WHOOPING CRANE RECOVERY ACTIVITIES
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by Tom Stehn
USFWS Whooping Crane Coordinator (361) 286-3559, Ext. 221

HIGHLIGHTS

In Canada, at least 33 whooping crane chicks hatched from 50 nests. Production was down slightly from last year and may have been impacted by the late spring. August surveys found 17 chicks surviving.

One adult female was killed hitting a power line in central Texas during the spring migration.

Flooding July rains in central Texas bring massive inflows to the bays which should aid the blue crab population.

The first whooping crane since 1939 in the U.S. fledges in Florida. Mortality is very high for juveniles released in the winter of 2001-2002 from infectious bursal disease.

Five ultralight whooping cranes return on their own to central Wisconsin in the spring.

The captive whooping crane flocks hatch 39 chicks.

BP Amoco donates the White Lake Preserve to the State of Louisiana.

A Crane Conservation Act is introduced in Congress by Senator Feingold of Wisconsin.

West Nile Virus reaches Texas and kills 7 captive Mississippi sandhill crane chicks in Louisiana.

ARANSAS

The peak migration period for whooping cranes leaving Aransas normally occurs the second week in April, with departures ranging from March to early May. In the spring 2002, the migration got off to a slow start, with only 9 cranes having departed by March 28. Approximately 82 % of the cranes departed between April 4 and 18. Two cranes were still present April 25, but all had initiated migration by May 2, including a crane with a drooping wing.

Mr. Wally Jobman, USFWS in Grand Island, Nebraska, reported the following:

"The first dates for confirmed observations of migrating whooping cranes were March 19 in the U.S. and April 17 in Canada. The last sighting date was May 12. With the

exception of an early migrant confirmed in Nebraska on March 19th (a single bird on the Platte River), all of the sightings in the U.S. were reported between April 4 and May 7. The migration progressed quickly, probably the reason that only 16 sightings were confirmed in the U.S. Spring sightings were reported from Texas (1); Nebraska (3); South Dakota (2); North Dakota (10); Alberta, (1); and Saskatchewan (20), Canada."

At least one crane died in the spring migration. On April 13, a land owner in Comanche County, Texas discovered a dead whooping crane in a remote field approximately 25 feet from an electrical power pole and distribution line. The land owner had observed a second whooping crane (live) nearby. The carcass was sent to the National Forensics Lab where injuries indicated a collision with a power line was the cause of death. Tissues were also sent to USGS Patuxent Wildlife Research Center for testing for contaminants. The dead crane was female o-r/b hatched in 1986. During her lifetime, she had made 12 nesting attempts, went 1 year with no nest observed, had 8 summers with chicks observed in Canada, but only three of those made it to Aransas (in 1996, 1997, and 1998). With ½ million miles of transmission lines in the U.S. and 15 million power poles for distribution, power lines continue to be the greatest source of mortality for fledged whooping cranes. With over a dozen whooping cranes disappearing every year between spring and fall, the species cannot afford the status quo on this issue.

Tom Stehn's report on whooping cranes at Aransas during the 2001-2002 winter was completed and distributed in mid-May.

Whooping cranes migrated into Canada around their normal time during the last 10 days of April and into May. The cranes were subsequently held up the first week in May at the southern edge of the boreal forest in Saskatchewan by the cold and snow. When the cranes arrived on the breeding grounds, they were greeted by snow and frozen nesting ponds. Nest initiation was delayed until the second week of May, with snow on the ground in Wood Buffalo as late as May 13th. The good news was that water levels throughout the breeding grounds were very high, with all ponds full.

Brian Johns of the Canadian Wildlife Service conducted breeding pair surveys from May 18-23 and discovered 48 nests. Nest construction was documented as late as May 22. USFWS Pilot Jim Bredy along with Brian Johns and Tom Stehn conducted whooping crane production surveys in a Partanavia twin-engine aircraft June 18-23. Surveys were done approximately two weeks later than 2001 because of the late spring. A total of 33 chicks, including 5 sets of twins, were located, with 5 females still sitting on eggs. This compared with 39 chicks and10 sets of twins in 2001. A 49th and 50th nest were located, but less than the record 53 nests in 2001. Two of the nests were located outside the Park boundary. An estimated 8 known pairs failed to nest in 2002, the same number as in 2001. Thus, there were 58 breeding pairs in the population. This is three less than last summer, and way below the potential 68 wintering pairs noted at Aransas in the 2001-02 winter. Water levels in the crane ponds were above average in June. Given what looked like excellent water conditions, it is presumed that the late spring thaw may have had a negative impact on production. Chick numbers above 40 shortly after hatching usually equates into growth of the population in the coming winter. With only 33 chicks found, it

could be a break-even year for the whooping crane population. The decrease in the population last winter and the summer's disappointing production fit the predicted 10-year drop in the whooping crane population that occurs at the start of every decade, with a low for the decade expected in 2001. This 10-year cycle in whooping cranes has not been explained. In late August, Brian Johns located 17 whooping crane chicks in WBNP near the time of fledging. He also recorded unison calls from 12 more nesting pairs, and picked up egg shell membranes and feathers from a few nests to see if materials after several months in the field are still usable for DNA testing.

The June production survey fostered Canada-U.S. cooperation and provide a week for the whooping crane coordinators from the two countries to exchange ideas and help plan future research activities and overall recovery objectives. In June of 2002, they worked on final changes combining the Canada and U.S. whooping crane recovery plans into a single document. This draft was completed in August and circulated to Recovery Team members.

In June, lands and funds were conveyed to a local Indian band situated near Wood Buffalo National Park. This $83 million land claim settlement of 430-km^2 fulfilled a treaty signed 103 years ago. The Salt River First Nation gained rights to 4 small parcels of land within Wood Buffalo National Park with the right to hunt, fish and build cabins, provided the activities are environmentally sound. Most of the land settlement is outside the Park at 16 different sites, but does include the Lobstick marshes that contain one nesting pair of whooping cranes.

Increased efforts are ongoing to detect whooping crane stopovers on the Platte. Platte River researchers in Nebraska conducted daily flights from March 21 - April 29 over 80 miles of the river to document whooping crane use. A single whooping crane was present March 20 - April 2. Most sandhills had migrated north from the Platte by the 10^{th} of April, just as the whoopers were peaking in their departure from Aransas.

In March, Representative Tom Osborne of Nebraska in a congressional speech and a letter to Secretary of the Interior Gayle Norton, questioned whether the best science had been applied to the 1978 designation of 56 miles of the Platte River as whooping crane critical habitat. He called for a review to be conducted by the National Academy of Sciences at an estimated cost of $1 million. The Washington office of USFWS gathered information from the field and responded to Congressman Osborne's letter. A public meeting in mid-August in Grand Island, Nebraska included as a speaker Craig Manson, Assistant Secretary of the Interior for Wildlife and Parks. Mr. Manson suggested a peer review by objective parties could be done faster at a cost of 300 K.

The report entitled "Species Recovery Objectives for Four target Species in the Central and Lower Platte River (Whooping Crane, Interior Least Tern, Piping Plover, Pallid Sturgeon)" prepared for USFWS by Dr. James Lutey, was completed in June. Two workshops had been held at the Platte River Habitat Maintenance Trust facility near Wood River, Nebraska in September, 2000 and February, 2001 to develop species recovery objectives. Whooping cranes historically used the Platte River as a major

stopover area. Physical changes to the Platte have resulted in habitat loss for the cranes, with as much as 97% of whooping crane habitat lost in some river segments. A target of developing 2,900-acre habitat complexes for each of 10 bridge segments along the 80-mile stretch of river was endorsed, but should not substitute for maintaining the ecological integrity of the Platte.

By early August, the continuing drought in Nebraska had resulted in no flow conditions in approximately 100 miles of the Platte River channel between the Highway 10 bridge (just east of Kearney, Nebraska) and Columbus, Nebraska, with water remaining only in the deeper holes. The river bed quickly turned green with vegetation. The impact of the drought on crop land and pasture land in Nebraska is estimated to be in the billions of dollars. Once the irrigation season comes to a close in early September, some river flow should return.

In the U.S., sandhill crane hunting season zone expansions have been proposed for North Dakota (east of Highway 281) and along the Texas coast (with appropriate buffer around Aransas). Also, Texas proposed an earlier opening on the Saturday nearest December 20 for Zone C that encompasses south Texas. This earlier opening allows for a 30-day season that ends at the start of the special snow goose season on January 20th that requires all other hunting of migratory bird to cease. Zones A and B in Texas have 93-day and 72-day seasons respectively. The Texas Parks and Wildlife Commission will act on this earlier opening at the end of August.

The proposed purchase of the Johnson ranch that contains whooping crane marsh on the Lamar peninsula west of the Aransas National Wildlife Refuge (NWR) continues to move forward. The Texas Nature Conservancy will purchase 245 acres of salt marsh and then donate the property to become part of Aransas NWR. Funding for this portion of the project will come from the Texas General Land Office and a NOAA Coastal Impact Assistance Program grant. In addition, USFWS-Ecological Services and Texas Parks and Wildlife Department arranged for $200,000 of mitigation funding from the Landmark Corporation to go to the Coastal Bend Land Trust to assist The Nature Conservancy with the purchase of a conservation easement on the remaining 571-acres of the Johnson ranch. The conservation easement, which will be held by the Conservancy, will ensure the permanent protection from development of the valuable oak uplands adjoining the marsh and adjacent refuge lands. The easement will also allow the current owners to continue operating their popular "bed and breakfast operation, The Crane House, which caters to nature enthusiasts interested in observing whooping cranes in their natural habitat.

Water issues in Texas involving the San Antonio and Guadalupe Rivers that could impact whooping cranes received more attention in recent months. The 2 rivers emerge from underground springs near San Antonio and run 250 miles southeast where they join just before entering San Antonio Bay in whooping crane critical habitat just north of Aransas. Water rights are at issue, with users in competition with environmentalists for control of the resource. Currently, the river's flow is insufficient to sustain the bay's freshwater needs about half the time.

At a press conference on April 2 in Austin, an organization called American Rivers named the Guadalupe River on their annual list as the 10th most endangered river in the U.S. This designation is about rivers that will have pivotal events in 2002 that could determine whether they survive. A recently completed state water plan that increases withdrawal of water from the river could imperil wildlife, fishing resources, and eliminate outdoor activities for which the river is famous. This issue of instream flow is what earned the designation for the Guadalupe. Also mentioned in the report is the water right application for instream flows made by the San Marcos River Foundation (SMRF).

The following is from an April 2 news release from a coalition of conservation groups:

"A new state water plan adopted in January proposes numerous dams, pipelines, and other diversion projects with little consideration for the amount of water needed for healthy rivers and coastal bays. The threat facing the Guadalupe River is particularly imminent. Plans are in place to pump more water from Canyon Lake, build a reservoir that captures the flows of the Guadalupe near the coast, and to convert unused irrigation rights to municipal use, which would take water just above Guadalupe Bay and pump it 170 miles to San Antonio.

As the Guadalupe flows into the Gulf of Mexico, its fresh water nourishes San Antonio and Aransas Bays, which support commercial and recreational fisheries worth an estimated $575 million each year and are home to the endangered whooping crane. If current water rights holders exercised their full allocations, freshwater flows from the Guadalupe would only be sufficient to support healthy estuaries less than half the time.

Because the state has only recently had to consider the impacts of new water rights permits on rivers and bay systems, many streams and rivers across Texas have been fully parceled out to users. If all users took the water they're entitled to, these streams would cease to exist, especially during dry periods. We hope the Guadalupe and other Texas rivers can avoid that fate.

Watersheds throughout Texas face threats similar to those facing the Guadalupe River. Through the San Marcos River Foundation's application for a conservation water right and the listing of the Guadalupe as one of America's most endangered rivers, our groups hope to bring attention to the plight of all rivers in the state and encourage decisions that will keep them alive and flowing for future generations.

'If the state of Texas doesn't take action to ensure the water keeps flowing in the Guadalupe River, existing and proposed diversions could de-water the river and deprive San Antonio and Aransas Bay of needed fresh water'(quote from Rebecca Wodder, American Rivers President."

Although a Texas Parks and Wildlife study has targeted a need for 1.3 million acre-feet annually to maximize bay productivity for 9 important bay species, Tom Stehn began pushing for a separate study specifically on inflow needs for maximizing blue crab populations. Through grants provided by the Houston Endowment and the Whooping

Crane Conservation Association, Dr Felipe Chavez-Ramirez, biologist at the Platte River Habitat Maintenance Trust in Nebraska, will spend approximately one month for the next three winters working on whooping crane issues in Texas. Dr. Chavez used his Texas A & M University connections and enlisted professor Dr. Doug Slack for the inflow project. A research proposal was submitted to the Guadalupe-Blanco Water Development Board to study inflows, blue crabs, and whooping crane relationships. Proposed total funding would be approximately 1/4 million dollars over 4-5 years to support 3 or 4 graduate students. This is a very important development since only with better knowledge of these relationships can USFWS comment on proposed water development projects. Comments on the proposed study were solicited and study design modified accordingly.

To worsen the water situation, Cedar Bayou remained closed from siltation. This bayou is the natural pass between Matagorda and San Jose islands that many marine organisms in whooping crane critical habitat use to move between the marshes and bays and into the Gulf of Mexico to complete their life cycle. Efforts are underway with a citizens group formed to raise money and push for the re-opening of the channel. In recent years, Cedar Bayou had been dredged in 1987 and 1995.

As biologists fretted about a lack of water, Mother Nature turned on the faucets. Aransas NWR received 3.25 inches June 28-30 that helped break the drought. Major flooding occurred in the Texas Hill Country. Some areas received over 30 inches of rain in 5 days. Thirty-one counties in Texas were declared federal disaster areas. Nine people died, and many had to leave their flooded homes. Water flowed over the Canyon Lake dam, the first time this had ever occurred. Flood waters 9 feet above flood stage on the Guadalupe River closed many major highways, including Highway 35 north of Aransas for one week. More heavy rains fell on south Texas July 15-16, with Aransas receiving 2.6 inches.

Although flooding was extensive, the rains had many beneficial effects. The two reservoirs used by Corpus Christi reached 100% capacity for the first time in years, and water levels in the aquifer around San Antonio rose dramatically. Parched pastures were revitalized, benefitting livestock. The inflows will be great for marsh and estuarine production, particularly for blue crabs and white shrimp. With the heavy inflows, bay salinities dropped sharply. Salinities at the refuge measured at 16 parts per thousand (ppt) on July 8 dropped to 3 ppt on July 24. Upper portions of San Antonio Bay were so fresh that a huge die-off of oysters occurred. The oysters will rebound in a couple years, with harvest from San Antonio Bay expected to return to 250,000 pounds annually.

ADMINISTRATION

A Crane Conservation Act was introduced into Congress by Senator Feingold of Wisconsin. This act drafted by ICF and others is modeled on similar acts, including the Rhino and Tiger Acts. If passed, the legislation would fund crane work both overseas and in the U.S. for $3 million annually. The Act has support of organizations including the American Zoo Association, World Wildlife Fund, and should receive the support of USFWS.

BP Amoco donated their 71,000-acre White Lake property on July 8 to the State of Louisiana. White Lake is the location where a non-migratory flock of whooping cranes nested as late as 1939. Mary Courville of the Whooping Crane Conservation Association had a role in the donation and has asked the Governor for funding for whooping crane recovery. At the donation press conference, Louisiana Senator Hoyt was quoted saying plans include returning whooping cranes to the preserve. The site includes 52,085 acres of freshwater marsh, 18,880 acres of farmland, and a hunting lodge. BP Amoco also donated $500,000 worth of equipment as well as $250,000 annually for 5 years to maintain the property. A non-profit committee with multiple representatives including the governor has been set up to oversee the property. The nonprofit organization will raise money from the property by selling high-dollar hunting and fishing permits, and existing agricultural and hunting leases, and hopes to be self-sustaining yet remain primarily undeveloped as wildlife habitat.

Whooping crane specimens salvaged from the central Florida flock were distributed in May and June. Requests were filled from the University of Wisconsin Zoological Museum in Madison, Chassahowitzka NWR in Florida, the National Forensics Lab in Ashland, Oregon. The Florida State Natural History Museum in Gainesville accepted partial specimens, primarily wings and parts containing long bones. Two specimens were reserved for a Smithsonian Museum of Natural History exhibit that will be located in the Natural History Hall from March to September, 2003 and then become a traveling exhibit for two years. The two whooping crane juveniles will be mounted in flight behind an actual ultralight flown by Operation Migration. In July, taxidermy mounts of an adult, chick, and nest with 2 eggs were shipped by Grays Lake NWR in Idaho to Chassahowitzka NWR, Florida.

The Whooping Crane Captive Management and Recovery Team meetings will be held in Sacramento, California January 17-20. The Ninth North American Crane Workshop will be held at the same location January 22-24, 2003.

HEALTH ISSUES

Dr. Sandie Black at the Clagary Zoo initiated experiments tranquilizing sandhill cranes as a methodology to reduce injuries and mortality during handling of whooping cranes. A drug called Triazolam showed the most promise. Sandhills given the drug did not struggle when captured and seemed to "zone out" when held.

Dr. Kim Miller at the National Wildlife Health Center and Dr. Glenn Olsen at Patuxent conducted West Nile Virus (WNV) studies on captive sandhill cranes. The Whooping Crane Conservation Association, USFWS, and U.S. Geological Survey contributed financial support towards this research. Sandhills were vaccinated with a commercially available WNV equine vaccine and then challenged with one mosquito dose of WNV. Results indicated that although none of the sandhills died or showed clinical signs of illness, they did have a subclinical infection, developed a viremia, shed the virus, and had elevated white blood cell counts and some developed microscopic lesions. Although the vaccine did not prevent the sandhills from getting the virus and did not produce a titer,

vaccinated birds had lower viremias and less shedding of the virus. Post challenge titers were 14 times higher in the vaccinated birds. After about 10 days, birds exposed to WNV no longer had the virus and were no longer shedding.

Study results were similar to published results of a WNV outbreak at the Bronx Zoo in various crane species that indicated 7 of 8 cranes showed an antibody response but no clinical signs of WNV. The Milwaukee Zoo confirmed WNV in a Demoiselle crane. The crane may have been temporarily sick, but recovered completely. Three sandhills in the captive flock at Patuxent tested positive for WNV but had not shown clinical signs of illness. Mosquitoes have been found in the environs of Patuxent carrying WNV.

WNV is a form of encephalitis native to Africa that was first noted in North America in 1999 in birds, mosquitoes, horses, and humans in New York City. Since then, the disease has continued to move west and south, most likely transported to new areas by migrating wild birds. In 2002, WNV spread into Texas starting in mid-June, with 50 dead birds and the first Texas cases in humans and horses diagnosed. This was expected since last summer the westward-moving disease was documented for the first time in many mid-western and southern states including Louisiana and Arkansas. By late-August, the virus had been detected in 42 Texas counties with 34 human cases and 1 fatality. The virus has also been detected in 179 birds and 77 horses. It has not been detected yet from the Aransas or nearby counties. Texas, Oklahoma, Nebraska, North Dakota, and Wyoming became states with WNV cases in 2002. The Canadian provinces of Quebec, Manitoba, and Saskatchewan were also newly positive for WNV. The virus is carried by over 110 species of birds and can be transmitted to humans, horses, and other birds by mosquitos. Current information on the West Nile Virus outbreak can be found on the following websites: http://www.cfe.cornell.edu/erap/WNV/default.cfm, www.nwhc.usgs.gov, and www.cdc.gov.

An outbreak of WNV occurred in captive Mississippi sandhill cranes at the Audubon Center for Research on Endangered Species (ACRES) in Belle Chasse, Louisiana at the end of July. They lost seven sandhill chicks out of eighteen to the virus, and 8 others showed symptoms and were treated. Some of the adult Mississippi sandhills also became ill. None of the 6 whooping cranes at ACRES have shown any signs of the virus/illness so far. Needless to say, ACRES was swamped with work due to WNV and treating/vaccinating the cranes. Following the outbreak, all the cranes at ACRES were vaccinated, including the 6 whoopers.

Dr. Kim Miller has left her full-time position with the National Wildlife Health Center to become a full-time "mom", but is continuing to work intermittently on several projects including the crane research and reintroduction projects. We thank her for all her contributions, and look forward to continuing to work with Kim for the near future.

CENTRAL FLORIDA

The spring and summer was characterized by a first-time success as well as high mortality in Florida. The following information comes mostly from a whooping crane

quarterly report for April-June, 2002 written by Marty Folk. Despite the drought, 7 whooping crane pairs nested. The most nests in a single year previously was 3 that occurred in 2000. One of the 7 nests included an unsuccessful re-nest by a widowed female with a new mate, the first re-nesting within a season for the project. Wetland water levels were slightly better than in previous years, but still the conditions were poor due to drought. Only 1 of 7 nests hatched. This high rate of nest failure was probably associated with declining marsh water levels due to extremely rapid evapotranspiration rates. Florida cranes breed during the time of year when water levels are typically declining slowly, but late in this breeding season, lack of rainfall and record-setting temperatures made water levels decline faster than normal. During that time, loss of water in wetlands occurred at the rate of a foot per week. One pair successfully fledged a chick, nicknamed "Lucky" by a local homeowner after its twin chick was taken off the nest by a bald eagle. The parents later in another encounter injured the eagle which had to be captured and was successfully rehabilitated. This was the first chick fledged in the U.S. dating back to the last nesting of whooping cranes in Louisiana in 1939, and marks the first whooping crane fledged in Florida since the reintroduction started in 1993. This fledging was a strong stamp of approval for the isolation rearing and soft release technique from captivity used in the reintroduction, proving that the captive parents had the proper sexual imprinting and good parenting skills. The habitat chosen by the successful pair was a marsh right near a housing area in Leesburg, Florida. The parents protected their chick from neighborhood dogs on several occasions. Lucky made his first flight at age 77 days and was an accomplished flier 2 weeks later. The Florida staff hopes to capture and mark Lucky with a radio transmitter at the end of August. Project staffer Steve Baynes transferred in August on to a job with benefits. One of the needs of the Florida project is additional assured funding to upgrade this field job to a career service position.

The release of captive juveniles in the 2001-02 winter was disastrous. Eleven out of 19 young died from a variety of causes. Disease, bobcats, alligators, and one lightning strike seemed to account for most of the mortality. The first cohort got into commercial bee hives, with one bird dying after ingesting bees, and a second bird was stung in the eye which got swollen shut. However, the number one suspected culprit for the high mortality was a virus known as infectious bursal disease, an immune deficiency disease that affects juvenile cranes and causes them to become lethargic, lose weight, and makes them vulnerable to predation. Older cranes released in previous years at the same release site were not affected by the disease. This disease is known from domestic poultry but it is not known how the whooping cranes got it. Two juveniles were captured and rehabilitated at the Lowry Park Zoo in Tampa, Florida. One had a broken bill, and the other was severely emaciated and had wounds in the side possibly from being entangled in a barbed wire fence. These 2 cranes became so tame that they will remain in captivity.

On April 11, one whooping crane was hand-captured at a golf course in Hillsborough County. Upon examination, the bird's left tibia was discovered broken. Personnel at the golf course report that the bird had been struck by a golf ball. The crane was transported to the University of Florida School of Veterinary Medicine where it died while under anesthesia.

June rains averaged more than two times above normal over the entire range of whooping cranes in Florida, helping restore water levels from historic lows. Marty Folk reported 13.3 inches of rain at his house over a 10-day period in June that resulted from a series of low pressure systems.

At the end of June, 89 whooping cranes were alive in the wild in Florida. This includes 7 birds that are still unaccounted for following the unusual dispersals of 2000. Four whooping cranes were captured for routine replacement of transmitters between April and June. This included the female currently un-paired that spent the 2000 summer in Michigan.

Graduate student Nichole Allison conducted a pilot study and then began gathering data this spring on roosting sandhill and whooping cranes. Nichole is a student at the University of Massachusetts and is working with guidance from Dr. George Gee of Patuxent.

WHOOPING CRANE EASTERN PARTNERSHIP (WCEP)

Seven juvenile whooping cranes flown behind an ultralight from Wisconsin were released into a remote, open-topped pen on Chassahowitzka NWR on the central Gulf Coast of Florida in the fall, 2001. Two of the seven were killed by bobcats. The remaining five began the spring migration on their own as a single flock on April 9. It is interesting to note that this was the same time period when peak whooping crane departures were taking place at Aransas NWR in Texas. A news release and national press teleconference was held April 10. The five ultralight cranes were successfully tracked by WCEP personnel with aerial support provided by Windway Corporation. Migration updates were posted on the internet. One crane split off from the group in flight over northern Georgia. The group of 4 landed on Necedah NWR in central Wisconsin on April 19. The entire migration had taken the group 11 days, of which 7 were flight days. The route was roughly direct and averaged only 40 miles from the route flown in the fall. The distance covered per flight day varied from 93 to 238 miles with a mean of 170 miles. The single crane that split off from the group spent nearly 2 weeks in south central Wisconsin before flying on to Necedah NWR on May 3. This crane had flown west almost as far as the Iowa border before reversing course and heading for Necedah. Many sandhills from the 2000 experiment, including both those flown behind the ultralight and those released with wild sandhills, were documented returning to Wisconsin, including 8 at Necedah (information in this paragraph mostly from article by Richard Urbanek, Marianne Wellington, Sara Zimorski, Anne Lacy, and Matt Hayes on behalf of WCEP in the Unison Call newsletter, July 2002).

In the early summer, the whooping cranes wandered some, generally south and east of Necedah NWR They then settled into a use pattern with 4 of the ultralight whooping cranes in the vicinity of Necedah. One female moved over at Horicon NWR, approximately 75 miles to the southeast, much to the delight of refuge personnel. Females tend to disperse more than males from a release site. Two of the subadult whooping cranes at Necedah were attracted by the presence of the ultralight and seemed

to claim the training site as a territory. They occasionally had to be chased off by costumed personnel so that they would not interfere with the training of the 2002 chicks. On one occasion, the two adults flew right behind the ultralight, with 7 chicks in flight much further behind. When together on the ground, the two subadults did not show aggression towards the chicks. The duo occasionally showed tameness around people, and didn't always roost in water early in the summer, but basically chose correct habitat and stayed out of trouble.

Seventeen chicks reared at the Patuxent Wildlife Research Center were shipped to Necedah NWR in a Windway Corporation aircraft in June in two separate groups. All of the early production from the captive flock went into these cohorts to try to minimize age differences between the ultralight chicks. Captive production from later in the season was designated for release into the non-migratory flock in central Florida. All of the ultralight chicks were hatched at Patuxent. Three eggs were shipped from ICF to Patuxent needed to reach the target of 18 chicks for the ultralight project. One chick was observed with a wing injury following the Patuxent health checks. Because similar injuries observed last year had hindered flight training, this crane was held back at Patuxent to become an imprint model in future years.

Flight training started at Patuxent and completed in Wisconsin went smoothly, with all the birds fledged by July 30. Improvements made to the Necedah pens included solar pumps to create water flow which may have reduced choliform bacteria counts. For the birds to night roost in water, an important part of the training they receive for future life in the wild, site improvements to water flow were made at site # 1 prior to arrival this spring. Also, an entirely new pen site was created. A meal of Maryland blue crabs was shipped by Patuxent about twice a month and fed to the young cranes in Wisconsin to get them exposed to eating crabs, also important training for when they get to Florida.

One WCEP chick had a metal screw and washer removed from its gizzard on July 1 by Dr. Barry Hartup of ICF with use of an endoscope. Four of the chicks tested positive for *Samonella* bacteria, but this not unexpected event seemed to run its course without impacting the birds. The chicks may have picked up this bacteria the final two weeks at Patuxent when moved to a different pen following health checks. Health checks and banding were conducted at the end of August on all 17 chicks.

A WCEP project video was produced by Jeff Huxmann of Sunshine Productions to be used for outreach and fund raising activities. Different versions of the video were tailored towards the needs of individual partners. At Patuxent, a kiosk was developed showing the video. Other outreach products included website updates, a news release and question and answer sheet when the cranes departed Florida, development of a slide program, and B roll video for media.

A contingency plan outlining actions needed if eastern whooping cranes stray into the Central Flyway was signed in July by 3 USFWS Regional Directors and the Chairman of the Central Flyway Council. WCEP Project Co-leader John Christian provided a briefing

to the Mississippi Flyway Council in July. John was honored as USFWS Region 3 employee of the year and is a tremendous asset to whooping crane recovery.

In March, a recognition award was presented to Deke Clark who continues to recover from a stroke. For several years, Deke volunteered numerous hours in the ultralight leading the cranes and was an integral part of WCEP. Deke - can you meet us in Florida when the 2002 migration team arrives this fall?

Fund raising continued to move forwards throughout the summer, although shortfalls always exist without secured advance funding. Chrysler Corporation once again will loan the project 3 vehicles for the fall migration.

ROCKY MOUNTAINS

The last remaining whooping crane in the Rocky Mountains is believed to be deceased. After wintering in New Mexico, it was not seen either in the spring migration in Colorado or on its traditional summer range at Red Rocks Lake NWR in Montana. This bird had been cross-fostered in 1983. Several media stories were written about the disappearance of this crane. In July, an e:mail was sent out declaring the experimental nonessential population of whooping cranes in the Rocky Mountains as no longer surviving. Various queries were handled about the implications of this under the Endangered Species Act. The hunter education course at Bosque del Apache NWR designed to protect whooping cranes will continue this fall since it was too late to make changes in State regulations. The refuge staff will consider whether to continue this course as a more general sportsmen bird identification course.

CALIFORNIA CONDORS

There are numerous parallels between whooping crane and condor recovery efforts. Both species fledged chicks this year for the first time from reintroduced populations, an interesting coincidence. For California condors, the hatching of 4 chicks in 2002 was the first wild-hatched chicks since 1984. California condors once ranged over most of North America. In the 1980s, after their numbers dwindled to just 22, biologists began an aggressive program to capture the last of the free-flying condors and breed them in captivity. Biologists began returning condors to the wild in 1992, releasing them in California and Arizona. Biologists in August 2002 shipped 6 California condors to Mexico. This marked the return of the California condor to Mexico, where the birds were last spotted in the 1940s.

The goal of the $40 million recovery program is to establish two wild populations and one captive population of condors, each with 150 birds, including a minimum of 15 breeding pairs apiece. Whooping crane recovery goals are to establish two additional wild flocks, each with 25 breeding pairs. Captive breeding programs have helped California condor numbers rebound to 208, including 87 birds in the wild or in field pens in Southern California and northern Arizona, and 121 in captivity at the Los Angeles Zoo, San Diego Wild Animal Park and the Peregrine Fund's World Center for Birds of

Prey in Boise, Idaho. There are currently 131 whooping cranes in captivity, with 284 in the wild.

CAPTIVE PRODUCTION

The captive whooping crane flock had a very successful year with 35 chicks produced. Twenty-five females laid 110 eggs, 56 eggs were fertile, 39 chicks hatched, and 35 survived. Production totaled 25 at Patuxent, 10 at ICF, 2 at San Antonio, and 2 at Calgary. Three of the 25 chicks hatched at Patuxent for the ultralight project came from ICF eggs transported east. Target goals were met for the Wisconsin (17) and Florida (13) reintroductions. Five young were slated to remain in captivity. The down side of the year was the loss of three breeding females, two connected with complications from egg laying.

CALGARY

The Calgary flock of 16 adults laid 24 eggs from 6 different females. Six of the eggs were fertile, and 2 chicks hatched. The 2 surviving chicks are scheduled to be shipped to ICF in September to join a cohort destined for release in central Florida. Two breeding females at Calgary died during the breeding season. One female, a nine-year-old from Patuxent was severely beaten up by her mate and did not survive. The other female, a thirteen-year-old from Patuxent became egg bound. She began losing weight and strength over a number of days and eventually died.

INTERNATIONAL CRANE FOUNDATION (ICF)

Seven females laid 32 eggs. Sixteen of the eggs were known to be fertile, and 13 chicks hatched. Three of the eggs were transported to Patuxent May 9 on the Windway Corporation airplane where the youngsters were hatched and became part of the ultralight reintroduction project. Two chicks at ICF were euthanized because of leg problems, leaving 8 at ICF. Three are being raised by pairs of whoopers and the other 5 are being costume-raised in isolation. Two and possibly 3 of the chicks will be held in captivity as genetic replacements for the flock. The remainder will form a cohort for release in central Florida this winter.

The 2002 production year was a marked improvement from last year. Changes implemented by the staff after a review by experts from Patuxent last fall presumably played a role in the successful spring. Highlights of the spring were that 4 of the 8 chicks came from 2 pairs that never before produced offspring. Three chicks came from Josh and Baratux. The staff retrieved eggs from O'Malley and Bosque who have a history of breaking eggs or producing soft-shelled eggs and raised one chick from them. Also, Bosque was used as a semen donor. Paternity testing will be done by genetics specialist Ken Jones at the University of Illinois in Chicago to see if the chicks of either Oobleck or Riva were fathered by Bosque.

The excellent production carried over to the staff with Mike Putnam and Kate Fitzwilliams having babies, and Rachel Jepson expecting at the end of August. Rachel worked half-time until mid-July, and then resigned to run her own private business and be a full-time mom. Joan Garland is the new education outreach coordinator at ICF.

ICF staff were involved with nearly all aspects of the WCEP reintroduction project. Staff participated in raising chicks at Necedah National Wildlife Refuge, the birds' first migration with behind an ultralight, monitoring the birds on their wintering area at Chassahowitzka National Wildlife Refuge, tracking the birds' return migration in the spring, as well as participating in the project's administration, public outreach and fund-raising efforts.

USGS PATUXENT WILDLIFE RESEARCH CENTER (PATUXENT)

The first egg laid by the captive flock was on March 16 at Patuxent. In all, 10 Patuxent female whooping cranes laid 43 eggs, of which 26 were known fertile and 22 hatched. The Patuxent staff had predicted that between 21-23 fertile eggs would be laid in the first half of the production season that would supply chicks for the ultralight reintroduction program. With numbers coming up just a little short, 3 eggs were shipped from ICF and hatched at Patuxent to meet the target of 18 chicks to ship to Wisconsin. This number came up only one short when a chick developed a wing injury following a health check prior to shipment. This crane will be held at Patuxent for use as an imprint model. Cohorts of 7 and 10 birds were flown to Wisconsin on June 12 and 27 in the Windway Corporation airplane. The support that Terry Kohler and crew of Windway Corporation provides is invaluable and very much appreciated. This year, they have moved juveniles to Florida for the non-migratory reintroduction, transported eggs from ICF to Patuxent, flown two cohorts of chicks from Patuxent to Wisconsin, provided aerial support to ICF for sandhill crane research, and did aerial radiotelemetry tracking the migrating whooping cranes between Florida and Wisconsin.

After providing chicks for the Wisconsin reintroduction, 7 chicks were left at Patuxent. One is the WCEP bird with the bad wing which will stay in captivity. Another had leg and other growth abnormalities and had to be euthanized. This left 5 being conditioned for release in Florida, although one may be held back for genetic replacement purposes. Plans were made to bring 2 chicks in from San Antonio to form a cohort of 6 or 7 that would go to central Florida this winter.

The breeding program was set back with the loss of one adult female who died March 19 from a huge infection with a fully formed egg in the shell gland. This female had been a valuable bird from a genetic standpoint having come from an egg in Wood Buffalo. Her eggs had been slated to go to the nonmigratory flock in Florida to improve the genetic makeup of that release program.

An apparent predation attempt occurred at Patuxent. On June 21, one of the ultralight chicks was found with a drooping right wing containing several puncture wounds, the same bird that previously had suffered a wing injury on the left side. A mammalian

predator was suspected, and the chicks were put in the propagation building at night to avoid further dangers. Trapping attempts to catch the possible predator were unsuccessful, however the pens have been safely occupied since then by sandhill cranes.

Film crews from Sunshine Productions and the British Broadcasting Corporation filmed the Patuxent crane operation in May. Dr. Judd Howell was named the new director at Patuxent who expressed enthusiasm and support for the crane program. On April 20, USFWS Director Steve Williams toured the Patuxent crane facility with George Gee, Brad Knudson (Patuxent NWR manager) and Judd Howell. Mr. Williams was also very enthusiastic about the crane program and WCEP.

Dr. George Gee, after nearly 40 years of government service with 34 years at Patuxent, announced his retirement at the end of August. However, he will accept a scientist emeritus position at Patuxent and remain involved with the crane program to complete numerous projects and make the transition to "private" life. He'll be traveling to New Orleans the first week of his official retirement to lend his expertise reviewing the Mississippi sandhill and whooping crane production program at ACRES.

SAN ANTONIO ZOO

The two breeding females at the San Antonio Zoo laid 11 eggs this spring. Artificial insemination was done on both pairs using semen flown in weekly from Patuxent. Only 2 of the 8 fertile eggs hatched, making the staff suspect possible problems with the incubators used even though they seemed to be fully operational. The two chicks were isolation-raised and will be sent to Patuxent for socialization into a cohort for release in Florida.

On April 25, Tom Stehn visited the San Antonio Zoo and got to see one of the newly hatched chicks. San Antonio provides tremendous support to USFWS endangered species programs for both whooping cranes and Attwater's prairie chickens.

LOWRY PARK ZOO

The Lowry Park Zoo in Tampa, Florida currently has one male whooping crane on exhibit sent to them by ICF. The original Lowry Park display crane was shipped to ACRES for pairing on April 16th, 2002. Lowry Park has worked closely with the Florida release program and currently has 2 injured birds captured from central Florida that have been rehabilitated. These birds as anticipated have become tame and will remain in captivity. One will be paired and kept on display at Lowry Park.

AUDUBON CENTER for RESEARCH on ENDANGERED SPECIES

The two young pairs at ACRES did not come in to production this spring. Plans call for 3 additional pairs to be shipped to ACRES. A review will be held in early September to balance needs of the Mississippi sandhill crane and whooping crane propagation programs, as well as discuss the West Nile Virus outbreak that occurred at ACRES.

AUDUBON PARK ZOO

Tom Stehn visited the Audubon Park Zoo in New Orleans in April to see the 2 whooping cranes that were moved to a temporary exhibit in May. A permanent exhibit in the planning stage will be constructed near the front entrance to the zoo and should receive very high visitation.

WHOOPING CRANE NUMBERS / August 28, 2002

Wild Populations

Location	Adults	Young	Total
Aransas/Wood Buffalo NP	173	*	*173
Rocky Mountains	0	0	0
Florida non-migratory	88	1	89
Wisconsin/Florida migratory	5	17	22
Subtotal in the Wild	266	18	284

* Seventeen chicks were found on August surveys. However, additional population mortality will occur so that young are not added to population totals until they reach Aransas in the fall.

Captive Populations

Location	Adults	Young	Total	Breeding Pairs
Patuxent WRC, Maryland	53	6	59	10
International Crane Foundation, Wis.	27	8	35	10
Devonian Wildlife Conservation Center, Calgary	16	2	18	6
Calgary Zoo, Alta.	1	0	1	0
ACRES, New Orleans	6	0	6	0
New Orleans Zoo	2	0	2	0
San Antonio Zoo, Texas	5	2	7	2
Lowery Park Zoo, Tampa, Fla.	3	0	3	0
Subtotal in Captivity	113	18	131	28

TOTALS (Wild + Captive) 284 + 131 = 415