



*Annual Report*  
2002

## **2002 WCEP Annual Report**

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## 2002 Overview

Our Partnership continued full-time recovery efforts with two annual planning meetings: one in pre-spring and one in fall, prior to migration. Given our large, diverse collaboration, these face-to-face meetings strengthened relationships, allowed collective brainstorming to occur and provided a forum to resolve issues. We began the 2002 season with three cohorts of whooping crane chicks hatched at the USGS Patuxent Wildlife Research Center, collectively totaling 18 birds. A notable first this year included 3 chicks from International Crane Foundation breeding stock. One crane was held back at Patuxent for future use as an imprint model, due to a wing injury (temporary droop) sustained during a health exam.

Private aircraft transported the remaining 17 pre-fledge whooping cranes to Wisconsin in June, where they were raised in prime wetland training areas at the Necedah National Wildlife Refuge, including use of a "4-star" pen facility, newly developed by refuge staff. Another improvement was the increased number of nights the cranes spent water roosting at Necedah. (We believe this is a significant change from the 2001 season cranes) Ultimately, 16 whooping cranes successfully migrated behind ultralights to the Chassahowitzka National Wildlife Refuge where they wintered in a 4-acre, open-topped pen in a salt marsh on the Gulf Coast. Many thanks go out to USFWS Region 4 staff for tripling the size of last year's pen and orchestrating a 90-ton oyster shell drop to create a roosting area that better accommodates extreme tidal fluctuations. The 16 youngsters also had the company of opportunistic 2001 bird # 5, who in addition to being dominant, took full advantage of corn & crane chow being offered.

The five 2001 whooping cranes overall demonstrated great success behaviorally and in habitat use. It is evident we have a lot to learn from reintroduced cohorts each year and anticipate differences. All five migrated successfully without prompting, assistance or predation in both spring and fall. We couldn't have asked for any better timing, as migration occurred exactly during the Aransas – Wood Buffalo whooping crane migration northward and within typical migration season southbound. During fall migration some of the 2001 cranes even crossed paths with the ultralight-led 2002 migration. Four of five '01 whoopers returned temporarily to the Florida release area prior to selecting their primary wintering areas. All five whoopers wintered in Florida, utilizing wetlands found in inland freshwater and coastal saltwater locations. Two birds never parted company and to date, have remained together as a behavioral pair. One noteworthy, unexpected thing happened in early January 2003: male # 6 from 2001, our "ambassador" bird thus far wintering in Tennessee, flew to northern Florida, where he joined 2001 bird # 7. Number 7 (an independent female) hadn't seen a whooper since splitting off from her cohort during spring migration in April 2002! It remains to be seen whether these two birds will continue to associate with each other.

### Challenges we met along the way: (the list is shorter than last year!)

- Some of the 2001 birds exhibit a high level of tolerance of human activity, whether at Necedah or other wetland areas in WI. Some also continue to accept or challenge the presence of any costumed handlers.
- 2001 birds # 1, 2 & 5 returned to the training grounds to challenge the chicks, handlers and aircraft. The situation was mitigated over time using various tactics including swamp monster impressions. Bird # 5 soon gave up, but # 1 & 2 continued the challenges throughout the summer, and behaved rather like a pair claiming territory. WCEP may benefit from this territoriality next summer if the pair returns and can prevent 2002 whoopers from reclaiming the training site.
- Lost training time due to late-summer handling for banding and health check.
- Parasites, Salmonella, West Nile Virus & Infectious Bursal Disease exposure.
- Loss of 1 bird during high winds of the first migration day.
- Diverse perspectives.

### Areas of improvement we've identified:

- Changes to handling & banding procedures in order to decrease or eliminate lost training time.
- Improved water flow in pens at Necedah.
- Increased information/data collection and sharing in all project areas.
- Quarterly reports for the Bird Team.

Additional highlights:

- Huge public support continues, not only in North America, but worldwide - especially during the fall migration.
- Over 4.5 million website visitors on the OM, WCEP, ICF and Journey North websites. Peak during migration, but good throughout the year.
- Private landowner generosity allows our gypsy caravan of pilots, ground crew, outreach staff and birds to take shelter.
- President Carter and wife Rosalynn, for a second year, visited the team during migration to provide congratulations and encouragement.
- A Partnership video, "Bringing Back the Cranes," (produced by Sunshine Productions, narrated by Graham Greene) was completed and made available for educational purposes. The production features the history of the Whooping crane and recovery efforts. Each founding partner received a master video with a 3-minute ending tailored to its organization.

Regulatory outlook: we reviewed all necessary permits and found them to be in order. Discussion and correspondence with program directors in the migratory pathway indicates regional enthusiasm and support.

Financially, we had an anticipated budget of \$1.6 million with no shortfalls reported by any partner. Donations to our Partnership fund (set up for us by NFWF) came from a substantial private donation, from a tremendously successful Tennessee walk-a-thon, and from the popular Necedah cranefest. We are currently restructuring this team's membership and operations, to face the never-ending challenges of another year's budget.

Prospectus: Our goal of establishing 25 breeding pairs and 125 birds by 2020 remains within sight. We presently have 21 whooping cranes in the Eastern Migratory Population, with 18-20 additional chicks projected for 2003. Plans are underway to initiate a supplemental release technique to augment the ultralight-led recovery efforts.

## Field Team Report 2002 Operation Migration Inc.

**Objectives:** Costume-raise Whooping crane chicks using a strict isolation- rearing protocol to ensure and maintain wildness. Condition crane colts to accept and follow specially modified ultralight aircraft.

Utilize a network of private landowner locations, isolated from urban areas, to lead juvenile cranes on a new migration path originating at the Necedah National Wildlife Refuge in central Wisconsin, and continuing through Illinois, Indiana, Kentucky, Tennessee, Georgia and Florida, until arriving at the southern terminus, located on the central-west coast.

Deliver the cranes, with as little human interaction as possible, to the Chassahowitzka National Wildlife Refuge where they will undergo a soft-release into the wild in an isolated area of the 30,000-acre refuge.

Monitor the movements and behaviour of the birds during the winter months. Monitor the movements, habitat selection and behaviour during the spring migration and thereafter.

### **Summary:**

Whooping crane eggs/chicks were isolation/costume reared in accordance with the USGS Patuxent WRC protocol for Hand-rearing Crane Chicks. Hand-held adult crane puppets as well as digital recordings of adult whooping crane vocalizations were utilized.

The chicks were exposed to the aircraft and conditioned to accept handlers in the aircraft as surrogates.

The pre-fledge cranes were transported to central Wisconsin in accordance with Operation Migration/USGS Patuxent Wildlife Research Center's Protocol For Transporting Cranes.

The Whooping cranes were led in migration by ultralight aircraft beginning in central Wisconsin and continuing to the central Gulf coast of Florida.

The Whooping cranes were released into the wild using a soft-release technique and were monitored using satellite and radio telemetry as well as video surveillance equipment.



Ultralight aircraft will be used to lead a new generation of Whooping cranes south each year until a flock of experienced birds is established.

It is anticipated the adult birds will teach this same migration route to their progeny as well as to additional captive-reared cranes that can be acclimated to this pioneering population.

Once the introduced flock reaches a self-sustaining level, the mandate of the WCRT will be fulfilled - resulting in the down listing of the species.

**Methods:**

In April and May of 2002, 18 Whooping crane chicks were produced from captive breeding flocks at the USGS Patuxent Wildlife Research Center and the International Crane Foundation. At approximately two weeks they were conditioned to follow the aircraft using a circular enclosure, two feet tall and thirty feet in diameter. The chicks were placed individually or in groups of two within the enclosure and the aircraft, minus its wing, was taxied around the perimeter. A puppet was extended out of the aircraft and into the pen.



The costumed handler slowly moved the aircraft ahead then used the puppet to dispense mealworms to encourage the chicks to follow. The procedure was repeated until the chicks would run after the aircraft, which also broadcast a digitally recorded adult crane “brood call.”

In past studies the birds had difficulty making the transition from following the wingless aircraft used in preliminary training to following one with the wing attached. This conversion was simplified by adding a small non-functional wing to the training aircraft.

To minimize human contact the birds were trained with the aircraft, on average, three times each week in our earlier studies. With the availability of additional staff and the need for more exercise during the development stage, the number of days the birds were trained was increased this season to five or six times per week.

Once the birds began to socialize and were old enough to tolerate cool evening temperatures they were divided into three cohorts and moved to outside pens. An age difference of 39 days between the oldest and youngest bird required that they be transported to the Necedah National Wildlife Refuge (NNWR) in Wisconsin in two shipments with the first 7 birds arriving on 12 June 2002 and the remaining 10 on 27 June 2002. These shipments were accomplished through the generosity of Windway Capital Corp. One bird was injured during handling and was removed from the study before the shipping date. Each bird was examined by the PWRC veterinarian prior to shipment and on arrival they were weighed and received a full-body radiograph while still in their shipping containers.



The individual cohorts were housed at three isolated training facilities in closed areas of the Necedah NWR.

The primary structure at each site is a high security, top-netted pen with wood walls to provide a visual barrier. This allows an area for the field team to work while out of sight of the birds. Adjoining this enclosure is a large, wire-fenced, top-netted pen built mostly in water to allow the birds to water roost. (The birds roosted in water an averaged of 82 nights during their stay at NNWR). Both structures are protected by an electric fence and camouflaged to make them appear more natural.

The increase in the number of training days at Patuxent and the addition of a small, non-functional wing to the training aircraft, designed to ease the transition to the full size wing, helped to better prepare the birds. The results were immediately noticeable at Necedah when all the birds enthusiastically followed the aircraft.

Training continued over the summer with each group working with the aircraft approximately on fifty-two occasions. All birds fledged at approximately 100 days of age. On 25 August, cohort two was flying well enough to be led to the north site and integrated with cohort three. On 26, 27, 29 August cohorts two, three and one respectively underwent a pre-migration health check and were fitted with identification bands and radio-tracking devices.



On 16 September we led the combined cohort two/three and cohort one to the east site. Initially a chain-link divider separated their pens allowing them to acclimate while preventing aggression. On 21 September we removed the divider and the entire group of seventeen cranes were integrated into one large cohort.

### ***Migration Launch...***

The target start date for the migration was initially set for 7 October but later delayed until the 10<sup>th</sup>. This is the date when all the birds, equipment and the crew are ready but the actual departure is dictated by weather.



On the morning of 13 October the conditions were suitable and four ultralight aircraft left the Necedah airport and flew to the north site on the Necedah NWR. Seventeen birds were released but as we headed south the weather deteriorated rapidly and became very rough. One bird turned back after a short time and returned to the pen.

The birds normally fly at an airspeed of 32 to 38 mph but a headwind slowed our progress to 25 mph ground speed. At 12 miles south of our departure point, one bird came into contact with the lead aircraft and sustained injuries. The aircraft was forced to land and one other bird followed it down. The injured bird was transported to the International Crane Foundation for treatment and the other was moved to the first migration stopover in an approved crate. Several other birds broke from the aircraft that assumed the lead position but all were collected and transported to the destination.

The migration took 49 days to complete, 27 of which were stand down days due to poor weather conditions. Most of these delays occurred on the northern end of the migration and the team did not reach the approximate halfway point at Hiwassee State Refuge until 11 November 2002. At this Tennessee location a permanent pen was constructed the year previous, allowing the birds to roost in water during their stay. This was the first opportunity the birds had to water roost in 30 days and they were reluctant to leave this habitat once the weather cleared. Only 7 birds could be encouraged to follow the aircraft to the next site despite several attempts over a two-day period. The remaining nine birds were transported in individual crates.

Migration Continued....

Birds are creatures of habit and easily fall into the routine of migration, however weather delays interrupted the schedule and long periods without exercise eroded their flight endurance. Occasionally individual birds had to be transported by truck to the next location. This procedure had been used in the past and does not seem to inhibit their ability to complete the return migration unassisted.

During the second half of the migration the weather improved dramatically and the team flew on eight consecutive days covering 517 miles. On one leg we led the birds to a record altitude of 4000 feet and covered a record distance of 107.2 miles. The birds responded well to the more regular schedule and all sixteen followed the aircraft enthusiastically to each new stopover.



We arrived at the Chassahowitzka National Wildlife Refuge on 30 November 2002 and the birds were led to a release pen in the salt marsh on the refuge. This enclosure was constructed in 2001 by the staff and Friends Group of the refuge and consists of ten-foot high plastic fence walls. It includes a covered feeding station, and is protected by three strands of electric fence, however it is not top-netted. The birds are free to fly in and out of the pen but encouraged to roost within the protected area by an ample food supply, regular visits by the costume handlers and a crane decoy with which they are familiar.

This pen was used by the birds led south last year but due to tidal variations did not always provide adequate water roosting areas. During the summer of 2002 it was enlarged to encompass over 3 acres. As well, 90 tons of crushed oyster shell was deposited within the pen by helicopter to provide a graduated area that the birds could roost on when the storm driven tides are extremely high or low.

Biologists and biotechs from the International Crane Foundation will monitor the birds over the winter keeping track of their movements and behaviour. Each bird is colour banded and fitted with a radio-tracking device and five carry satellite transmitters (PTT's). It is expected that, like the generation before them, they will make the return migration to Wisconsin unassisted.

### **Accomplishments 2002:**

18 Whooping cranes were successfully reared at USGS Patuxent Wildlife Research Center, Maryland and conditioned to accept the ultralight aircraft.

17 Birds were transported to Necedah National Wildlife Refuge, Wisconsin.

16 Birds were led by ultralight aircraft over 1204 miles to the Chassahowitzka NWR, Florida. (It is important to note that this is the largest number of cranes ever led by aircraft and an indication that even greater numbers are possible in the future)

After only two years the eastern population of wild, migratory Whooping cranes stands at 21 -- six more birds than existed in the early 1940's.

### **Hatch Year 2001 Cranes:**

During the first year of the reintroduction 7 Whooping cranes were led to Florida in the fall of 2001 using the ultralight technique. 5 of these birds survived the winter (2 were predated by bobcats) and all returned to Wisconsin unaided the following spring. 4 frequented areas on or near the Necedah NWR and one summered in Horicon Marsh. The International Crane Foundation monitored the birds and all selected proper habitat and avoided humans. Two birds, numbers HY01-1 and 2, established an early pair bond acting more like a breeding pair than juvenile birds.

Even though these birds will not breed for several years and may eventually separate to find other mates, it is a good indicator of proper sexual orientation. The pair attempted to establish a territory at one of the training sites at Necedah and the field team had to chase them off on several occasions in order to conduct training of the HY02 chicks.



*HY01 crane #1 at the Necedah NWR in the summer of '02*

These 19 month old birds began the southern migration between 15 and 23 November 2002 and three arrived at Hiwassee State Refuge while the migration team were at the same location awaiting favourable flying weather. During one of our failed attempts to leave this site, HY 01 #'s 1 and 2 even joined the flight and flew with the aircraft and younger birds for a short distance. Four of the five birds arrived at Chassahowitzka NWR before the migration team while one bird remained at Hiwassee another month before continuing on to Florida. All five birds are now wintering in Florida and HY01# 5 is in residence with the 16 new birds in and around the release pen. Hopefully this experienced sub-adult will teach the younger birds to forage for natural food and avoid predators.

### **Accomplishments: Hatch Year 2001**

Five birds led south in 2001 survived the winter in Florida and migrated back to Wisconsin unassisted.

All five spent the summer in proper habitat and avoided humans.

All five made the return migration and are again wintering in Florida.

### ***Plans and Improvements for 2003***

The Canada / US Whooping Crane Recovery Team met in January 2003 to discuss all aspects of Whooping crane management. Currently there are 119 birds in six captive breeding centers in North America and they are expected to produce 36 to 38 offspring in the spring of 2003. The Recovery Team decides the future of these birds and they have allocated 18 to 20 for the ultralight reintroduction project.

Each of the three training sites at Necedah National Wildlife Refuge include a high security dry pen constructed of wood panels and protected by electric fences. They are attached to large top-netted enclosures built mostly in water. These wet pens are designed to train the birds to water roost at night. Over the winter the staff at Necedah NWR will rebuild and enlarge two of these pens to provide safer night time enclosures with controllable water depths. This will allow the field team to begin water roosting training earlier in the season.

Thanks to Pathways to Nature, The Charlotte and Walter Kohler Charitable Trust and Phillips 66, three new aircraft were purchased in 2002 to replace our aging fleet. Operation Migration will fund raise for one additional aircraft in the 2003 field season.

We hope to recruit an additional intern and at least two new pilots this season in order to ensure that we are able to provide a full crew in the event some of the existing team members are unavailable.

#### **Field Team:**

Joe Duff: Team Leader, Pilot, Operation Migration  
Brooke Pennypacker: Pilot, Operation Migration  
Richard Van Heuvelen: Pilot, Operation Migration  
Dan Sprague: Biotech, Patuxent Wildlife Research Center  
Brian Clauss: Biotech, Patuxent Wildlife Research Center  
Kelly McGuire: Biotech, International Crane Foundation  
Mark Nipper: Intern, Operation Migration

#### **Migration Team:**

Joe Duff: Pilot, Operation Migration  
Bill Lishman: Pilot, Operation Migration  
Brooke Pennypacker: Pilot, Operation Migration  
Richard Van Heuvelen: Pilot, Operation Migration  
Dan Sprague: Biotech, Patuxent Wildlife Research Center  
Brian Clauss: Biotech, Patuxent Wildlife Research Center  
Kelly McGuire: Biotech, International Crane Foundation  
Mark Nipper: Intern, Operation Migration  
Heather Ray: Outreach Coordinator, Operation Migration  
Gordon Lee: Driver, Operation Migration  
Paula Lounsbury, Top Cover Pilot, Operation Migration  
Don Lounsbury, Top Cover Pilot, Operation Migration



## HEALTH MANAGEMENT, WCEP 2002

*WCEP Health Team: Barry Hartup (ICF), Julie Langenberg (WDNR), Kim Miller (USGS NWHC), Glenn Olsen (USGS PWRC), Marilyn Spalding (UF-Gainesville)*

Health care and disease monitoring were provided for the 18 whooping cranes in the 2002 WCEP project. Survival was highest of the 3 years of WCEP (94%). A significant effort was made throughout the year to reduce direct hands-on examination and sampling of the birds in order to decrease potential morbidity from handling. The cranes were assessed by observation, physical examination, and laboratory testing from hatching at the Patuxent Wildlife Research Center (PWRC) in Maryland, through flight training in Wisconsin, along the ultralight-led migration and shortly after arrival at their final destination in Florida. Veterinary treatments and management consultations were provided as health problems were identified.

Health care and disease monitoring were provided for the WCEP 2001 project birds as needed. A network of veterinary consultants (attached) was notified of the team's presence along the migration pathway to provide emergency care for WCEP cranes if needed. Survival of these 5 birds was 100%. Bird health care and monitoring protocols were developed for each phase of the project, and a disposition protocol for birds unable to continue with the release was finalized. A WCEP health database is maintained at ICF, but needs overhauling.

### Summary of Whooping Crane Health Monitoring and Findings

#### **MORTALITY**

- During the first stage of the migration on October 13, bird 10-02 struck the aircraft's rigging and became entangled. The bird was treated at ICF under quarantine conditions for 12 days for soft tissue injuries and capture myopathy. The bird was unable to stand on its own and deteriorated during its hospitalization, and was euthanized on October 25. Necropsy at the NWHC revealed: trauma (lacerations and thoracic hemorrhage from the aircraft strike), severe capture myopathy (struggling during and after the incident and in hospital), and mild aspergillosis (likely acquired during hospitalization despite therapy to prevent infection). The bird showed no evidence of parasitism on necropsy and no unusual microbiological findings.

#### **MORBIDITY**

- 06-02 was removed from the WCEP release cohort while at PWRC just prior to shipment to WI. The bird apparently sustained an injury during restraint for the pre-shipping examination. This case was similar to 04-01 and 09-01, with drooping of the wing but lack of clear soft tissue damage. No significant improvement was noted up to 10 days post-injury.
- Hardware disease (a screw and washer) was identified via radiography in the gizzard of 09-02 at arrival in Necedah. The bird was evaluated thoroughly prior to transport to the University of Wisconsin School of Veterinary Medicine for endoscopy to retrieve the foreign bodies. The procedure was a successful outpatient procedure and maintained the isolation protocol.
- Mild trauma to the hocks was observed in 7 birds at arrival in Necedah likely due to shipping conditions. Bird 02-02 broke 11 tail feathers that necessitated removal to prevent further hemorrhage. Regrowth was uncomplicated and no other birds showed residual problems from the shipping. (This compares to 4 birds with minor feather damage in 2001).
- Five birds were reportedly lethargic, and two also with varying degrees of lameness or wing droop following restraint for banding and health checks in late August. The two showing signs of musculoskeletal discomfort were treated successfully with an analgesic. All problems resolved within several days.
- Three birds were physically evaluated in late summer at Necedah: 10-02 a minor eye irritation that resolved within 24hr, and two for lethargy and decreased responsiveness to costumed caretakers. 18-02 was examined but not treated, and 07-02 was given supportive care. The cases resolved in 4 and 9 days, respectively. No cause was found for the birds' illnesses; little training time was lost in all 3 cases.
- On the third leg of migration in Wisconsin, 01-02 experienced trauma from flying into an emergent tree branch. A 2+ inch laceration on the inner right thigh was sutured successfully at ICF and the bird was reintegrated into the group in the traveling pen later the same day.

### **PARASITE ISSUES**

- Gapeworm was detected in the whooping cranes at Necedah throughout the summer. 03-02 was infected on arrival at Necedah. All individuals received 5 dewormings during the summer (a small portion received 6 treatments). Despite this, many birds had persistent or recurrent mild wheezing associated with this airway parasite. No birds required steroid treatment this year to alleviate exercise-associated wheezing.
- Coccidia were detected from one fecal sample in mid-July out of 89 evaluated throughout summer training. The case was not associated with disease to our knowledge.
- Capillaria was found in the feces of 07-02 at arrival. An attempt to treat the bird with fenbendazole failed. An examination of feces about 1 week prior to arrival in Florida is recommended next year to decrease the potential worm burden in the release pen at Chassahowitzka. Five pellets collected on December 12 and five from January 2, 2003 were negative for helminth or protozoal parasites. Treatment of the birds in FL by non-invasive means has also been problematic this year.

### **BACTERIAL DISEASE ISSUES**

- Moderately high levels of *E. coli* and other coliform bacteria were found in water samples taken from several areas of the pens at Necedah in late summer (especially Site 4 near the dry pen). Though no associated health problems were detected, there was concern about the water quality at that time. A regular monitoring plan was not in place this past year due to several management changes (solar pumps, good water table) and expected earlier movement of cohorts between sites.
- A non-pathogenic strain of *Salmonella typhimurium* (Group B) was detected in 6 of 17 cranes on arrival at Necedah (all had tested negative at PWRC 14 days prior to shipping). Four of the birds self-cleared prior to migration, while 2 remained positive. All 11 birds that were negative at arrival remained negative until departure; thus, no birds picked up new *Salmonella* infections despite being cohoused with *Salmonella* shedders while at Necedah. Bird 08-02, who had never tested positive for *Salmonella* on 4 previous tests, tested positive for group C1 *Salmonella* on arrival in FL; the remainder of the cohort was negative. No disease was associated with these infections.

### **VIRAL DISEASE ISSUES**

- Eastern Equine Encephalitis titers were negative in WI and FL; no vaccinations were performed this year due to lack of virus activity in WI.
- As West Nile Virus distribution expanded throughout the eastern US in 2002, the risks for the whooping cranes associated with West Nile Virus were extensively discussed. The birds were tested three times for evidence of exposure; one bird 08-02 was antibody positive in late August in WI and at arrival in FL. There was no evidence of clinical disease in this bird at any time, nor other flock members, that could be linked to WNV infection. A decision was made not to vaccinate the flock primarily due to risks of morbidity from handling when compared to risks from the disease. Additional work on the WNV vaccine trial of PWRC & NWHC is pending. Options for the upcoming year include vaccination of the entire cohort, or vaccinate half the chicks in order to learn more about the epidemiology of exposure to WNV in these cranes.
- Infectious bursal disease virus has been linked with several mortalities in the non-migratory FL releases of early 2002. As pathological data trickled in late summer, a decision was made to screen the 2002 WCEP cohort for exposure to the virus using serum from the August health check. Four of 17 birds (2-02, 11-02, 12-02, 13-02) were positive. None of the four showed signs of disease either in WI, during migration, or after arrival. The WCEP health team will be collaborating with the Whooping Crane Health Advisory Team to further study this disease and its potential impact on Whooping crane recovery in the months ahead. Regular IBD testing is now a part of pre-transfer screening for Whooping cranes.

### **ADDITIONAL MONITORING RESULTS**

- Results are available from the fecal corticosterone/stress indicator study done with the 2000 & 2001 WCEP cranes. These were presented at the North American Crane Workshop in Sacramento in January 2003. A manuscript on the 2000 Sandhill crane cohort has been submitted to the *Journal of Wildlife Diseases*. No evidence of significant chronic stress was observed among either of the cohorts throughout rearing, training or migration. Box shipment to WI, restraint for banding/health checks as older juveniles, acute physical exertion and significant disturbances surrounding the pen during migration were found most often correlated with rises in corticosterone.

### **Summary of 2001 WCEP Whooping Crane Monitoring and Findings**

- Necropsy of 10-01: This 7-month old whooping crane was not present with the other 5 whooping cranes on the morning of 10 Jan 2002. The carcass was not found until 19 Jan. It consisted of scattered feathers and bones. A trail including se feathers led from the edge of the bank eastward about 13 m to where a bobcat presumably had dragged and eaten the bird. Bobcat sign had been seen in the area and two bobcats had been trapped in the area. The remains consisted of both legs, part of the sternum, both humeri and carpi and attached and loose feathers. There was evidence of gnawing on all bones in a pattern that was similar to that seen in other bobcat kills. Some of the feathers were from another species and had white crossbars, similar to the abdomen of a rail.
- Fecal samples collected from the release pen showed Capillaria ova in January and February 2002.
- Disease monitoring samples were collected opportunistically from 01-01 when the bird was handled for a routine band/radio change in September; nothing significant was found.

### **Summary of 2000 WCEP Sandhill Crane Monitoring and Findings**

- No activity to report.

### **Health Team Issues for 2003**

- The Health Team actively supported and implemented a more limited health screening protocol in 2002. Refinements in 2003 will include: how to integrate WNV vaccination into the regular chick exam schedule at PWRC, a regular schedule of fecal examinations and dewormings to suppress worm burdens in chicks training in Necedah, and especially during the latter stages of migration to keep burdens low in the release pen at Chassahowitzka. We recommend that a screening of the full cohort be done, however, upon arrival in Florida to screen for IBD.
- Performing the pre-migration and post-migration health checks during evening hours was successful; a similar plan is suggested for 2003.
- We suggest capture and restraint of the 2003 cohort for pre-migration health checks and banding be done with handlers wearing se costume other than the whooping crane costume used daily with the birds. We feel this will minimize the negative consequences of manipulation by a parental figure and improve training immediately following these procedures.
- Results of water quality testing in 2001 and 2002 suggest that all effort should be made to move (ie fly) the cohort(s) to new unoccupied pens as often as possible and maintain the solar water pumps in working condition as much as possible. A maximum length of stay in one pen is ~ 2 months.
- This year's Necedah health monitoring results of recurrent parasite infections, Salmonella isolates, and water quality concerns all suggest that we need to continue to work with the Necedah team on crane pen management. Isolation protocols (foot dipping, limited exposure to surrounding areas) and good pen management may have limited Salmonella contamination at Necedah. No direct benefit from lime application was discerned with respect to the occurrence of parasitism, but remains an acceptable disinfection step prior to the birds' arrival. Plans are in place for liming all sites in late April 2003.
- As more whooping cranes are introduced into the WCEP flock, there will be an increasing need for hospitalization, rehabilitation, and short-term housing facilities in Wisconsin. We need to formally identify other partners in the state who can help with these needs as soon as possible.

Now that we have a migration vet network for the project, we need to establish the communication and oversight system to make the network function. All participating veterinarians received an update letter and video about the project during the summer of 2002. The network list/locations were integrated into the migration handbooks, and contact information for the primary project veterinarians was provided to the migration team so consultations could be made on an emergency basis. A mechanism should be identified to notify the network vets that the migration is in their area as the migration proceeds, and acknowledgement of the network veterinarians' willingness to help (even though it wasn't needed this year) should be made soon.

**Pictures from 2002**



Box Radiography works well with proper ID



09-02 Hardware in gizzard



09-02 pays a visit to UW



The culprits!



Shipment tail feather damage 02-02



Hock abrasions



High water table at Site 1, but nearby water not circulating



10-02 eye irritation cleared well



Necedah checks during early evening went smoothly



01-02 leg laceration, treated at ICF

Jeanne Marie Pittman has left ICF to pursue wildlife work in South Africa; we'll miss her at health checks!



## ***WCEP Migration Veterinary Network***

The following veterinarians have offered to provide emergency services for the WCEP whooping cranes. All of these clinics can provide diagnostic and therapeutic management and short term care for cranes in their facilities, and some would be willing to come to a migration stopover site to provide care. When possible, contact the zoo veterinarians first; they generally have access to better crane holding facilities and are more experienced with cranes. The WCEP Health Team (Hartup, Langenberg, Miller, Olsen, Spalding) will provide consultation and oversight to these veterinary partners.

### **ILLINOIS**

Chicago area

Rich Nye/ Robert Ness Tel: 708-344-8166 or 708-701-4593  
Midwest Bird/Exotic Animal Hospital  
1923 So. Mannheim Rd. Westchester, IL 60154

Tom Meehan/Jennifer Langan Tel: 708-485-0263  
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## YEAR 2002 MONITORING SUMMARY

Richard P. Urbanek  
8 February 2003

### HY2001 COHORT

#### First Winter

Seven juvenile whooping cranes were released into a remote, open-topped pen on Chassahowitzka National Wildlife Refuge (NWR) on the Central Gulf Coast of Florida in fall 2001. Six of these birds were led by Operation Migration ultralight aircraft from Necedah NWR in central Wisconsin and reached Chassahowitzka NWR on 5 December. Another bird, transported in a box by truck during migration, had been released at Chassahowitzka NWR the previous day. This latter bird was killed just outside the pen perimeter by a bobcat on 17 December. Another bird was killed while attempting to roost in a narrow tidal creek on the night of 9 January. After this second mortality, more rigorous overnight protection measures (i.e., making sure the birds roosted either within the predator-proofed pen or in water more than 20 feet from shore) were implemented, and no further mortalities occurred. Bird activities are described in the winter release site section below.

#### Spring Migration

The five remaining cranes began migration as a single flock on 9 April and flew to Wilcox County in south-central Georgia (Fig. 1). After being grounded for 2 days with rain, they made a short flight to Henry County, Georgia, just south of Atlanta on 12 April. After another day of rain, they resumed migration on 14 April, when a female (no. 7) separated in flight from the other four birds over northern Georgia. She landed in McMinn County, southeastern Tennessee, while the main group of four proceeded to Fentress County, northeastern Tennessee. The group of four flew on 4 of 5 more days with stops in Johnson County, south-central Indiana, Cook County (Chicago Metro Area), Illinois, and Dodge County, southeastern Wisconsin, before landing at Rynearson Pools (their rearing area the previous year), Necedah NWR, on 19 April. The entire migration had taken the group 11 days, of which 7 were flight days. The route was roughly direct; distance covered per flight day varied from 93 to 238 miles; mean = 170 miles. Meanwhile, through 18 April crane no. 7 stopped in north-central Kentucky (exact location unknown) and Jasper County, northwestern Indiana, before landing in Rock County, south-central Wisconsin. She remained at the latter location until 30 April when she flew to Crawford County in southwestern Wisconsin and then flew to Rynearson Pools, Necedah NWR on 3 May.

#### Spring Wandering

The whooping cranes, like previously released experimental sandhill cranes led on fall migration by ultralight aircraft, moved to other locations in Wisconsin, generally south and east of Necedah NWR, during spring 2002. After return and one night of roosting on Necedah, all of the cranes left the following day. The group of four (nos. 1, 2, 5, and 6) moved to several sites south and southeast, spending the largest amounts of time 17 miles south near Mauston, southern Juneau County (23 April–5 May) and 108 miles southeast near Cold Spring, Jefferson County (~10 May - 1 June for three birds, until 8 June for crane no. 6) (Fig. 2). No. 6 had remained separate from the other birds after he sustained a minor leg injury ~20 May. The group of three returned to Necedah on 2 June, moved back to Mauston on 12 June, then returned to Necedah on 26 June. No. 6 returned to Necedah on 9 June. When off refuge, the cranes typically inhabited agricultural lands, feeding on waste corn and roosting in wet areas or ephemeral pools in or near the fields.

No. 7 apparently spent 5-26 May in southern Wisconsin (exact location unknown), moved to Leola grasslands in Adams County on 27 May, then to Rush Lake, Winnebago/Fond du Lac Counties) ~29 May, where she remained until ~22 June. She then moved to Radke Pool, Horicon NWR in southern Fond du Lac County, 82 miles east-southeast of Necedah (Fig. 2).

## **Summer Home Range**

After his return on 9 June, no. 6 settled in the Ryneerson Pools area of the refuge and remained there for the summer. The group of three also returned to the Ryneerson Pools area, and after some interference with training of the current year's cranes to follow ultralight aircraft, efforts by project personnel to frighten them resulted in separation of no. 5 from the group. He remained apart and by 10 July settled for the remainder of the summer about 6 miles north at Sprague-Mather Pool on the northern part of the refuge. Nos. 1 and 2, a male and female behaving as a pair, briefly left the refuge to the northwest but returned to Ryneerson on 7 July and remained for the summer. All of the whooping cranes associated with sandhill cranes, and nos. 1, 2, and 6 consistently roosted with sandhill cranes from mid-July onward. No. 7 remained at Radke Pool, Horicon NWR, after arriving there in late June.

## **Autumn Staging**

Nos. 1 and 2 left Necedah NWR on 8 October and returned to the same area west of Mauston which they had used in late June. That night they roosted in wetlands south of Castle Rock Lake. They fed in recently harvested cornfields west of Mauston on 8-9 October and near New Lisbon on 10 October. They roosted in a sedge meadow on southwestern Necedah NWR on the night of 9 October and returned to roost with sandhills on East Ryneerson Pool that night. They remained in the Ryneerson Pools area until they returned to the Mauston cornfield on 13 October. They roosted in a sedge marsh 6 miles north that night, then returned to Ryneerson Pools the next day. They remained, roosting with either sandhill cranes or near one of their former rearing sites, until they returned to the Mauston cornfields on 1 November and then roosted in the previously used sedge marsh 6 miles north that night. They returned to the cornfield the next morning and then to East Ryneerson that afternoon. They made another foray to the cornfield on 12 November and returned again to East Ryneerson to roost. They remained, feeding extensively on fish trapped in the shallows of drawn down East Ryneerson Pool, until they migrated on 21 November.

Unlike the pair (nos. 1 and 2), the three single yearling whooping cranes each became integral members of staging sandhill crane flocks:

No. 5 left Necedah NWR on 7 October and joined a flock of sandhill cranes staging northeast of Mauston. That flock fed in local cornfields and roosted in wetlands south of Castle Rock Lake. On 2 or 3 November he joined the staging flock at Quincy Bluff, 7 miles eastward in Adams County. On 4 November he moved 18 miles southeast to a large staging area at Widow Green Marsh, near Briggsville, southwestern Marquette County, where he usually roosted in marsh along Neenah Creek or South Branch (Fig. 2). He migrated on 23 November.

No. 6 also left Necedah NWR on 7 October and joined the staging sandhill cranes north of Briggsville. At that time the flock fed in local cornfields and roosted mainly in Widow Green Marsh. By 3 November he was foraging 4 miles northeast of Widow Green Marsh and roosting in Endeavor Marsh 4 miles east of that feeding area. He migrated on 9 or 10 November.

No. 7 remained in the northern Horicon NWR area and by late September had joined large sandhill crane flocks that were roosting in Teal and Luehring Pools (just south of Radke Pool), Dodge County, and feeding in recently harvested cornfields east of the refuge. She migrated on 15 November.

## Autumn Migration

Four of the five cranes followed the same general pattern (Fig. 2), i.e., a direct migration consisting of six consecutive flight days with one-night stops at the major crane congregation areas of Jasper-Pulaski (J-P), Indiana, and Hiwassee Wildlife Refuge, Tennessee, and three opportunistic stops (one between J-P and Hiwassee; two between Hiwassee and the Central Gulf Coast of Florida). No. 6 followed a different pattern; he spent several days on a staging area at the Wisconsin-Illinois border before passing through J-P and then spending 1.5 months at Hiwassee. Available data indicate that all whooping cranes migrated with sandhills except during the final approach in Florida. Specific data are as follows:

Nos. 1 and 2 flew from Necedah NWR to J-P on 21 November and left J-P the next morning. The pair arrived at Hiwassee on 23 November, left the next morning, and made overnight stops near Concord, Georgia, and Lake Butler, Florida, before arriving at St. Martins Marsh Aquatic Preserve in early afternoon on 26 November. No. 5 left the Briggsville staging area on 23 November and arrived at Hiwassee on 25 November. He left the next morning and arrived at the pen on Chassahowitzka NWR on 28 November. After leaving Endeavor Marsh on 9 or 10 November, no. 6 moved to a staging area that included parts of Kenosha and Walworth Counties, Wisconsin, and McHenry County, Illinois. He flew to J-P on 16 November, left the next morning, and arrived at Hiwassee on 18 November. He remained there with wintering sandhill cranes until, in apparent response to depletion of corn on the refuge, he departed southbound with sandhill cranes on 3 January. He roosted that night in Gordon County, Georgia, and resumed migration the next morning. He arrived in the Hixtown Swamp area, Madison County, Florida, after dark on 4 January and joined the group containing Whooping Crane no. 7 and 50 sandhill cranes on 5 Jan. No. 7 left Horicon NWR on 15 November and arrived at the pen on Chassahowitzka on 20 November (observed there the following morning). She remained a few days and then joined wintering sandhill cranes 135 miles north-northwest at Hixtown Swamp, Madison County, Florida (found there on 28 November).

## Second Winter

Nos. 1 and 2: After arriving at St. Martins Marsh Aquatic Preserve on 26 November and then spending about 3 days exploring the 20 miles of St. Martins/Chassahowitzka coastline, the pair settled on the Marsh just east of Ozello (Fig. 3). They roosted in the upper Greenleaf Bay area and typically spent daytimes foraging in openings between the Bay and palm hammock to the east. A favorite area was a large open patch of salt grass (*Distichlis spicata*) with no needlerush, little surface water, and surrounded by brush and palm hammock. They foraged by probing in mud in small wet areas. The pair left St. Martins Marsh on 14 or 15 December. Their departure may have been prompted by high tides which raised water levels in their roosting area in Greenleaf Bay on 13 December. On 17 December they were found inland on a private cattle ranch 39 miles south near Land o' Lakes, Pasco County, where they have remained for the winter. They have been roosting in a large pond. Because of lack of landowner permission, observation of the daytime foraging area has not been made.

No. 5: After he arrived at the Chassahowitzka pen site on 28 November, the HY2002 flock of 16 chicks, led by ultralight aircraft, completed their migration to the pen two days later. No. 5 joined the flock in the pen and is the dominant bird. Like the juveniles, he roosts in the pen, eats from the feeder, and approaches the costumed caretaker.

No. 6: After joining the group containing Whooping Crane no. 7 and 50 sandhill cranes at Hixtown Swamp on 5 January, no. 6 remained in the group through the morning of 7 January. By the evening of 9 January, he had moved to a different wetland in the same complex but 4.5 miles west. The latter wetland is a major sandhill crane roosting area. No visual observation has been possible because of lack of landowner permission.

No. 7 remained with wintering sandhill cranes in a wetland in the Hixtown Swamp area. She usually remains within a small use area and apparently does almost all foraging in the wetland.

All whooping cranes have remained sedentary on their final selected wintering areas. This behavior is typical of wild migratory sandhill and whooping cranes.

## **Problems and Concerns**

The only serious problem that has appeared for released birds was bobcat predation on newly released juveniles in Florida. This problem has been solved or at least largely diminished by improvement of winter management practices.

Three additional areas of concern have become apparent:

1. Inconsistent roosting in water or roosting in water too near shoreline: During spring and early summer the yearling whooping cranes sometimes chose good roosting sites, but at other times they roosted on land, in small wetlands near shore, or in farm fields with a very limited extent of standing water. In summer, the whooping cranes began associating with wild sandhill cranes. From that time on, they consistently selected safe roosting habitat.

2. Inadequate human avoidance: Although the released whooping cranes were never attracted to unclothed humans, they occasionally demonstrated inadequate fear of humans and vehicles, especially while on farmlands in spring and early summer. However, since returning to the refuge and/or joining wild sandhill cranes in summer, behavior improved and no significant problem has become apparent. Nos. 1 and 2 have demonstrated some attraction to sites subject to limited human activity, e.g., a duck-banding site within their territory on East Ryneerson Pool. Their current winter location is near a human residence on a private cattle ranch and contains non-migratory sandhill cranes that are tolerant of people. That site will therefore not reinforce desired human avoidance behavior and is some cause for concern.

3. Most whooping cranes did not return and then remain to winter on the Central Gulf Coast during their second winter. Primarily tidal fluctuations, but also salinity, unstable or rocky bottom substrates, and general habitat dominance by needlerush, have presented challenges to habitation of the area by whooping cranes. Usable roosting habitat is not consistently available. However, wintering in coastal wetlands, although desirable, is not biologically necessary for success of this reintroduction. Attaining the necessary goals of survival, reproduction, and human avoidance can also be achieved by other wintering strategies.

## **Summary and Conclusions**

Survival of the migratory whooping crane flock has been 100% since improved measures to protect juveniles from predators at the winter release pen were implemented. The HY2001 birds have now been through one complete unassisted migration cycle from Florida to Wisconsin and back to Florida with no mortality. Foraging, roosting, and human avoidance behaviors are currently meeting draft behavioral goals.

## **HY2002 COHORT**

The flock of 16 juveniles was led to the release pen by Operation Migration ultralight aircraft on 30 November. All have adapted well to the release pen and vicinity. Details are provided in the winter release site section below.

## **WINTER RELEASE SITE**

The release pen on Chassahowitzka NWR (Fig. 4) is located in an area representative of the surrounding salt marsh. The typical salt/brackish marsh habitats characteristic of the Central Gulf Coast are located within 0-1.5 miles of the pen. The pen was expanded from 1.5 acres in winter 2001/02 to 4.0 acres in winter 2002/03. The expanded portions included (1) a deeper pool, (2) an artificially constructed oyster bar (on top of an existing natural oyster bar), and (3) an area of salt grass, originally just outside the southeast boundary of the old pen, that was a favorite loafing area for the HY2001 birds during their first winter and on which they frequently attempted to roost.

## **Predator Control**

In winter 2001/02 two of seven juvenile whooping cranes were killed by bobcats within 1.5 months of release on the wintering site. Before these mortalities, there were two schools of thought on management of roosting: (1) allow birds to roost at locations of their own choosing, and (2) ensure safety of the birds by making sure they were in the pen or in water at least 20 feet from shore at roosting time. After these mortalities, management option (2) was implemented. No additional mortalities have resulted in either of the two released cohorts. The offending bobcats were trapped and removed from the area, and a continuous trapping effort was implemented. Although bobcat sign has occasionally reappeared near the pen in each of the past two winters, no additional bobcats have been captured.

## **Problems with Roosting**

Whooping crane juveniles have demonstrated inconsistent water roosting behavior at Chassahowitzka. This occurs for two reasons: (1) the birds may not have learned to consistently roost in water or a safe distance from shore, and (2) consistently usable roosting habitat is not available at Chassahowitzka:

(1) In numerous previous studies with sandhill cranes, a costumed dummy was successfully used to attract released juveniles to a desired roost site. In winter 2001/02, however, released whooping cranes, unlike sandhill cranes, showed no attraction to a costumed dummy. In summer 2002, chicks being reared at Necedah were provided with water roosting opportunity in their rearing pens and were also given fulltime exposure to a plastic whooping crane decoy. In winter 2002/03 decoys were placed at the end of the newly constructed oyster bar (see below) and at the roosting area in the old part of the pen (Fig. 4). Some cranes, mainly the same few individuals, showed attraction to the decoy, but the attraction was weak and insufficient to influence roosting behavior of most of the birds.

(2) During the 2001/02 winter the HY2001 cohort occupied the original 1.5-acre release pen. Based on behavior at roost time, cranes would roost in water as deep as 9 inches but optimal depth was 6 inches or less. They would not roost on exposed mudflat. Data on water depth in the pool in the pen are available for each night ( $n = 81$ ) at roosting time during the period 18 January-8 April 2002. During this period, water depth at dusk was optimal for roosting on 17 nights (21%), marginally suitable, i.e., adequate but somewhat high on 8 nights (10%), too low on 4 nights (5%), too high (but within banks) on 43 nights (53%), and the entire surrounding landscape was flooded, i.e., tidal creeks and pools exceeded their banks, on 9 nights (11%). The adjoining part of the pool southwest of the original fenced part was deeper; therefore, this larger part of the pool, unfenced in winter 2001/02, was rarely useable by the cranes at roosting time. On the majority of nights, there also appeared to be few or no safe places to initiate roosting in the surrounding tidal landscape because water was too deep, i.e., the bays, creeks, and pools to the west are even deeper than the pool at the release pen.

Before winter 2002/03 the pen at Chassahowitzka was expanded in size and an artificial oyster bar was constructed so that water of suitable roosting depth would be present somewhere in the pen at almost any tidal level. Gauge readings that indicate suitable water depth for roosting at specific roosting sites within the pen are as follows:

Roost area in old part of pen: 18-23 good (1-6 inches depth), to 26 marginal.

Center of oyster bar: 26-31 good, to 34 marginal.

Deep end of oyster bar: 20-25 good, to 28 marginal.

Pool in southwest corner of pen: 18 and below.

In winter 2001/02, birds frequently flew out of the pen at roosting time, landed on the adjacent salt grass area that was unsuitable for roosting, and then had to be led back into the pen by a costumed caretaker as darkness fell. During the period 18 January-8 April 2002, birds were led back into the pen on 37% of nights. Except on 3 of these nights, all five birds needed to be led into the pen. This problem has, however, been minimal in winter 2002/03. During 30 November-8 February, cranes have only needed to be led into the pen on 6 nights and then only a few individuals (a single bird on 4 nights, three birds on 1 night, and seven birds on 1 night). The flock of 17 cranes has usually roosted of its own volition in the pen because:

(a) the pen is significantly larger and near the preferred, perhaps critical, size (5 acres) of acclimation pens used in other successful release studies (i.e., Mississippi Sandhill and Seney NWR's).

(b) the constructed oyster bar provides a preferred substrate for roosting, i.e., a firm, smooth bottom. The natural bottom substrate of the tidal pools is predominantly deep, soft muck with occasional patches of natural oyster bar consisting of sharp, jagged rock.

(c) most of last year's preferred site, i.e., the salt grass loafing area on the southeast side of the old pen, is now contained within the new pen. Unlike last year, however, it is no longer a preferred use site. Preferential use is now focused on the new oyster bar and adjacent shoreline in the new part of the pen.

The birds show strong preference for roosting on the constructed oyster bar even when it is not or only partially covered with water and the old roosting area actually provides water of better roosting depth. Data are still being collected, and a summary of existing data is being compiled.

Birds occasionally roosted safely outside of the pen. This roosting occurred on 17% of nights during 18 January-8 April 2002; these nights were usually characterized by extremely low tides (when birds usually roosted in "Bobcat Lake", a tidal pool 0.15 miles east of the pen) or extremely high tides (birds were allowed to roost on the flooded salt grass loafing area adjacent to the pen). Through 8 February in winter 2002/03, cranes have went to roost outside the pen on 4 nights (3, 7, 15, and all 17 birds). This roosting was apparently in a 40-50-m wide portion of tidal "E-Creek" 0.25 miles south of the pen and occurred during low tides.

During 18 January-8 April 2002 cranes went to roost in water a safe distance from shore on 34% of nights. Otherwise, they roosted on land. Data from winter 2002/03 are currently being collected and compiled. Interpretation of these data is complicated because the cranes strongly prefer to roost on the constructed oyster bar, even when it is only partially or not covered with water. With a large flock of cranes on or near this small area (the surface of the bar is approximately 55 feet long by 30 wide at the center) and a poor angle of observer view, it is often difficult to determine how far how many birds are from the shore or even if they are in water at all.

### **Salinity**

Salinities (ppt) near the pen site varied as follows:

Winter 2001/02: January (19-21), February (17-24), March (19-23), April (23-25)

Winter 2002/03: December (9-15), January (11-20), February (18-20)

Salinity usually decreased briefly after heavy rains and tended to increase through the winter. Whooping cranes can tolerate drinking water up to 21 ppt salinity. Birds were largely dependent on fresh water provided in a guzzler during the first winter and strongly prefer this source in the second winter.

### **Foraging and Movements**

In winter 2001/02 cranes ranged 0-1.5 miles from the pen (Fig. 5). The small size of the pen and large amount of burned habitat in the vicinity of the pen contributed to their movement. By mid-February needlerush had regrown on the burn, rendering most of this habitat unusable. In late winter until migration, cranes focused their away-from-pen movements on two barrens (i.e., open dry land with sparse vegetative ground cover), one 1 mile east near Rose Creek and the other 0.5 miles south at Pumpkin Creek Impoundment. In winter 2002/03 birds have so far ranged less, 0-0.5 miles, the farthest being south to E-Creek and Pumpkin Creek Impoundment. Only a small burned area, which the birds have been using, occurs just northeast of the pen. Data on crane use of area in and outside the pen are currently being compiled.

Birds have been observed foraging on natural foods although neither food use nor availability has been quantified. Most food needs are met by pelleted food supplied in feeders at the pen.

## **EXPERIMENTAL SANDHILL CRANES**

These isolation-reared sandhill cranes, released in 2000, continued to be monitored. Monitoring has and will continue to become increasingly less effective as transmitters fail. First winter locations and locations during 2002 appear in Table 1.

### **Ultralight-led Sandhill Cranes**

Monitored individuals migrated to Jasper-Pulaski Fish and Wildlife Area, northwestern Indiana, along with wild sandhills in mid-November 2001. Eight yearling birds that had remained in the juvenile group broke up during initial day(s) of migration. Six birds of this group wintered at Jasper-Pulaski or Hiwassee Wildlife Refuge, Tennessee. A female (OM #5) that had disassociated from the main group the previous spring was the only bird found to winter (at Inverness) in the general area of St. Martins Marsh, where the flock had been led and spent their first winter. A male (OM #2) that had joined sandhill flocks on the first day of autumn 2000 migration also wintered in Florida. Another male (OM #8), who did not return to Central Wisconsin in spring 2001, was found at Hiwassee and at Jasper-Pulaski during the winter. Winter 2001/02 was extremely mild at Jasper-Pulaski with no snow cover for most of the season. For the first time on record, 10,000-12,000 cranes overwintered there.

Six individuals of the original release were known to have returned to central Wisconsin in spring 2002. OM #8 was again not recorded during the summer but was found with a functional transmitter at Jasper-Pulaski in fall 2002.

### **Sandhill Cranes Reared from Hatching on Necedah NWR and Then Released in Fall into Staging Wild Sandhill Flocks**

During winter 2001/02, the five birds with functional transmitters were found at Jasper-Pulaski (1), Hiwassee (2), and southern Georgia/northern Florida (2). Three of these birds used the same areas as during the previous winter. Seven of eight birds from the original release were confirmed back on Necedah NWR or immediate vicinity in spring 2002.

### **Prospectus**

All transmitters are likely to be nonfunctional by spring 2003. However, one ultralight-led male (OM #1) and one male released into wild flocks (Cht. 3 no. 7) are paired with wild females and have established territories in areas on Necedah where they can be visually observed. Possible breeding activity will be monitored.

**Table 1. Locations of experimental sandhill cranes during first winter, second winter, and second summer, eastern migratory crane route, 2000-2002.** Hiwassee = Hiwassee Wildlife Refuge, Tenn., J-P = Jasper-Pulaski Fish and Wildlife Area, Ind., nt = nonfunctional transmitter.

Crane no.	Winter 2000/01	Winter 2001/02	Summer 2002
Ultralight			
OM #1	St. Martins, Citrus Co., Fla.	nt	Necedah NWR
OM #2	Deltona, Volusia Co., Fla.	Clermont, Lake Co., Fla.	nt
OM #3	St. Martins, Citrus Co., Fla.	Hiwassee or unknown	nt
OM #4	St. Martins, Citrus Co., Fla.	J-P, Hiwassee	Necedah NWR
OM #5	St. Martins, Citrus Co., Fla.	Inverness, Citrus Co., Fla.	Mauston
OM #6	St. Martins, Citrus Co., Fla.	nt	nt
OM #8	St. Martins, Citrus Co., Fla.	Hiwassee, J-P	unknown
OM #9	St. Martins, Citrus Co., Fla.	J-P + nt	nt
OM #11	St. Martins, Citrus Co., Fla.	J-P, Hiwassee	Necedah NWR
OM #12	St. Martins, Citrus Co., Fla.	J-P, Hiwassee	Necedah NWR et al.
OM #14	St. Martins, Citrus Co., Fla.	J-P + nt	Necedah NWR
Released into wild flocks			
Cht. 3 no. 1	nt	nt	nt
Cht. 3 no. 2	Putnam Co., Fla.	J-P	Necedah NWR
Cht. 3 no. 3	nt	nt	Necedah NWR
Cht. 3 no. 4	Gainesville, Alachua Co., Fla.	Gainesville, Alachua Co., Fla.	Necedah NWR
Cht. 3 no. 5	Okefenokee NWR, Ga.	Okefenokee NWR, Ga.	Necedah NWR
Cht. 3 no. 6	Hixtown Swamp, Madison Co., Fla.	Hiwassee + unknown	Bear Bluff
Cht. 3 no. 7	Hiwassee	nt	Necedah NWR
Cht. 3 no. 8	Hiwassee	Hiwassee	Meadow Valley Flowage

**APPENDIX A. Whooping cranes in eastern migratory flock (updated 4 March 2003).**

Hatch year	Crane no.	Sex	BBL Band no.	Frequency (MHz) <sup>a</sup>	Color code (left:right) <sup>b</sup>	PTT ID	Studbook no.		
							Own	Sire <sup>c</sup>	Dam
2001	1	M	659-00215	164.516	L <b>G/W:G/R/G</b>		1629	1114 <sup>c</sup>	1119
2001	2	F	none	164.463	L <b>G/W:L R</b> (PTT)	15330	1630	1147	1142
2001	5	M	659-00213	164.556	L <b>G/W:R/G</b>		1633	1147	1142
2001	6	M	none	164.971sol	L <b>G/W:R/G/R</b>		1634	1162	1153
2001	7	F	659-00214	164.354	L <b>G/W:W/R</b>		1635	1127	1154
2002	1	F	599-32111	164.124	L <b>R/W:G</b> (PTT)	38634	1660	1133	1135
2002	2	F	599-32112	164.144	L <b>R/W:G/W</b> (PTT)	38635	1661	1133	1135
2002	3	F	599-32116	164.045	L <b>R/W:W/G/W</b>		1662	1114	1119
2002	4	F	599-32117	164.065	L <b>R/W:R/G/W</b>		1663	1114	1119
2002	5	M	599-32118	164.855sol	L <b>R/W:G/R/W</b>		1664	1133	1135
2002	7	F	599-32119	164.224	L <b>R/W:G/W/G</b>		1667	1147	1142
2002	8	M	599-32113	164.535	L <b>R/W:W/G</b> (PTT)	38636	1668	1144	1136
2002	9	F	599-32127	164.375	<b>G/W:L R/W</b>		1670	1133	1135
2002	11	M	599-32114	164.394	L <b>R/W:R/G</b> (PTT)	38637	1672	1147	1142
2002	12	M	599-32121	165.671sol	L <b>R/W:W/R/G</b>		1673	1114	1119
2002	13	M	599-32122	164.494	L <b>R/W:G/R/G</b>		1674	1127	1154
2002	14	F	599-32123	164.274	L <b>R/W:G/W/R</b>		1675	1128	1101
2002	15	F	599-32124	164.575	L <b>R/W:W/G/R</b>		1676	1127	1154
2002	16	M	599-32125	164.294	L <b>R/W:R/G/R</b>		1677	1147	1142
2002	17	F	599-32115	164.315	L <b>R/W:G/R</b> (PTT)	15331	1678	1144	1136
2002	18	F	599-32126	164.335	<b>G:L R/W</b>		1679	1128	1101

<sup>a</sup> sol = solar/NiCad transmitter.

<sup>b</sup> L = long (38mm) bands for transmitter attachment.

<sup>c</sup> Sire could be either 1114 or 1144.



Fig. 1. Migration route of HY2001 whooping cranes from Chassahowitzka NWR, Florida, to Necedah NWR, Wisconsin, spring 2002.



Fig. 2. Major spring and summer locations, fall staging areas, fall migration stopovers, and wintering areas of HY2001 whooping cranes, spring 2002-winter 2002/03.

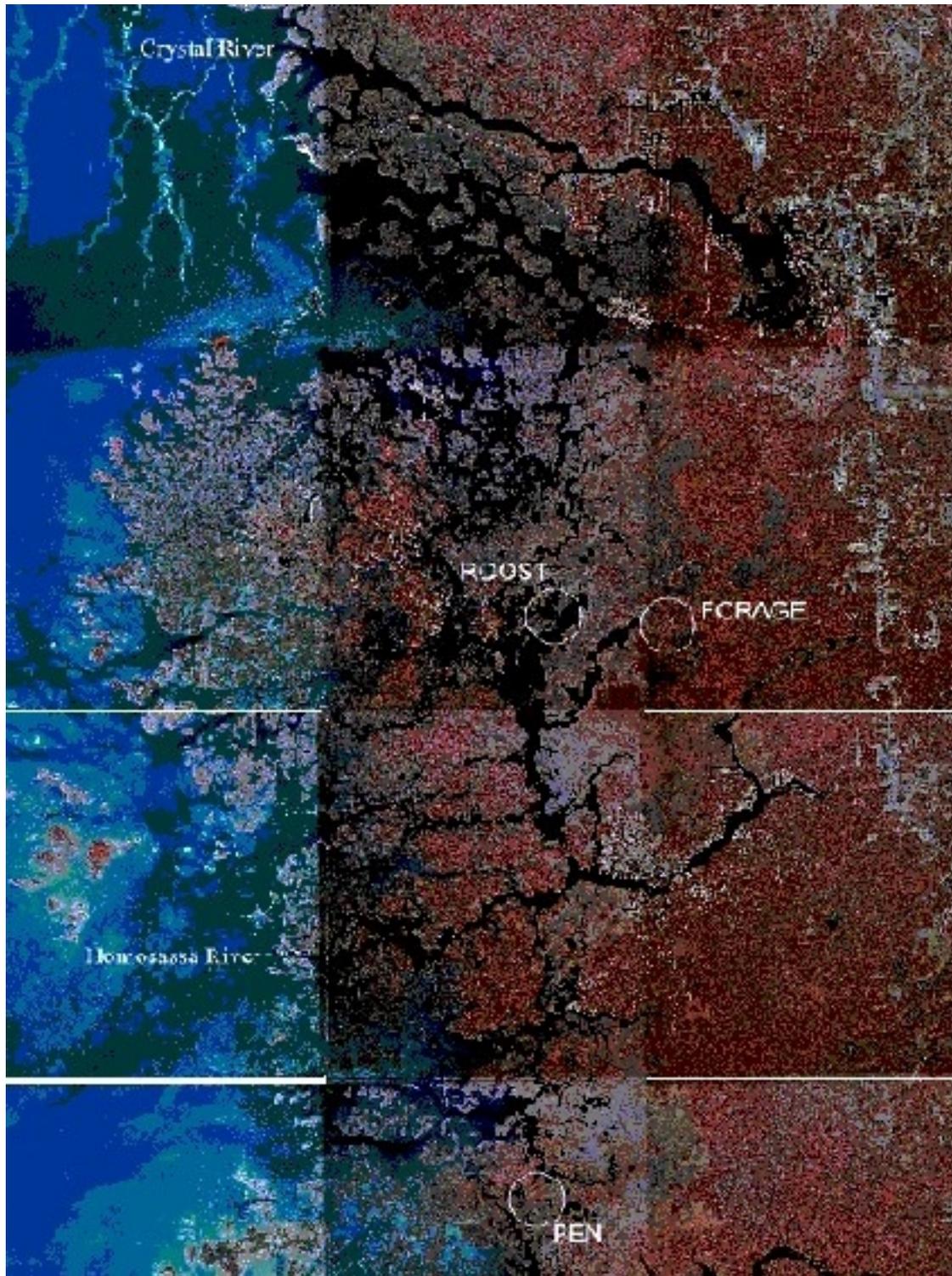


Fig. 3. Original winter territory (roost, forage) of HY2001 whooping cranes nos. 1 and 2, St. Martins Marsh Aquatic Preserve, November-December 2002. Distance from Chassahowitzka pen to territory is 6.8 miles.



Fig. 4. Whooping crane release pen, Chassahowitzka NWR, winter 2002/03. The original pen (winter 2001/02) enclosed the part of the pool to the right of the divider fence.



Fig. 5. Approximate extent of movements of juvenile whooping cranes, winters 2001/02 and 2002/03, Chassahowitzka NWR. P = release pen. M = barrens. Distance across bottom of photo is 2.5 miles.

# Outreach Activities - 2002

## Members and Responsibilities

The Outreach Team is comprised of public affairs, outreach, environmental education, information, and communication specialists, with representation from a majority of the nine Founding Members of the WCEP. This team brings to the project literally hundreds of years of combined outreach experience in government and private nonprofit organizations. Our purpose is to coordinate, plan and create educational and informational materials promoting and informing Stakeholders, the general public and project partners on developments and progress made toward the WCEP goal of establishing an eastern North American migrating flock of whooping cranes. Our emphasis is to provide accurate and current information to interested parties on project developments and educational opportunities, and to give visibility to this partnership as a model for future reintroduction attempts.

The 2002 Outreach Team was co-chaired by Chuck Underwood, USFWS - Region 4, and Heather Ray, Operation Migration Inc.

## Accomplishments for 2002

### General

- Web sites prove very effective as a means for getting fresh information out to both targeted audiences, as well as the general public. This was evident in the approximately 4.5 million visits made collectively to the various member and partnership web sites:
  - WCEP site: [www.bringbackthecranes.org](http://www.bringbackthecranes.org) 29,900 visitors
  - Operation Migration Inc: [www.operationmigration.org](http://www.operationmigration.org) 271,922 visitors
  - International Crane Foundation: [www.savingcranes.org](http://www.savingcranes.org) 82,431 visitors
  - USGS Patuxent Wildlife Research Center: [www.pwrc.nbs.gov/cranes.htm](http://www.pwrc.nbs.gov/cranes.htm) 32,172 visitors
  - Journey North: [www.learner.org/jnorth](http://www.learner.org/jnorth) 4,087,656 visitors (primarily educators and students)
- Developed updated materials for and staffed WCEP exhibit at Necedah Crane Festival. Sept 21-22.
- Completed production of the WCEP partnership video *"Bringing Back the Cranes."* The 18-minute video was narrated by Canadian Actor, Graham Greene and produced by Sunshine Productions. Available in two versions: the first is a generic project video for use as an education and fund raising tool. The second version was produced with customized "tags" allowing the individual founding members and others to tailor the closing portion of the video to their specific needs while maintaining consistent messages throughout the remainder of the video.
- Developed and completed 45-min. slide show for education and outreach. Available on 35 mm slides and PowerPoint formats.
- Re-vamped large WCEP display, which was formerly housed in the lobby of NNWR, now resides in the Patuxent/FWS Visitors Information Centre in Laurel, MD along with the ground training aircraft and video kiosk which plays the 18 min. Bringing Back the Cranes video production.
- Created smaller tabletop versions (of above display) for partner use. Consists of ten "evergreen" text/image panels detailing the partnership and the reintroduction. Fourteen ordered by various partners – funded by Natural Resource Foundation of Wisconsin

- Created tri-fold brochure containing project information and asking for cooperation from the public to help keep the returning yearling cranes wild. Brochure stresses the importance, and benefits to the cranes, of the unique isolation rearing protocol used to avoid human contact and asks the public to assist by not attempting to approach or disturb any wild Whooping cranes they may encounter.
- 5,000 informational CD-ROMs were produced, replacing the previous “Media Kits” in an effort to fill the need for easily distributed project information packages to a broader audience: media, landowners, stakeholders, schools, libraries, etc.
- With the completion of 2001 migration cycle, the media “B”-roll videotape was updated to include whooping cranes along the migration route and at the wintering site.
- “Whooping Cranes Over Tennessee” Walk-a-thon carried out by volunteers Sandy and Jerry Ulrikson. Succeeding in raising a great amount of public awareness and support for the project, as well as over \$13k, after expenses. Funds administered by the TN Wildlife Resources Foundation and divided with 75% to WCEP and the remaining 25% to TWRF for outreach at the Hiwassee Wildlife Area – an important staging area for cranes in the eastern flyway.

Governor Don Sundquist issued a Proclamation designating October 10 – 19 as “Whooping Crane Reintroduction Days” in the State.



STATE OF TENNESSEE  
**PROCLAMATION**  
 BY THE GOVERNOR

WHEREAS, the whooping crane is an endangered species with less than 400 remaining worldwide; and

WHEREAS, an effort is underway to reintroduce a migrating flock of whooping cranes to eastern North America; and

WHEREAS, the migration route is across the great State of Tennessee; and

WHEREAS, a large number of residents/citizens of the great State of Tennessee are supporting this reintroduction effort by conducting a “Walk-A-Thon” from the Kentucky border passing through Pickett, Fentress, Cumberland, Rhea, Meigs, and Hamilton counties in Tennessee and completing the walk in Chattanooga, Tennessee; and

WHEREAS, whenever these birds migrate across the State of Tennessee they will create a source of joy and pride; and

WHEREAS, by conducting a statewide educational outreach program and a “Walk-A-Thon” to raise money to support this reintroduction effort, Tennessee will set a standard for other states to follow in supporting the reintroduction of the whooping cranes.

NOW, THEREFORE, I, Don Sundquist, Governor of the State of Tennessee, do hereby proclaim October 10-19, 2002 as

**WHOOPING CRANE  
 REINTRODUCTION DAYS**

in Tennessee, and encourage all citizens to join me in this worthy observance.



IN WITNESS WHEREOF, I have hereunto set my hand and caused the official seal of the State of Tennessee to be affixed at Nashville on this 8<sup>th</sup> day of October, 2002.

*Don Sundquist*  
 Governor

*Biley C. Zornell*  
 Secretary of State

## Media Relations

The following 137 news outlets (300+ reports) represent only the known media coverage during the 2002 migration year: spring return, summer training and fall migration, both ultralight and unaided. Based on conversations and e-mails, the Whooping Crane Reintroduction project garnered press coverage worldwide from North America to South America, Europe to the Middle East, Africa to the Far East, and Southeast Asia to the South Pacific.

- During the 2002 project year, over **80** individual media representatives were accommodated with the number of interviews (including follow-ups) conservatively estimated in excess of **500**.
- Provided full-time on-site media management during entire 2002 migration.
- Coordinated media outreach efforts between partners for public flyover on final destination flight. Pilots guided 16 juvenile cranes at a safe altitude over the north field adjacent the Crystal River Shopping Mall. Garnered 15 media outlets on site and approximately 300 members of the public. Significant local and national coverage (reports from California & Hawaii)

## 2002 Media Coverage

Key: BOLD text indicates the number of stories produced or used by the individual media outlet.

"All Things Considered" (National Public Radio)	Evansville Courier and Press (IN)
"Good Morning America" (ABC)	Florida Productions (FL)
"Inside Edition" (TV Show) (NY)	Fort Meyers News Press (FL)
"InSync", Central Wisconsin Newspapers Inc.	Ft. Lauderdale Sun Sentinel (FL)
"The Natural South" (Turner Broadcasting) (GA)	Georgia Radio Network (GA) <b>x 4</b>
"Today Show" (NBC)	Grand Island Independent (NE)
Amarillo Globe News (TX)	Green Bay Press Gazette (WI) <b>x 3</b>
Appleton (WI) Post Crescent	Henderson Gleaner (KY) <b>x 6</b>
Associated Press – <b>14 AP written reports</b>	Indianapolis Channel 6 – TV (IN) <b>x 2</b>
Atlanta Journal-Constitution (GA) <b>x 2</b>	Indianapolis Channel 8 – TV (IN) <b>x 2</b>
Aurora Journal Press (IN)	Indianapolis News (IN) <b>x 3</b>
Baraboo News Republic (WI)	Indianapolis Star (IN) <b>x 4</b>
Bay NEWS Channel 9 (FL)	Janesville Gazette (WI)
BBC (documentary)	Juneau County Star Times (WI) <b>x 4</b>
Billings Gazette (MT) – Associated Press	KAIT (Radio) (AR) – Associated Press
Bloomington Herald Times (IN)	KAMC (Radio) (TX) – Associated Press
Bradenton Herald (FL) <b>x 2</b>	KCAU (Radio) (IA) – Associated Press
Calhoun Times (GA)	KESQ (Radio) (CA) – Associated Press
Canadian Geographic "Presents" (documentary)	KFAN (Radio) (MN)
Canadian Press	KFOR-TV (OK) – Associated Press
Capital Journal (SD)	KFVS (Radio) (MO) – Associated Press
CBC (Radio) (MB, Canada) <b>x 4</b>	Kinston Free Press (NC)
CBC's "Nature of Things" – Nat'l TV, Canada	Knoxville News Sentinel (TN) <b>x 3</b>
Centre Daily Times (PA) – Associated Press	KPLC-TV (LA) – Associated Press
Chattanooga Times Free Press (TN) <b>x 6</b>	KRNV (Radio) (NV) – Associated Press
Chicago Tribune (IL) <b>x 2</b>	KRON4.com (CA) – Associated Press
Chicago Wilderness (Magazine) (IL)	KRQE (Radio) (NM) – Associated Press
Citrus County Chronicle (FL) <b>x 21</b>	KSFY (Radio) (SD) – Associated Press
Citrus County Weekly (FL)	KTVO (Radio) (MO) – Associated Press
Citrus Digest (FL) - Associated Press	KVBC (Radio) (NV) – Associated Press
Columbus (IN) Republic	KWWL (Radio) (IA) – Associated Press
Columbus Ledger-Enquirer (GA)	Lacrosse Tribune (WI) <b>x 4</b>
CWN News Service	Marshfield News Herald (WI)
Daily Nebraskan (NE)	Miami Herald (FL) <b>x 4</b>
Daily Tribune (WI)	Mid-Florida Public Radio (NPR) <b>x 8</b>
Duluth News Tribune (MN)	Milwaukee Journal-Sentinel (MN) <b>x 9</b>
Environmental News Network (ENN)	Minneapolis Star Tribune (MN)

Montana Forum (MT) – Associated Press  
Monticello Herald Journal (IN)  
MYINKY.Com (newspaper website)  
Network Indiana (Radio)  
New Bern Sun-Journal (NC) **x 2**  
New York Times (NY)  
News 8, Austin, TX  
Orlando Sentinel (FL) **x 2**  
Pierre Capital Journal (SD)  
Plainfield Flyer Group (IN)  
PR Newswire  
Salt Lake Tribune (UT) – Associated Press  
Sarasota Herald Tribune (FL) **x 6**  
Seven Point Journal (WI)  
Seymour Tribune (IN)  
Sherman Denison Herald Democrat (TX)  
South Central Wisconsin Newspapers (WI) **x 2**  
St Petersburg Times (FL) **x 33**  
Stevens Point Journal (WI)  
Tallahassee Democrat (FL) – Associated Press  
Tampa Tribune (FL) **x 5**  
TBS (Tokyo Broadcasting Station) (documentary)  
The Chattanooga (TN) **x 2**  
The Tennessean (TN)  
Tomah Monitor Herald (WI)  
WAFF (Radio) (AL) – Associated Press  
WAGA – TV Fox (GA)  
WALB-TV (GA) **x 2**  
Washington Post **x 3**  
WATE (Radio) (TN) – Associated Press **x 2**  
WAVE (Radio) (KY) – Associated Press **x 2**  
WAVY-TV (VA) – Associated Press  
Waynesville Smoky Mountain News (NC) **x 2**  
WBAY (Radio) (WI) – Associated Press

WBHF (Radio) (IL) – Associated Press  
WBIR (Radio) (TN) **x 2**  
WCAX (Radio) (VT) – Associated Press  
WECT (Radio) (NC) – Associated Press  
WFLA Fox TV (FL) **x 3**  
WFLA Radio (FL) **x 6**  
WGCL TV – CBS (GA)  
WHAG-TV (MD) – Associated Press  
WHBY (Radio) (WI)  
WHNS (Radio) (??) – Associated Press  
WHNT-TV (AL) – Associated Press  
WHO-TV (IA) – Associated Press  
WIBC Radio (Indianapolis)  
Wisconsin Daily Rapids Tribune (WI) **x 6**  
Wisconsin Public Radio (WI) **x 3**  
Wisconsin State Journal **x 4**  
WISH-TV (IN) **x 4**  
WKBN (Radio) (OH) – Associated Press  
WKYT (Radio) (KY) – Associated Press  
WLUC-TV (MI) – Associated Press  
WOOD-TV (MI) – Associated Press  
WPMI-TV (AL) – Associated Press  
WQAD (Radio) (IL) – Associated Press  
WRIC-TV (VA) – Associated Press  
WSAW (Radio) (WI)  
WSB TV – ABC (GA)  
WSTM-TV (NY) – Associated Press  
WTEN-TV (NY) – Associated Press  
WTVM (Radio) (GA) – Associated Press

*\* See press clipping book*

## Environmental Education

- *Education sub-team developed and completed a number of crane trunks for use in schools. Each trunk contains an age-adaptable curriculum with activities for teachers and students, and features items such as: replica Whooping crane egg; leg and skull, as well as samples of food stuff that make up the diet of cranes. Other items in each trunk include a costume like those worn by project staff; crane puppet; leg bands; radio transmitters; etc. These trunks are always a hit with students and provide an interactive, hands-on learning experience.*
- WCEP Outreach team members provided environmental education programs for children and adults throughout the Eastern Flyway. These programs were given during and prior to migration to civic organizations, government agency staff, conservation clubs, museum visitors, home school groups, library reading groups, students and teachers in school assemblies and classroom programs.
  - Programs in Wisconsin reached an estimated **1280** children and **850** adults.
  - Programs in the greater Chicago area reached an estimated **115** children and **85** adults.
  - Programs in the Crystal River area of Florida reached approximately **800** children and their teachers during the week leading up to arrival and approximately **450** students and teachers in the weeks following the journey.
  - A conservative estimate of **300** people assembled for the arrival-day fly-by heard a brief project summary and informative talk given by Chassahowitzka staff, John Christian, Heather Ray, Beth Goodman, and Joe Duff. (Note: arrival on Thanksgiving weekend may have had factor in decline in attendance from '01 flyover)
- Environmental Ed accomplishments in 2002 involved the continued partner arrangement with Journey North (JN) to extend educational outreach efforts into schools throughout North America. JN's internet- based program reaches over **7,500** schools and an estimated **380,000** students each week. Through JN's website, students and teachers continue to track the project birds' status and general locations as they winter in Florida, and return to Wisconsin next spring. \* See *Journey North letter to follow*
- Blind use at NNWR was down slightly over the '01 training season as at times during the summer there were no cranes present at Site One. The wheelchair accessible blind was utilized by some of the founding members of the WCEP to invite board members and donors to view training flights. It is difficult to estimate the number of visitors that utilized the observation tower at the Necedah National Wildlife Refuge over the course of the training season as the tower is open to the public and does not require visitors to register before using. However, on most mornings when weather conditions allowed training to proceed, there were no fewer than 10 persons viewing from the observation tower.
- Developed outreach and education partnership with Wild Birds Unlimited. Retail outlets along flyway distributed E&O material (CD, educational sheets) and WBU website featured project on their popular FeederCam page.





December 19, 2002

Subject: Journey North summary

Dear Heather:

Congratulations on the wondrous completion of year two in the Whooping Crane Reintroduction project. Will each year be even more amazing than the preceding? That's your record so far!

I'm writing to pay tribute to all of you for your unflagging, thorough and generous support in helping Journey North bring more than 462,000 students in 9,138 registered sites a front-row seat for this historic migration. This year, we wrote 90 updates, surpassing last year's 82, as we continue to build a permanent Whooping Crane Reintroduction resource on the Journey North Web site.

We believe that our coverage of this remarkable conservation story has been a big impetus in the continued climb in usage of the Journey North Web site. To give you a picture, the past three years are shown on the graph found here:

Use of Journey North Website 2000-2002

<http://www.learner.org/jnorth/WebHitsNov2002.gif>

Of note:

... Web hits were the highest ever for our fall program, when the ultralight-led Whooping Cranes are a feature.

... The site received 430,000, 409,000 and 366,000 hits respectively in September, October and November.

... This represents an average increase of 31% over last fall's record rate of use during the same months.

... Because these figures combine the use of all Journey North fall activities, it's interesting to note that web use remained high through November, when the Whooping Crane migration was the primary event being covered. (Monarch migration "traffic" ended in early November, when that migration was complete.) Thus, this suggests that the whooping crane migration holds its own, and maintains a large audience in the fall.

The work of Operation Migration and the Whooping Crane Eastern Partnership have become an integral part of us in our mission as an inquiry-based, real-world, online science education program. Like you, we start long before the lift off for migration to provide a context for students. The chick rearing and training and later, each day's events allowed students to investigate and apply science concepts, hear from scientists in the field, and practice scientific thinking. The chronology of the whole process was an ideal springboard for our lessons around important science concepts: crane flight principles and flight formation, crane adaptations and natural history, ethology, growth and development, habitat, and even meteorology. Every little detail you so willingly provided was rich with information for engaging students. Our journaling questions gave students daily opportunities to respond to cognitive challenges as well as to make personal connections to the pilots, scientists, methods, logistics, and the birds themselves.

This would not have been possible without the phoned and faxed reports and beautiful photos you shared so generously and frequently. It would not have been possible without the enthusiastic support you gave to Journey North, extending your time whenever I was on site (at your invitation--thank you!) at Patuxent and Necedah. All of you were totally willing to answer questions, provide taped interviews, photos, and audio clips for the students to get to know you and your landmark work in a very personal way. I know it wasn't

always easy for you to make connections, but I could always count on your prompt replies and the latest photos. I marvel at how you managed!

We are especially proud to partner with you because Operation Migration is an inspiration to students who, in the climate of today's world events, NEED to witness hope, creativity, dedication and optimism in facing challenges and helping endangered species. Given a chance to learn about nature and animals, students love them. And of course students also like technology, adventure, and risk. Operation Migration and this reintroduction project has all this, as well as hard-working heroes and generous volunteers and donors. These all serve as fantastic role models and reminders that we can each play a part. The enthusiastic feedback from teachers across all grade levels offers plenty of proof. Just a few examples:

*"Your current work on the crane migrations rates an A+. . . Your site will be used frequently at our school. I have the fourth graders at our middle school do a posting of day-to-day progress (and share websites) with former students. So about 650 kids are encouraged to keep track of the migration and what it means to them, in terms of the natural world and their future. Keep up the terrific work, great photos and journaling ideas!" Darlene Lambert, Nekoosa, WI*

*"This is real science because of the tracking of real animals during their migration. We were especially interested in the cranes because it is happening right here in WI." Karen Moore, Appleton, WI*

*"With your program, we created two very effective learning tools during our year-long study of the whooping cranes. The first was a wall-sized time line with pictures and a brief description of events as they happened. We put this time line on the wall outside my classroom door so the entire school could see and enjoy it. The other project was a whooping crane journal. Each student completed a journal which included student artwork, creative writing, answers to your journaling questions and problem solving questions. The journal also chronicled the events from the hatching of the crane eggs to their return to Necedah. My students are very proud of their journals and they will have a valuable reminder of this school year and of the whooping crane project." Alan Ensminger, Memphis, TN*

*Journey North students are eager to continue the adventure with you, and so are plenty of adult readers. Yvonne Prete wrote, "I book marked The Whooping Crane Migration and followed it to its triumphant conclusion and sent it around to friends, as a ray of light in a murky world."*

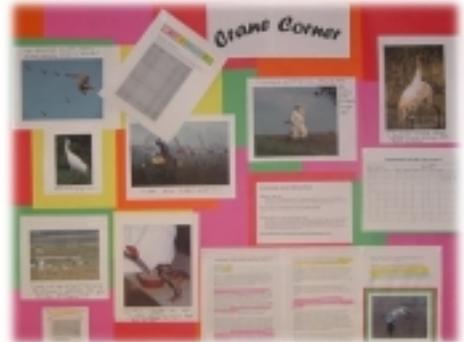
The Whooping Cranes are not the only ones soaring as a result of your efforts; human minds and spirits are soaring too. Thanks for everything; we at Journey North look forward to lifting off with you again next fall!

Sincerely,  
Jane Duden,  
Science Writer  
Journey North

Students from around the world followed the 2002 Whooping crane migration; learning much about cranes, migration, principles of flight, meteorology, geography, the importance of habitats, and perhaps most importantly, hope and determination...



"With your program, we created two very effective learning tools during our year-long study of the whooping cranes. The first was a wall-sized time line with pictures and a brief description of events as they happened. We put this time line on the wall outside my classroom door so the entire school could see and enjoy it. The other project was a whooping crane journal. Each student completed a journal which included student artwork, creative writing, answers to your journaling questions and problem solving questions. The journal also chronicled the events from the hatching of the crane eggs to their return to Necedah. My students are very proud of their journals and they will have a valuable reminder of this school year and of the whooping crane project."  
Teacher, Alan Ensminger, Memphis, TN



### Thousand paper cranes have special meaning...

By Antoinette Rahn – Wisconsin Daily Rapids

School students across the country are following the migration of whooping cranes from Necedah National Wildlife Refuge to the Gulf of Florida.

For the second year, students at Alexander Middle School, Nekoosa, will track the progress of the cranes and, this year, partner with the Daily Tribune to provide migration updates and crane tidbits.

NEKOOSA - Eight days and 91.8 miles after their migration began, the whooping cranes from Necedah were quiet Monday - remaining at their Green County site, while students in Heidi Hartman's fourth-grade reading classes at Alexander Middle School folded the last of 1,000 paper cranes - a sign of support for the flight.

"When you look at the ceiling, it looks like the sky with all the cranes flying", said Karly Noska, 9, town of Saratoga. "It's really cool to see all the cranes we made."

"It was a good cooperative activity for the students," Hartman said Monday. "This is one of those projects where each one did a step in folding the paper crane and each student depends on the person who does the step before them, to get the job done. They did a good job and we reached our goal of 1,000 cranes."



## Tennessee Walk-a-thon

**Purpose/Goal:** The goal of our project was an **educational outreach program and fundraiser** to bring public awareness to the eastern migratory Whooping crane reintroduction. We chose to conduct the walk-a-thon across the State of Tennessee; from north to south, closely mimicking the route and the distance flown by the Whooping Crane reintroduction. The runner/walkers began at the point near where the ultralight led Whooping Cranes enter the State and finished near the Tennessee/Georgia border. We walked on State highways with official escorts from both the Tennessee Wildlife Resource Agency and local law enforcement officials. (Blue lights all the way!)

Our goal was \$10,000.00 based on the time the migration team spent in TN during the 2001 flight south and estimated costs of \$1,000 per day of travel.

**The Walk:** Our walk began on the same day the Operation Migration team was scheduled to leave Wisconsin and begin heading south, and ended at a city park near the Georgia/Tennessee state line. Festivities were planned at the park to celebrate the culmination of the event. The event for the afternoon of the final leg of the walk-a-thon involved families and multiple mini-seminars on a variety of nature related topics.

Originally we had planned to include an evening event, providing a notable speaker, and an admission fee, which could also have raised money for the walk-a-thon. We later dismissed this idea because of the lack of time and volunteers needed to ensure a success. Because we had a 6-week delay at the start of this project, our serious planning got started in June and the event was scheduled for October, we did not have sufficient volunteers to do some of things we would like to have done.

**Mascot/Baton:** The walkers carried a symbolic Whooping Crane kite and passed it from one walker to another. In our case, one of our volunteers (who incidentally owned the Wild Birds Unlimited store in Chattanooga) made a life size Whooping Crane kite out of tyvec. You may choose a smaller replica of a Whooping Crane and pass it from one walker to the next as they proceed along the route. Each walker and law enforcement escort signed the kite as they either carried it or as we passed thru their area. This replica could be used before the walk to promote the event and also be used as a part of the education outreach efforts. Once the event is completed, the replica could be auctioned off, given away at a raffle or other means of raising funds for the effort

**Walkers:** We limited the age of the walkers to 12 years and older. Those ages 12 to 18 had to have an adult with them. Included in our signup sheets was a liability clause. We had a total of 110 different walkers. We walked those areas that had no shoulder, or were difficult (steep hills) for the average person to walk. We covered that area either before or after the other walkers finished with their assigned segments.



**Sponsoring a walker:** Each walker was responsible for finding his or her own sponsorship. Some simply sponsored themselves -- others had friends and co-workers sponsor them. Some persons who heard about the walk actually sponsored walkers they did not know. Any person/business/club, etc. could sponsor a walker. The segment would consist of one or more persons completing a section of the route carrying the Whooping Crane kite. Persons who signed up to walk paid a \$20 entry fee and received a t-shirt bearing the event logo.

**Involved agencies/organizations:** It is imperative to involve and consult with the state/local Department of Natural Resources, and other necessary state/local personnel early in the planning stages. In addition to the wildlife agencies, local law enforcement officials will need to be involved to help obtain necessary permits and ensure sufficient escorts for the walkers as they proceed along the route. All of the agencies involved with us received a lot of positive feedback from the public and press. We feel that they receive a benefit from helping us and in turn, we received the assistance from them.



### **Reaching the public/Getting the word out:**

**Web site:** We developed a web site detailing the events, dates, how people could participate (including an opportunity to sign up online to walk) and provided information on dates of events, etc. We also sold a non-walker T-shirt on our web site and had an auction of a donated piece of art. We will be happy to share the software for our web site with you if you chose to develop one. We can also give you the name and phone number of the gentleman who developed our website if you might want to use him. His cost was very reasonable. Over a 90-day period we had about 14,000 hits on our web site. Our major sponsor linked our website on their company website which brought a lot of interest and several of the WCEP partner websites provided links to our site.

**Posters:** We found in hindsight that posters would have been a tremendous help. Again, based on the small number of volunteers we had and the short amount of time to pull things together, we did not get an opportunity to develop posters, have them printed and distributed. We thought about two kinds of posters, one to use to advertise our events and the other, a poster that we could sell to add to our funds. We did not have the time to do either. We thought we had an opportunity to have someone donate the cost of printing these posters but we were not able to take advantage of this.

**Media coverage:** Establish media contacts early and have someone willing to spend sufficient time (and patience) with them to bring them on-board before, during and after the walk. We found there was little interest early about the walk but that grew tremendously as the walk started. Our website generated lots of interest during the walk. The small town news outlets were most effective in publishing any news releases we issued and were very cooperative as the walkers came thru their areas. To assist us in getting the word out, we used the Tennessee Wildlife Resource Agency Education/Outreach person to get the word out to their news outlets. We think these numbered 450 outlets across the state.

**Walking advertisements:** We found that wearing t-shirts with the logo, dates, etc. brought a lot of attention and questions. Getting these down and "on people" as early as possible will bring you a lot of attention. These were also available to purchase on-line and we had good success with that. Charge enough to cover your packaging and mailing cost. Our T-shirts cost us \$3.25 for the basic white (with three color graphics) and our official walk Tee cost us \$5.25. Our official Tee was a better quality.

**Mailing lists:** A database of addresses of potentially interested individuals was developed and a mass mailing was sent out to approximately 15,000 individuals requesting walkers/contributions, etc. Organizations and clubs were obtained from the Internet and many of them gave us access to addresses of members and officers of the organizations/clubs.

**Proceeds from the event:** 75% of the proceeds from the event went to benefit the Whooping Crane Eastern Partnership. 25% stayed with the Tennessee Wildlife Resources Foundation for education,

outreach and habitat enhancement at the Hiwassee Refuge, which is an important staging area for cranes during their migration. We were able to raise about \$15,000.00 before expenses. The major expenses were the website, postage, and mailings, telephone, gasoline and mileage.

**Support/Logistics vehicle:** We had a "train" including a support trailer with first aid supplies, a cot, water, etc. that accompanied the walkers. On the side of the trailer were banners with the words "Whooping Cranes Over Tennessee" and "helping to save the most endangered cranes in the world" written on them. A hint: make sure the printing on your banners is waterproof.

**Other Logistics:** (Mail boxes, email address, telephone) We set up a separate mailbox so that it would not interfere with our home address. We also set up an email address with the name Whooping Cranes over TN, which was also the name of our website and had a voice mail set up. This kept everything separate from our personal accounts and allowed for easier accounting to list our expenses as well. This also separated us personally from the project as well.

**Contributors:** Persons who chose to contribute \$50 or more to the effort were given a similar, but different color, t-shirt with the logo and wording. We set our sponsorship limit too high. We required corporations to contribute \$1,000 in order to have their company logo on the back of the t-shirts and also to have their corporate logo and links on our web site. We recommend lowering that level considerably, to perhaps \$250 or \$500. We think would generate more response, however, do not be afraid to ask for larger contributions, one sponsor gave us \$3500.00

**How we handled the money:** Because we did not envision this as an annual event, the Tennessee Wildlife Resource Foundation (TWRWF) offered to "sponsor" us and allow us to use them as our financial record keeper/bookkeeper/bank/check writer. All funds received were given to the TWRWF and they were responsible for the accounting and disbursement of all funds. All checks were made out to the TWRWF/Whoopers. All cash received was converted to a check and then provided to the TWRWF.

**Proclamation:** We developed a proclamation and had the governor sign it declaring the week of our walk "**Whooping Crane Reintroduction Week in Tennessee**". We were not able to take advantage of this again (because of timing) in the newspapers and media outlets like we should have but this in itself can become an important awareness tool.

**Route Map:** We used one of the on-line programs to develop the maps and distances (Map Quest). We then broke the route into walk-able distances or sections. We set the walk up to last 10 days because that was what the Operation Migration crew spent in Tennessee the first year of the migration. We could have easily covered 20 miles each day if you wanted to cover that much. Each segment and who was walking each one was listed on our website. The website was updated each night as signees would sign up. This in turn generated a lot of interest. People would see their friends walking and they would sign-up to walk. We also painted a flying Whooping Crane (our watermark), at each mile marker of the walk. In addition to using map quest, we drove the route and checked the mileage, shoulders, possible stopping or resting places, relay points, walker exchange places etc. Also look for potential stopping places for the media. We had the Knoxville Zoo walk with us carrying birds (**Birds helping Birds**). This in turn brought interest from the local media.

**Education/Outreach Efforts:** Education/outreach materials were collected from multiple sources. We used the slide presentation provided by the WCEP outreach team and also added some slides of our own. Jerry developed a fact sheet similar to the one now available on the Operation Migration web site that listed the numbers of Whooping Cranes and their locations. Brochures for all partners are available as handout materials.

**Fundraising:** In addition to the sales of t-shirts we also made available for sale, videos, which we had purchased from Operation Migration at their cost. We sold these for \$20 with the proceeds going to the project. We also had etched glass sun catchers with Whooping Cranes on them. A large stained glass piece of Whooping Cranes following an ultra-light aircraft was made and auctioned off via the web site and finally at the Park in Chattanooga.

# Tennessee Walk-a-Thon Outreach Report – 2002

## **Presentations**

National Association of Federal Retired Employees, Knoxville, TN chapter - 35 people  
Tennessee Citizens for Wilderness Planning Steering Committee 14 people  
Knoxville, TN Puritan Club - 23 people  
Kingston, TN Rotary Club 31 people  
Cumberland County (TN) Fair 1,000 booth visitors  
Tennessee Citizens for Wilderness Planning general membership - 90 people  
Cumberland County (TN) Humane Society - 35 people  
Fairfield Glade Newcomers Club (Crossville, TN) - 150  
Oak Ridge, TN Lions Club 35  
Clarksville, TN Audubon Society - 40 people  
Pellissippi State Technical College (Knoxville, TN) biology students - 100  
Chattanooga, TN Middle School science students - 30 students  
Withlacoochee Technical Institute (Inverness, FL) students 20 people  
Inverness (FL) Primary School 3rd grade 25 people  
Inverness (FL) Middle School science class(s) 75 students  
Nature's Coast RV Park (FL) residents – 25 people  
Myakka River State Park, (FL) staff and winter volunteers – 18 people  
Myakka River State Park campers and visitors from general public – 53 people

## **Web site report:**

Hits: 12,500 for five-month period

### Linked to:

- Science Applications International Corporation (corporate sponsor)
- Tennessee Wildlife Resources Foundation
- Tennessee Wildlife Resources Agency
- US Fish & Wildlife Service
- Operation Migration, Inc.
- Whooping Crane Eastern Partnership
- Necedah Whooping Crane Festival
- International Crane Foundation

### Linked from:

- Science Applications International Corporation (corporate sponsor) internal employee website - reached 40,000 employees
- Tennessee Wildlife Resources Foundation
- Tennessee Wildlife Resources Agency
- US Fish & Wildlife Service
- Operation Migration, Inc.
- Whooping Crane Eastern Partnership

**Funds raised:** \$13,500 after expenses with 25% to Tennessee Wildlife Resources Foundation and 75% to Whooping Crane Eastern Partnership

**Walk** involved 139.6 miles and included 110 different walkers

**Media Activities:** 14 press releases provided to 400 media outlets resulting in approximately 100 different news articles published

Article provided to and published by Travel Host magazine - 120,000 distribution

Article prepared for and published in Tennessee Warbler (Tennessee Ornithological Society newsletter) - 1,300 members

**WCEP Outreach Team**  
**Current Activities for Migration 2003 and Beyond**

- Refine budget for 2003 outreach activities, and out years.
- Archive media stories from 2002 migration (print, video and audio)
- Plan for future migrations with look to more involvement from flyway states' outreach and media staff.
- Review and update key messages.
- Develop strategy for maintaining media interest in subsequent migration years.
- Develop strategy to expand educational outreach.
- Evaluate what worked and what didn't from the 2002 migration.
- Continue to work with refuge staffs at Necedah and Chassahowitzka with a focus on strengthening community interest and knowledge of project.
- Invite and designate new co-leaders for outreach team.

## Finance and Budget Team Report - 2002

The mission of the Finance and Budget Team is to: A) raise funds to meet project needs as determined by each partner and agreed to by the Team; B) coordinate the development of and reporting against budget of both the total project and grants specified by the project team; and C) coordinate fund raising requests from non-governmental partners to avoid duplicate grant requests to the same potential donors. In addition, the Finance and Budget Team works closely with the Outreach Team to plan and implement donor recognition programs.

Included on the Team are Bob Lange (ICF), Jim Harris (ICF), George Archibald (ICF), John Christian (USFWS), Robert Russell (USFWS), Joe Duff (OM), Heather Ray (OM), Beth Goodman (WDNR), Tracy Allen (Friends of Necedah), Sarah Ellgen (NFWF), and Jim Kraus (USFWS). The team meets once a month via conference call.

### 1) Budget

The total direct costs budget for 2002 (new funds required by the various partners) was \$1,611,258 of which 66.7% or \$768,528 was required by private organizations. In addition, capital equipment requirements for the project totaled almost \$240,603 in 2002. By year-end all necessary funding requirements had been met. Please see the attachment for a summary of the total budget.

We anticipate the budget for 2003 will be slightly greater than in 2002, as more birds are part of the flock and we take in to account a 5% or less inflation rate.

More than \$1 million has been raised by private organizations for the project in the 1999-2002 period. In addition, 1 grant from the National Fish and Wildlife Foundation contributed \$31,000 to the project and the Whooping Cranes over Tennessee event organized by Sandy and Jerry Ulrikson donated \$10,312.00. Finally, there were several "in-kind" contributions from individuals and corporations. Most notably are flight time from Windway Capital Corporation assisting in gathering eggs and transporting eggs and chicks between Necedah and Patuxent, use of 3 vehicles for four months donated by Daimler-Chrysler, use of one vehicle for 6 months loaned by the Wisconsin DNR, 3 trailers and 5 vehicles for 4 months by Necedah NWR including electricity and motor fuel, and more than \$71,800 for non-crane funded project costs for labor, of which \$37,350 was volunteer labor including Friends group, Necedah National Wildlife Refuge volunteer staff, the Wisconsin Conservation Corps, interns, and staff from other partners. The remainder was in-kind from permanent refuge staff.

### 2) Non-governmental Partner Fund Raising Coordination

We continued in 2002 to follow the procedures established in 2000 to coordinate fundraising efforts. Before communicating with a new potential donor, a partner requests "clearance" from the Budget team. When more than one partner has a previous relationship with a potential donor, or where the donor may have multiple interests in the project, interested partners determined together which partner should make the request, or if there should be a joint request. With a promised 24-hour turnaround between inquiry and decision, the procedure continues to work very well.

**WHOOPIING CRANE EASTERN PARTNERSHIP**

<b>BUDGET 2002</b>	<b>Share of Direct Costs Budget</b>	<b>Direct Costs</b>	<b>Equipment Costs</b>	<b>Indirect Costs</b>	<b>Total Budget</b>
<b>Private Support:</b>					
Operation Migration		\$ 242,683	\$ 92,603	\$ 107,104	\$ 442,390
International Crane Foundation		186,138	58,000	90,700	\$ 334,838
Other *		22,700	-	-	\$ 22,700
<b>Total Private Support</b>	<b>66.8%</b>	<b>\$ 451,521</b>	<b>\$ 150,603</b>	<b>\$ 197,804</b>	<b>\$ 799,928</b>
<b>US FWS Operating Budget</b>	<b>27.8%</b>	<b>187,679</b>	<b>90,000</b>	<b>289,000</b>	<b>566,679</b>
<b>WI DNR Operating Budget</b>	<b>4.4%</b>	<b>29,800</b>	<b>-</b>	<b>131,700</b>	<b>161,500</b>
<b>Patuxent NRC Operating Budget</b>	<b>1.0%</b>	<b>6,837</b>	<b>-</b>	<b>76,314</b>	<b>83,151</b>
<b>Total Budget</b>	<b>100.00%</b>	<b>\$ 675,837</b>	<b>\$ 240,603</b>	<b>\$ 694,818</b>	<b>\$ 1,611,258</b>

***Direct Costs** are new costs because of the project, and incurred to raise and care for the birds, lead them on migration, and to monitor their progress during the winter and on their return migration. If the project were cancelled, these costs would not be incurred.*

***Equipment Costs** are costs for major capital items that will last more than one year and/or may have uses in addition to the project. These costs do not include capital items from prior years that are still in use. For some items, the rental costs for one year is included and not the purchase costs (vehicles)*

***Indirect Costs** are costs related to the project, but shared with other programs and other partnership organizations, and costs important to the long term success of the project. If the project were cancelled, mosts of these costs would be incurred, but diverted to other projects, and some would be cancelled.*

*\* Includes Florida Veterinary costs and \$ 15,000 anonymous (funded) contribution.*

<b>BUDGET 2001</b>	<b>Share of Direct Costs Budget</b>	<b>Direct Costs</b>	<b>Equipment Costs</b>	<b>Indirect Costs</b>	<b>Total Budget</b>
<b>Private Support:</b>					
Operation Migration		\$ 233,505	\$ 56,835	\$ 44,350	\$ 334,690
International Crane Foundation		193,038	-	45,000	238,038
Other *		25,000	-	-	25,000
<b>Total Private Support</b>	<b>65.1%</b>	<b>\$ 451,543</b>	<b>\$ 56,835</b>	<b>\$ 89,350</b>	<b>\$ 597,728</b>
<b>US FWS Operating Budget</b>	<b>15.6%</b>	<b>108,500</b>	<b>81,000</b>	<b>412,000</b>	<b>601,500</b>
<b>WI DNR Operating Budget</b>	<b>12.0%</b>	<b>83,500</b>	<b>21,000</b>	<b>53,650</b>	<b>158,150</b>
<b>Patuxent NRC Operating Budget</b>	<b>7.2%</b>	<b>50,020</b>	<b>-</b>	<b>146,900</b>	<b>196,920</b>
<b>Total Budget</b>	<b>100.00%</b>	<b>\$ 693,563</b>	<b>\$ 158,835</b>	<b>\$ 701,900</b>	<b>\$ 1,554,298</b>