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The Whooping Crane Conservation Association (WCCA) dedicates this issue of Grus Americana to Mary Courville for her years of outstanding service. Mary served as WCCA Secretary/Treasurer for many years and always finds ways to support whooping crane conservation. Perhaps one example of Mary's enthusiasm took place in Wood Buffalo National Park, Canada in the early nineties. Not only did she help arrange for the WCCA meetings but Mary and her family prepared a Louisiana style meal of *crawfish etouffee* for the WCCA in the park. Mary and her family continued the work begun by her dad, Johnny Lynch. They have been and continue to be dedicated supporters of Whooping Crane conservation and recovery. Thank you, Mary.

Wood Buffalo/Aransas Flock

Update on Nesting Season in Wood Buffalo National Park

7/1/09: "Lea Craig-Moore and Kathy St. Laurent have completed the breeding pair surveys in Wood Buffalo National Park and surrounding area. Habitat conditions were good, with water levels being higher than normal. The spring was slightly later than average and the northern portions of the nesting area still had a number of snow banks and some frozen wetlands. In total 61 nests were discovered, only 5 fewer than the all time high of 66 in 2008. Another 22 pairs of cranes were observed, half of which have likely bred in previous years and the remainder were subadult pairs"

8/25/09: "Kathy St. Laurent and I completed surveys for fledgling whooping cranes and found 22 family groups, each with a single young. Habitat conditions were excellent with water levels higher than I have ever seen them at this time of year. In order to achieve these high water levels a much higher than average amount of rain fell during June (113.6mm or 2.5 times normal) and July (86mm or 1.5 times normal). Although the rain was welcome it came at a time when the young were still vulnerable to cool wet conditions and may have contributed to the lower than average survival of chicks to fledging age (0.35 chicks/nest vs 0.47). The high water levels will however, ensure that spring 2010 conditions are favorable. Given the number of young produced this year and the number of adults and subadults that were lost last winter, the population will decline in 2009".*****Brian Johns, Canadian Whooping Crane Coordinator******

Brian Johns Announces Retirement in a Letter to Colleagues 8/6/09

It is with mixed feelings that I write this note. As some of you know I have had a very enjoyable 36 year career with the Canadian Wildlife Service. My first day on the job was May 1, 1973. Over the last 3.5 decades I have had the opportunity to work on whooping cranes, sandhill cranes, loggerhead shrike, grassland and boreal songbirds and even the odd duck. It has all been fun. There is no perfect time to go, however I have been contemplating retirement for a while and am thinking that the time is near for leaving government and forging ahead. In preparation for that, Lea Craig-Moore has been conducting the surveys this summer. Not being in the field earlier this year has allowed me to celebrate my anniversary at home with my wife Dianne and see my apple trees in blossom. This is something I haven't had in a long time. I will still be doing the fledging success surveys later this month.

The Aransas/Wood Buffalo cranes have had a tough year but in my experience they are not only beautiful creatures, they are resilient and have gone through adversity before and came out strong. Hopefully this is just another one of those periodic dips in their 10 year cycle. This doesn't mean that we can be complacent; we must still remain vigilant in our efforts. A total of 62 nesting pairs have been found this summer, only 4 fewer than the all time high.

I have learned so much from the cranes and all of you who care so much about them. My days in the field and at meetings with you have been inspiring. Thanks for your dedication to whooping crane recovery and support over the years, it is truly appreciated. I especially want to thank Tom Stehn, Lea Craig-Moore, Jim Bredy, Kathy St. Laurent and my friends and colleagues in Fort Smith. Thanks also to my friends and colleagues with Canadian Wildlife Service, US Fish and Wildlife Service, US Geological Survey, Parks Canada, Governments of Saskatchewan, Alberta, Manitoba, Northwest Territories,

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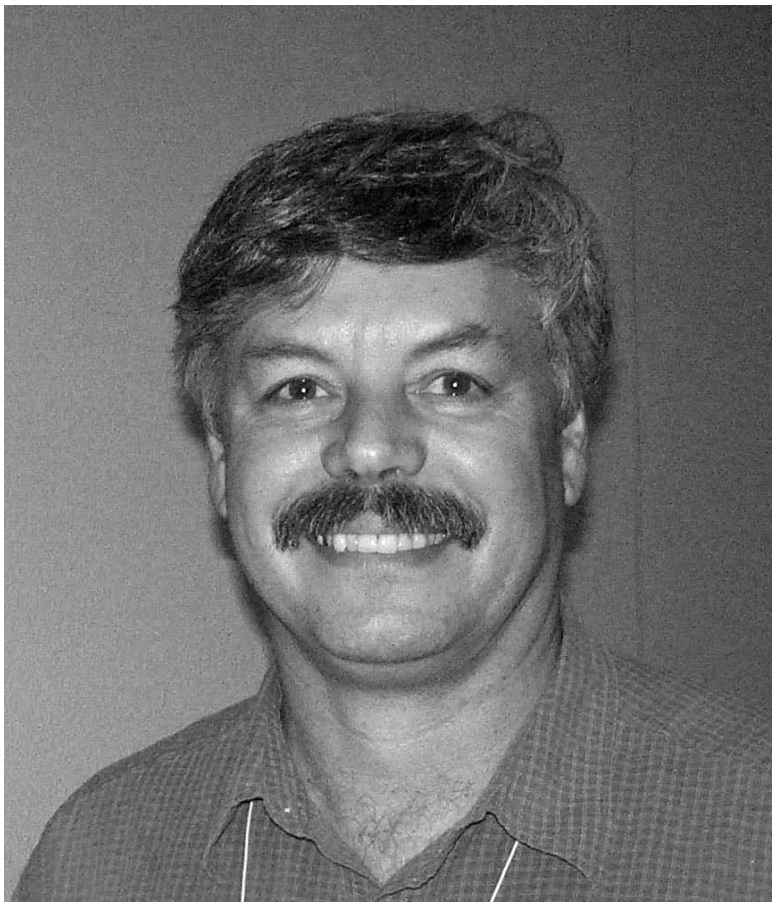
Florida, Wisconsin, Calgary Zoo, International Crane Foundation, Patuxent Wildlife Research Center, Platte River Trust, Species Survival Center, Whooping Crane Conservation Association, Operation Migration, the Whooping Crane Eastern Partnership and all those that I have had the opportunity to work with over the years. Thanks again!**** *Brian Johns, Canadian Whooping Crane Coordinator*****



Brian Johns of the Canadian Wildlife Service.

A Proposed Telemetry Study of Aransas-Wood Buffalo Whooping Cranes

In the winter of 2007-2008, a record 266 birds wintered on the Texas coast. However, the fall migration and winter of 2008-2009 were the worst on record in regards to Whooping Crane losses. Thirty-four Whooping Cranes were missing between breeding grounds and wintering grounds surveys and are assumed to have died between spring and fall of 2008. Before the start of spring migration in 2009, an additional 23 cranes were missing and are assumed to have died in Texas. Therefore, a total of 57 Aransas-Wood Buffalo population (AWBP) cranes may have died over a 12-month period, or 21.4% of the flock of 266 present at Aransas in the spring, 2008. Of these 57 assumed mortalities, only 4 were recovered, all in Texas at Aransas National Wildlife Refuge (Aransas). None of the cranes that were lost during migration were recovered.

Most mortality for fledged and adult AWBP Whooping Cranes occurs during migration. Mortality over the summer and winter months is, in general, infrequent. Even in winters such as the last one in which there was a record loss of Whooping Cranes on the wintering grounds, there were still more losses on migration. Therefore, the migration period is the only period where mortality is relatively high in most years. Unfortunately, there is very little information on what the causes of mortality are or where they occur along the migration route. Documented causes of mortality on migration include collision with power lines, shooting, disease, and

predation. However, even combined, these known causes of mortality on migration are only a fraction of all known mortality that has occurred since records have been kept. It is clear that more detailed information is needed to better understand the causes and location of mortality throughout the migration corridor.

The Whooping Crane Recovery Plan (WCRP) listing/recovery factor E, Task 1.3.3 calls for the threat of collision with power lines to be analyzed and actions developed to minimize losses. Better information on the migration behavior of Whooping Cranes in relation to power lines and other threats will allow us to better protect important stopover areas along the migration corridor in order to enhance the possibility that cranes survive the migration between breeding and wintering grounds. Understanding migration ecology and threats to Whooping Cranes during migration has been considered a priority of the Whooping Crane Recovery Team for several years. The WCRP in Task 1.3 specifically calls for the use of telemetry technology to identify areas of high crane use and potential problems with power lines.

The overall objective of the proposed telemetry project is to gain a better understanding of Whooping Crane migratory ecology and behavior during migration with the use of Global Positioning System (GPS) and radio-telemetry technology. Specifically, we want to a) gain a better understanding of stopover areas, habitat use patterns, and factors influencing habitat use at different spatial and temporal scales, b) define a current migratory route to compare to previous route models and determine environmental and anthropogenic factors that influence migratory behavior, c) identify causes, locations, and conditions of actual or potential mortality, and d) expand current knowledge of winter and breeding ground use through high resolution GPS technology.

All trapping activities will follow established Whooping Crane safe-handling guidelines. Only experienced crane biologists and veterinarians will be trapping, holding, and examining the cranes. A general health assessment will be performed on each captured crane. The findings from these health assessments will have significant implications for the AWBP and for potential future reintroduction efforts. At each capture event, decisions will be made as to which actions will be performed based on an assessment of the bird's condition and response to capture and handling.

We will trap hatch year birds before fledgling age on the breeding grounds in Canada with the use of a helicopter as was done in the 1980's telemetry study. However, this method targets only hatch year birds and does not include any after hatch year birds. Therefore, we will attempt to capture all age classes on the wintering grounds at Aransas using snare leg traps, with the focus on capturing white (subadult and adult) birds. The most likely scenario is to attempt to trap Whooping Cranes in and around the freshwater ponds they commonly frequent during periods of high water salinity in the marshes. This technique has proven very successful with Sandhill Cranes in Cuba, and there have been no injuries or mortality events due to trapping. We may also attempt to trap cranes with snares in burn areas, as they frequent these for several days after prescribed burns are conducted, and at feeders, as they were documented using these in winter 2008-2009 (see May 2009 issue). We will attempt to capture and attach PTTs to up to 20 cranes per year, 10 hatch year birds and 10 after hatch year birds, for three years. We believe that in order to get a more thorough understanding of the migratory behavior of Whooping Cranes we need more age and social cohorts represented in the telemetry study.

All trapped birds will be fitted with a solar Argos GPS PTT and a conventional VHF transmitter attached to either half of a two piece leg band. GPS PTTs can remotely provide information to within tens of meters of the actual location of the transmitter, and are therefore the most accurate and non-invasive tracking method available to use on these wide-ranging cranes. The GPS PTTs will have solar panels integrated on all three exposed surfaces to maximize battery recharge, and have an expected life of 3-5 years. The GPS PTTs will be programmed to collect 4 fixes at regular intervals per 24 hour period, providing us with detailed information on daytime use sites, flight paths, and roosting sites. The GPS PTTs will be recording locations year-round, allowing us to monitor Whooping Crane movements and space use throughout both spring and fall migrations,

on the breeding grounds, and on the wintering grounds. The VHF units will be a separate battery-powered transmitter with an expected life of 2-3 years. These will have mortality sensors that will double the pulse rate if the transmitter remains motionless for 12 hours. The combined weight for the transmitters and leg bands will be about 90 grams and will be under the 3% of body weight guidelines even for a small hatch year crane. All trapped birds will also be marked with a unique combination of colored leg bands and a federal aluminum leg band. Therefore, even after the telemetry units have stopped functioning, we will still be able to monitor these birds.

Whooping crane in flight over Florida. Note the trailing antenna of the bird's radio transmitter on one leg. Radio telemetry is a vital tool for research to save this species.
****Photo by Greg Stephens,* www.photographybygregstephens.com****

Following transmitter attachment, cranes will be monitored via VHF and direct observations for several days to determine short-term outcomes after capture. Throughout the year, cranes will be monitored remotely via web access to the Argos service. While real-time GPS data monitoring is not available, new GPS data will be available on each crane every three days. A crane that has not moved from a general location or site in 24 hours will be located via ground and/or aerial tracking with conventional VHF radios and specific location determined via visual detection. Ground inspections will be conducted by the project coordinator, project technicians, or cooperating federal, state, or provincial agents depending on who is closest to the last known location of the crane. If the crane is visible and alive, information on its location and habitat will be made. If the crane is dead, arrangements will be made to recover the carcass with support from local law enforcement officers, following the *U.S. and Canada Aransas-Wood Buffalo Population Whooping Crane Contingency Plans.* An evaluation of the site will be conducted in order to attempt to ascertain what the cause of death was. Any recovered carcasses will be sent immediately to a designated lab in the U.S. or Canada, depending on where the carcass was collected.

Stopover locations will be evaluated at multiple scales using remote sensing and on-the-ground site visits to define habitat composition, actual or potential disturbance factors, and collision threats. A data base of all stopover habitat characterizations will be developed and a spatial data base of all crane locations will be imported into a GIS. Spatial statistics tools will be used to examine migration routes and space use patterns. Weather data associated with all known crane locations for the period of crane use will be assimilated from the nearest source, and weather systems will be documented throughout the flyway during migration. These data will be used to model crane movements in relation to local and regional weather patterns.

Funding for this project is being provided by the Platte River Whooping Crane Maintenance Trust, Inc., the Platte River Recovery Implementation Program, and the USGS, Northern Prairie Wildlife Research Center. This project has been proposed in the Whooping Crane Recovery Plan and has been approved by the U.S.-Canada Whooping Crane Recovery Team. We are working closely with the Whooping Crane coordinators in the U.S. and Canada to obtain all required permits and authorizations needed to initiate this important project. We look forward to attaching transmitters to cranes, learning more about their incredible migration, and using these valuable data to help conserve and protect the Aransas-Wood Buffalo population of Whooping Cranes.**** *Felipe Chavez-Ramirez, PhD., and Jessica Rempel, Platte River Whooping Crane Maintenance Trust, Inc.*****

Today's Trivia Question: How long does it take whooping cranes to migrate the 4000 km (2500 miles) between their nesting grounds (Wood Buffalo National Park) and wintering grounds (Aransas National Wildlife Refuge)? See Page 8 for the answer.

Updates from Reintroductions

Eastern Migratory Population: Whooping Crane Chicks Hatch at Necedah National Wildlife Refuge

From a June 21, 2009 Press Release: "The Whooping Crane Eastern Partnership (WCEP) is celebrating another success in its efforts to reintroduce a wild migratory whooping crane population in eastern North America. A whooping crane chick hatched this week at Necedah National Wildlife Refuge, Wisconsin. This is only the second time in over a century that a naturally produced whooping crane has hatched in the wild in the Midwest.

These cranes hatched at Necedah NWR in 2006. *Photo by Richard Urbanek, USFWS*

The chick, #W2-09 (W = wild hatched), is the offspring of whooping crane pair #11-02 and #17-02 from the ultralight-led crane Class of 2002. The behavior of the pair indicated that the chick hatched on June 14 or 15, but visual confirmation was difficult to obtain until June 18 due to dense vegetation.

This is the second chick to hatch in the wild this year in the eastern migratory population. Whooping crane pair #12-02 and #19-04 hatched a chick, #W1-09, on June 12 at their nest site in Wood County, Wis. The chick is

from a captive produced egg from the International Crane Foundation, placed in the nest after it was determined that the pair's own eggs were infertile.

Numbers 11-02 and 17-02, dubbed the "First Family", successfully hatched the first wild whooping crane chicks in this population in 2006 at Necedah NWR. One of their chicks was taken by a predator prior to migration. The other chick, #W1-06, migrated to Florida with her parents in fall 2006 and recently completed her third spring migration to Necedah NWR.

"This is an exciting moment for the many dedicated people contributing to this project and another sign of success for WCEP," said Necedah NWR manager Larry Wargowsky. "It shows persistence pays off, as once again the First Family hatched the chick by renesting after their first attempt was unsuccessful."

Both of the chicks that have hatched in the wild this year in Wisconsin are the result of renesting. This spring, 12 breeding pairs of whooping cranes built nests and laid eggs. Eleven of the nests were located on the Necedah NWR, with #12-02 and #19-04's nest located on private land. All 12 nests failed earlier this spring and five pairs renested—the three other renests also failed. This nest abandonment pattern is similar to what has been observed in previous years. WCEP is investigating the cause of the abandonments through analysis of data collected throughout the nesting period on crane behavior, temperature, black fly abundance and distribution, and food availability".

There are an estimated 78 birds (47 males, 31 females) in this flock. For more information on the project visit the WCEP website at http://www.bringbackthecranes.org.

Florida Resident Flock

As you may know, the primary mission of this project has shifted from establishment of a population to research on why the population has a low likelihood of long term sustainability and how we can apply what we learn from this flock to other reintroductions. Another goal is to enhance our understanding of some basic life history details that have not been described previously for the species, such as incubation behavior and molt.

Priority data to be collected includes sources of mortality for older birds, especially males which are not living past 10 years of age in this flock. Most older cranes in this flock have died or gone missing late spring-early summer. With that knowledge, March-June we checked high-priority (oldest) birds on a *daily* basis. We've not monitored this intensively since the early years of the project; our normal schedule has been 2-3 checks/week. Despite daily intensive monitoring we did not document any mortalities. However, we documented substantial movements, likely associated with drought. Thus far in 2009, 5 birds had dispersed out of central Florida and were unaccounted for. Some of these birds may return to previous home ranges but others likely will never be seen again. At the end of September we were monitoring 24 birds (8 pairs).

We also continue to monitor this flock to collect data on breeding activity. The 6 months from November 2008 to April 2009 were the driest 6 months in Florida history. Prior to that Florida had been experiencing drought conditions since 2006. May turned out to be the wettest on record, but it barely began to replenish water in marshes. Despite on-going drought we had 4 nests during the 2009 breeding season. Our earliest nest was initiated 20 February and this pair hatched a chick on 20 March. The pair successfully raise the chick to fledging and it became the 10^{th} to fledge in the wild for this flock.

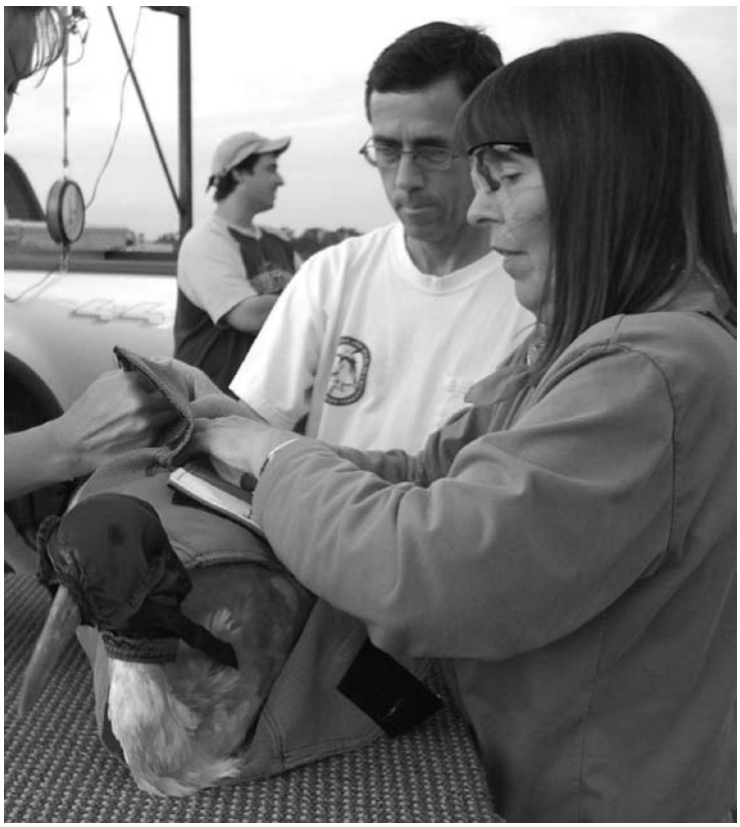
One pair, normally fertile, incubated long and we collected their eggs. They renested but abandoned their second nest when water levels declined to leave dry ground around the nest. Another nest was also abandoned as water dried up around them. How did the first pair manage to fledge a chick during this drought? They nested in a marsh connected to lake, so their water levels were more permanent than those of isolated marshes. Fortunately the marsh is isolated from air boat traffic that is common on the lake.

We collected behavioral data at 3 of the 4 nests via video surveillance systems. We are in the process of entering data from this year's and previous years' video tapes; thus far we've entered >1000 hrs of incubation behavior. We are analyzing incubation behavior in order to describe the behaviors necessary for whooping cranes to successfully hatch their eggs. The results will have application for the captive rearing of cranes and also for future reintroductions.
*****Marty Folk, Florida Fish and Wildlife Conservation Commission*****

Answer to Today's Trivia Question from page 6: Fall migration can take up to 50 days with the birds spending 2 days flying south from the breeding grounds in Wood Buffalo National Park to a staging area on the prairies of Saskatchewan where they spend 1-5 weeks foraging in grain fields and marshes; then they make a bee-line across the U.S. in a week's time. Spring migration is shorter, with some established breeding pairs making the 4000 km (2500 mile) trip in only 10-11 days. This information is from the work of Ernie Kuyt, WCCA Life Member and retired biologist for the Canadian Wildlife Service:
Kuyt, E. 1992. Aerial Radio-tracking of Whooping Cranes Migrating Between Wood Buffalo National Park and Aransas National Wildlife Refuge, 1981-84. Occasional Paper 74. Canadian Wildlife Service.

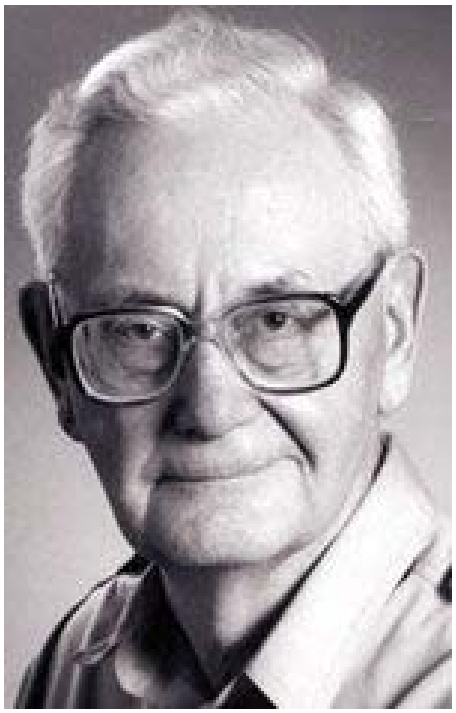
In Memoriam

Former WCCA membership chair Judith Buhrman passed away 1 July 2009 from cancer. Judith was a dedicated, long-term volunteer for the Florida Reintroduction Project and an ardent crane fan. Judith worked in the library of the Florida Fish and Wildlife Conservation Commission's Research Institute in St. Petersburg where she expertly could track down even the most obscure article. Judith had a fiery passion for cranes, but also for all birds, plants and all of nature. Judith was very well read and astute; she enjoyed learning all she could about nature. Her enthusiasm was contagious. Judith was advocating "green" long before it was fashionable. She was remarkable in that she could think "globally" but also recognize that it takes individual people to make the changes necessary to improve the planet. Judith was active in the Florida Ornithological Society, Florida Native Plant Society, and had a passion for classical music and her 2 pet parrots. Her life was an example of how to live in a "friendly" way with nature. She enhanced the environmental consciousness of untold people.



Judith Buhrman readies a whooping crane for release in Florida.

Scientist Who Discovered Whooping Crane Nests Passes



The biologist who first discovered whooping cranes in Wood Buffalo National Park has passed away. Bill Fuller recorded the first sighting of the endangered birds in 1954 during a fire crew helicopter flight over WBNP. He counted nine adult whooping cranes and their young during that flight, and in later surveys became the first to spot an adult whooping crane on a nest. It was the first time whooping cranes had been seen in Canada since the 1920s, a discovery that caused much uproar in the scientific community considering the flock was down to roughly 20 birds at the time and researchers had no idea where the birds went when they left their summer home on the Gulf of Mexico.

Fuller's sightings led to a ground survey by the Canadian Wildlife Service in 1955 when the whooping crane nesting grounds were officially established as being in Wood Buffalo. The nesting grounds have since been named a UNESCO World Heritage Site. Fuller had long-standing ties to Fort Smith. His first professional job was working for the Canadian Wildlife Service out of the South Slave community, a position he took in 1947, a week after marrying his wife Marie at the age of 23. In 2003 Fuller reflected on their newlywed arrival in Fort Smith to the Alberta Conservation Society, telling a reporter with a laugh, "A local told Marie, 'you're just the 21st white woman in this town.' "The Fullers spent the next nine years in Fort Smith before Bill took a position in Whitehorse in 1957. But the biologist never forgot the people or the animals of the area. He would eventually complete a PhD dissertation at the University of Wisconsin on the biology and management of bison in Wood Buffalo National Park, and spent nearly 50 years advocating on behalf of buffalo and other northern mammals, including 30 years as a zoology professor at the University of Alberta. Fuller also returned to Fort Smith in 1983 to help oppose the Slave River Dam planned for the rapids near Fort Fitzgerald.

Bill Fuller passed away on June 13, 2009, at the age of 85. He is survived by his wife Marie, two sons and two daughters. Despite five co-authored books, at least 46 refereed papers, 23 conference papers and 19 other articles in scholarly journals to his name, Fuller may best be remembered by those in Fort Smith for his contribution to the understanding of whooping crane. Since his discovery of the nesting grounds in 1954, the flock has steadily climbed back from the brink of extinction to number over 250 birds today. Yet Fuller always remained adamant that without fortune, circumstance and crucial help he never would have seen the whooping cranes of WBNP at all. "If it hadn't been for an observant forester named George Wilson, I might never have gone out to identify the birds," Fuller wrote in 2004. "In June 1954 a fire broke out in WBNP. The forestry guy, Wilson, went out to the site of the fire in a whirlybird piloted by Don Landells. I was in my office when a message came in from the plane saying they had seen a few big white birds which they suspected were whooping cranes. Furthermore, Landells was to make another trip with a pump, and if Bill Fuller was at the landing spot at 5:00 p.m. he could go."

"So who discovered the nesting grounds? Wilson and Landell, who spotted the big white birds, or me, because I saw young birds as well as mature birds and was also the first to see a female on a nest? It doesn't really matter. The important point is that the nesting ground was found."
*****Shawn Bell, Slave River Journal, 7/15/09*****

Brief History of the WCCA

The serious plight of the Whooping Crane population alarmed some people many years ago. In response a small loosely organized group of "pen pals" initiated the "Whooper Club" in the 1950's. This small group of individuals along the great bird's flyway in the United States and Canada commenced urging government agencies on both sides of the border to do something to halt the demise of Whooping Cranes. Eventually the Whooper Club became the Whooping Crane Conservation Association (WCCA) in 1961. Thus WCCA became the first private group with the mission of restoration of Whooping Cranes and their habitats. This same important mission continues today. The Whooping Crane Conservation Association has encouraged, and worked with government agencies in the United States and Canada to improve management of Whooping Cranes.

The WCCA has pursued its objectives, (found under WCCA Mission page), since it was founded in 1961 to improve the status of the whooping cranes. These efforts to improve the status of Whooping Cranes were intensified after WCCA formally incorporated as a nonprofit organization in 1966. WCCA has continued to work towards its objectives by coordinating with government conservation agencies and private interests; providing information to our members and the public; holding meetings to promote our cause; funding research projects; and informing public officials about the needs for sound conservation of Whooping Cranes.

The membership of the WCCA includes a Canadian Council to accommodate international concepts.

The WCCA led the way in advocating the use of aviculture to establish the captive populations of whoopers which have made possible the many research efforts that have used captive-reared cranes. Two WCCA members conducted the first project to develop techniques, using sandhill cranes, that were later applied to collect eggs from the wild, transport, incubate, brood, and husband the young cranes. These techniques contributed to the development of the captive whooper flock at the Patuxent Wildlife Research Center, from eggs supplied by the Canadian Wildlife Service from Wood Buffalo National Park. These flocks have now been expanded to include flocks at the zoo in Calgary Alberta Canada and the International Crane Foundation in Baraboo, Wisconsin.

From the offspring of these captive flocks, Whooping Cranes are currently being used in efforts to establish two new wild flocks. One of these will be a non-migrating flock located in central Florida (see Current Flock Status). The other will be a migratory flock with spring/summer nesting habitat in Wisconsin and winter habitat in west Florida (see Current Flock Status).

The WCCA continues its educational efforts as well as providing financial and political assistance to various projects designed to further the recovery of the whooping crane. *****From the web site of the WCCA (http://whoopingcrane.com/wccahistory.htm).*****

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Whooping cranes in flight. ****Photo courtesy of Greg Stephens,* www.photographybygregstephens.com****