Cynthia Karaker, John Kaspar, Karen Keil, Dr. Alan Keitt, Dr. Aligimantas Kelertas, Dr. & Mrs. C. B. Kepler, Ronald Kimbell, Priscilla Kimberly, Betty King, R. M. Kink, Warren King,

of programs for Wisconsin Educational Radio's "Wisconsin Hear and Now." Characteristically, Jim chose widely-varied topics and treated them in a novel fashion. On his spelunking program, Jim travelled deep into the earth and nearly got stuck when his tape recorder became wedged between himself and the cave ceiling. For an interview with Francis Hole who demonstrated the use of the violin for identifying soil types, Jim chose music from Rogers and Hammerstein: "All the sounds of the earth are like music . . ." Jim still has one idea for a radio show which he has yet to pull off. He wants to jump out of an airplane with a tape recorder and document for his listeners what it's like to "bail out" for the first time.

Three years ago during a visit to his home in Nebraska, Jim saw thousands of enormous birds wheeling in the sky above Interstate 80. They were Sandhill Cranes and he was struck by the incongruity of the sight: modern highway and ancient birds. Yet Jim, himself a combination of pragmatist and romantic, believes that modern man and ancient crane can coexist. He therefore welcomes the opportunity to work with ICF and help make his conviction a reality.

Shirley Kapperich, Norris & Sarah Klesman, Terrill & Lois Knaack, Edith Knutson, Norma Kolthoff, Nancy Krueger, Ernie & Dolores Kuster, Dr. Howard Lee, Lillian Leenhouts, Thomas Legerer, William Levihn, Irene Lindhe, Gregory Lochen, Ken Loehlein, Don & Peg Loomis, Louisville Zoological Gardens, David MacEachron, Frederick MacMillin, W. K. Macy, Jr., Madison Audubon Society, Eugene Majerowicz, Katherine Marrs, Steven Mawer, George & Sharon McArthur, Joel McConnell, Mrs. Edmund McGarry, Mark McKeough, Hugh McMillan, Sr., Mr. & Mrs. Jerry Mertz, Charles H. Miller IV, Mary Miller, Philip Mills, Paul Monaco, D. L. Mossman;

Goda Nakanishi, Clarence Napper, Myra Niemeier, William Offenkranz, Malven Olson, Robert O'Neill, Oshkosh Bird Club, Lucille Oston, Larrie Otto, Joe Park, Allen & Mona Paschen, Evelyn Paterson, Robert Patke, Pauley Petroleum Inc., Dr. & Mrs. Ben Peckham, Mr. & Mrs. Silas Pellar, Jan Pennington, Roger Peterson, Laurence & Janet Pheaps, Pauline Phillips, Mr. & Mrs. William Piel, Dr. Philip Piper, Frank Plate, Daris Platt, E. A. Purtell, Michael Putman, Glenn Quale

Verna Radtke, Marilyn Randall, Mariana Remple, Marion Rice, Russell & Kay Rill, Charles Ritzenthaler, Catherine Rivard, Oral Robbins, Ronald Robbins, Robert & Alice Roeming, Bernadette Roubal, Mr. & Mrs. Gerald Ryalis, Jerome Seaman, St. Louis Zoological Park, Edward Schafer, Rosemary Schindler, Mr. & Mrs. Norbert Schmitz, Fay Schaenemann, Mrs. A. C. Schreiber, W. L. Schultz, Werner Schumann, Lorne Scott, Trudi & Walter Scott, Sheldon Severinghaus, Thomas & Regina Shea, L. A. Shelton, Arthur Singer, Stan & Karen Skutek, Joe & Marlys Sloup, Clara Sadke, Walter Spofford, Spring City Garden Club, Alexander Sprunt, Donald Squires, Martin & Nancy Stabb, Richard Stanley, Halberta Steensland, Walter Stein, Jacquelyn Steinberg, Steinman Lumber Co., Joel & Caryn Stone, Toby Styles Elizabeth Swab;

Wm. & Charlotte Taylor, Frank Terbitcox, William Threy, John & Isabel Thompson, Mrs. H. W. Thornburg, John & Vivian Tibbitts, John Toepfer, Mr. & Mrs. Fumihiko Togo, Alan Tracy, Robert Tracy, Adeline Trella Stanley Tressler, Donald & Kathryn Trull, Lloyd Ure, Raymond Van Kylan, Harry Vogts, R. & M. Willson Von Neumann, Martin & Karen Voss, William Webster, Randall Weems, Mrs. Howard Weiss, Mark Waldon, Thomas Wember, Dr. Wallace Wendt, Philip Whitford, Charles Wisniewski, Eugene & Marlene Woshler, Sandy Walens, Scott Wood, Charles Worzala, C. W. Wright Foundation (Badger Meter), Duane Wright, Crane Wright, Ruth & Oliver Wynn, Chandler Young, James & Susan Young, J. O. Young, Tad Yukawa, Robert Zabkowicz, Mrs. Edward Zieve, Theodore Zillman, Carol Zuroske.

LIFE MEMBER CONTRIBUTIONS — January-March 1979

Closet Maid Corp. (Donald Sauvey), Johnson Japan, Johnson Wax, Charles W. Miller, Vogelpark Walsrode (Wolf Brehm).

CONTRIBUTIONS OF LABOR AND MATERIALS

Baraboo Valley 4-H, Harold Bessac, Bill Dreischmeier, Elaine Gasser, Fran Hamill, Bob Hill, Charles Jahn, Sharon Lantis, Dr. Marjorie Leach, Dorothy Mudd, Neil Peterson, Dr. Burton Russman, St. John's 4-H, Steve Schmidt, Don Stevens, Dr. Marvin Westerfeldt, Milly Zantow.

Aviculture Report . . .

(Continued from page 3)

expectations for the nutritional health of our cranes.

In another cooperative effort this winter, we have started a research project on the freezing of crane semen for long term storage. This exciting study has been initiated through the generous cooperation and support of Dr. John Sullivan and Dr. Marvin Pace of the American Breeders Service in DeForest, WI. The study will follow closely the work of Dr. George Gee of the Patuxent Wildlife Research Center.

Although the winter snow cover prevented any major construction work, we were able to build one new building in early spring. The new 15'x30' double stall barn built near the main breeder unit will house the chicks which hatch this year. The construction of the building was contracted out while ICF's versatile staff built fences and gates for the new non-breeder pens.

The International Crane Foundation is a registered, publicly-supported, non-profit organization which is dedicated to the study and conservation of cranes throughout the world. Saving cranes saves earth's vanishing wetlands.