

WHOOPING CRANE RECOVERY ACTIVITIES
October, 2008 – October, 2009

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HIGHLIGHTS

The Aransas-Wood Buffalo population (AWBP) of whooping cranes reached a record population of 270 at Aransas in December, 2008. The number would have been substantially higher but for the loss of 34 birds that left Aransas in the spring, 2008 and failed to return in the fall. Faced with food shortages from an “exceptional” drought that hammered Texas, record high mortality during the 2008-09 winter of 23 cranes (8.5% of the flock) left the AWBP at 247 in the spring, 2009. Total flock mortality for the 12 months following April, 2008 equaled 57 birds (21.4% of the flock). The refuge provided supplemental feed during the 2008-09 winter to provide some cranes with additional calories. Two whooping cranes failed to migrate north, but survived the hot and dry 2009 Aransas summer.

A below-average 2009 production year in Canada with 22 fledged chicks from 62 nests was half the production of the previous summer and is expected to result in a break-even year for the AWBP. Threats to the flock including land and water development in Texas, the spread of black mangrove on the wintering grounds, and wind farm construction in the migration corridor all remained unabated in 2009.

The Cooperative Whooping Crane Tracking Project documented 79 confirmed sightings of whooping cranes in the U.S. Central Flyway during fall, 2008 and 38 sightings in spring, 2009.

The captive flocks had a very good production season in 2009. Twenty-nine chicks were reintroduced into the eastern migratory population, bringing that flock to 106 total birds. Three chicks of high genetic value were held back for the captive flocks.

Production in the wild from reintroduced flocks in 2009 was disappointing. In Florida because of the continuing drought, only 4 of 11 pairs nested and fledged 1 chick. In Wisconsin, all 12 nesting pairs abandoned their nests. Five or 6 pairs re-nested hatching 2 chicks, but neither chick survived. The major hurdle of nest abandonment in Wisconsin must be overcome for that reintroduction to have a chance of success. Although efforts to clear this hurdle should continue, the Recovery Team recommended starting reintroductions in different areas, both looking for other release sites in Wisconsin for the migratory whooping cranes, and starting a nonmigratory flock in Louisiana.

In 2009, total production could not quite keep up with mortality, with the total population of wild and captive birds dropping from 538 to 534 during a 12-month period. The drop was primarily due to the high mortality experienced by the AWBP.

Canadian Whooping Crane Coordinator Brian Johns retired in October, 2009 after 36 years with the Canadian Wildlife Service and many excellent years helping whooping cranes. Thank you, Brian, for all you have done.

ARANSAS – WOOD BUFFALO FLOCK

2009 Fall Migration in the Central Flyway

Twenty-eight sightings were recorded in the fall in Saskatchewan, with the last sighting on October 27th of two birds at Last Mountain Lake. In early October, one bird in a group of 11 near Osler, Saskatchewan was observed for about 3 weeks with a limp. At times the bird would lie on its belly to feed or rest. Other times it would walk normally. When it flew it sometimes held one leg dangling down at about a 20 degree angle. The entire group resumed migration on October 25th. This was the only possible clue regarding the loss of 34 birds between spring and fall, 2008. Most of those losses are believed to have occurred during migration.

The Cooperative Federal-State Whooping Crane Tracking Project in the U.S. confirmed 79 sightings distributed in ND (8), SD (4), NE (19), KS (24), OK (14) and TX (10). The migration in the U.S. got underway on September 30th with a single adult in Emmons County, south central North Dakota, although a probable sighting of 3 had been reported in flight over Bismarck the previous day. Biologists in the state alerted the media and hunters to the presence of whooping cranes in the general area. By October 2nd, migrating whoopers had proceeded at least as far south as Nebraska but did not get into Kansas or points further south until after October 18th. By the end of October, whoopers were spread throughout the U.S. including 35 present at Salt Plains NWR in Oklahoma on October 31st. Use on the Platte River in Nebraska occurred at a record level with 20 birds observed between October 9 and November 10. The count was aided by daily flights by two airplanes - one from Chapman to Minden and the other from Minden to Lexington - a half hour before sunrise, when whooping cranes were likely to still be at overnight river roosts. The flights were part of the Platte River Cooperative Agreement Endangered Species program. In November, the whoopers headed south rapidly with the last sighting in the Dakotas on November 5th. Fifty-two whoopers stopped at Quivira NWR in Kansas. The refuge was officially closed to hunting starting on October 28th with signs put up informing the public and news releases about the closure sent out to area news outlets. Two whooping cranes were present from October 30 to November 26 at the nearby Cheyenne Bottoms State Wildlife Area. Two were at Salt Plains NWR on November 28-29, and two were noted in the farm fields just north of Aransas December 3rd. Given the group size and timing and with no other reports coming from the migration corridor, I am guessing these three sightings at Cheyenne Bottoms, Salt Plains, and Aransas farm fields were all the same crane duo tracked across 3 states and the last birds reported in the fall migration.

One whooping crane juvenile spent nearly seven weeks (October 15th – December 5th) near Alma in south central Nebraska close to the Kansas border. The juvenile stayed at a pond below a cattle feedlot, and fed in a nearby wheat field. It was never seen with other whooping cranes, and stayed past well past the time when all the sandhills had migrated through the area. It resumed migration the day after its roost pond froze over. As it moved south, presumably the same juvenile was next reported near the town of Hennessey in north central Oklahoma. No

sandhill cranes were in the area. The whooping crane was monitored and last sighted January 25th. A wet cold front that passed through the area January 26th had brought freezing rain and colder temperatures which froze the crane's roost pond. The weather presumably pushed the crane further south. It was next reported at the end of January north of Piedmont about 26 miles south and six miles east of the Hennessey location. This was the last known wintering location for this juvenile crane. One juvenile whooping crane was confirmed on the Platte River in Nebraska on February 20th that presumably was the same bird that had probably moved north with sandhill cranes.

One threat to cranes surfaced in late December, 2008 and mid-January, 2009 near Salt Plains NWR in northern Oklahoma where a total of 150 sandhill cranes died from eating moldy peanuts in two incidents. The birds died from fusariotoxin poisoning, a form of mycotoxicosis. USFWS personnel used propane cannons to scare birds off the peanut fields.

Aransas National Wildlife Refuge, Texas

2008-09 Winter

The number and distribution of whooping cranes were studied on the wintering grounds at Aransas during the 2008-09 winter. The peak population equaled 232 white-plumaged birds and 38 juveniles totaling 270 cranes. This was 4 birds higher than the 266 cranes present the previous winter. Mortality between spring and fall, 2008 was estimated at 34 cranes. Record mortality of 23 cranes was documented at Aransas during the 2008-09 winter. Thus, 57 cranes (21.4% of the flock of 266), died between spring 2008 and spring 2009.

The peak population of 270 consisted of 140 adults, 92 subadults, and 38 juveniles. The estimate of 70 pairs occupying territories was 2 less than the previous winter. Territories and/or use areas were located on the Refuge (20), Lamar (4), San Jose (16), Matagorda (24), and Welder Flats (6). Cranes generally were found on the refuge (72), Lamar (20), San Jose Island (56), Matagorda Island (90), Welder Flats (27), Austwell farm fields (4), and Oklahoma (1). Record highs were set in the 2008-09 winter for most cranes on Lamar (23), and Matagorda (100). Matagorda Island that held 33.3% of the flock has in recent years surpassed the refuge for supporting the most cranes. At most, 16 cranes were color-marked, representing 6.5% of the population.

Food resources were considered to be very poor throughout the 2008-09 winter. The fall wolfberry crop was way below average, and blue crabs were scarce from December through March. Cranes used open bay habitats and uplands to a much greater extent than usual. The lack of food was believed to be directly related to the high winter mortality. Additional, salinities

were high throughout the season so that the cranes were forced to fly to fresh water to drink, with flight using an estimated 19 times more energy than a crane at rest.

One subadult was captured and 3 carcasses were found during the 2008-09 winter. The live bird when discovered on December 1st too weak to stand or fly. It was picked up and placed in a transport crate, but died as it was being driven to a veterinarian in Port Lavaca. The necropsy found the bird emaciated with an injured “knee”. There were no other signs of disease. This may have been the same bird observed in the fall migration in Saskatchewan with a severe limp having some difficulty feeding.

One juvenile at Aransas NWR observed separated from its parents on January 13th and being picked on by a territorial male was found dead the following day. A necropsy showed the bird had been killed by a large predator. However, the bird was emaciated and the National Wildlife Health Center in Madison, Wisconsin was able to isolate a virus very similar to infectious bursal disease (IBD). One of the symptoms of IBD is emaciation, even when a bird is receiving adequate food. If it turns out the virus is a form of IBD, this would be the first case ever documented in a crane from the Central Flyway. IBD is known in cranes and other gallinaceous birds in Florida, as well as at the captive crane breeding centers. A different juvenile at Aransas NWR that had separated from its parents was found in February in the jaws of an alligator at a fresh water dugout. I can only speculate that IBD was involved in that case as well as something caused the abnormal behavior of the juvenile separating from its parents. During the winter, several other juveniles had also separated from their parents prior to disappearing.

Prescribed burns done for whooping cranes at Aransas in the 2008-09 winter included 16 units totaling 11,542 acres. The cranes took full advantage with much use documented on both burned and unburned uplands. The refuge also provided whole kernel corn dispersed automatically by 13 game feeders placed next to water holes on upland roads near the crane marshes on the refuge and on Matagorda Island. The decision to start supplemental feeding was made following the loss of an emaciated juvenile on January 14th. A bird picked up at the refuge Boat Ramp in early December, 2008 had also been emaciated. With blue crabs scarce and cranes dying, it was felt needed to try to provide some extra calories for the cranes. The refuge in the 1960s used to grow farm crops for the cranes and also had put out supplemental food.

Whooping crane use of the feeders was considered moderate. Data collected by remote cameras documented 229 visits by cranes with 712 whooping crane photos taken. An average of only 5 feeders out of the 13 total was visited weekly. Although the feeders were placed outside of crane territories, some cranes may have ended up “claiming” the feeders and perhaps keeping other cranes away. There were no observations made of the presence of feeders disrupting the distribution or general foraging activities of the cranes. We concluded that the feeders provided a supplemental boost of calories for a limited number of cranes of up to 20% of the flock. The supplemental feeding was not a cure-all, but we believe it helped some cranes reduce the energy

stress they were under from the shortage of natural foods. Cranes on the Lamar Peninsula made extensive use of game feeders put out by landowners feeding deer and other wildlife. The record 23 whooping cranes found on Lamar were believed due to the presence of feeders. One pair used a feeder located at a pond next to Highway 35 that caused minor traffic congestion as sometimes up to 5 cars would be sitting on the road shoulder for crane viewing. Other cranes were seen at feeders near ranch houses, made difficult to see on aerial flights looking down through the oak over-story.

In 2009, the public crab trap pickup organized by TPWD on February 21st removed 1,237 traps from San Antonio and Aransas bays with 690 traps picked up elsewhere on the Texas coast. One hundred and four people in 33 boats worked the two bays in the whooping crane area. Over many decades, abandoned commercial crab traps had literally been scattered throughout Texas bays. These abandoned traps continued catching fish, crabs and the occasional diamondback terrapin for many months and even years until the trap wire rusted through, a tremendous waste of the resource. Abandoned traps also posed a navigation hazard to sports fishermen. Starting in 2002, a Texas Parks and Wildlife Department (TPWD) regulation has provided a 9-day period in February when all crab traps had to be removed from public waters. During that period, it became legal for anyone to pick up traps. Outside of that time period, only TPWD wardens could legally pick up traps, even if clearly abandoned. With the new regulation in place, the pickup organized by TPWD of 25,974 abandoned crab pots on the Texas coast the past 8 winters has greatly reduced the number of abandoned traps. Only low numbers of traps remain at Aransas in some of the most hard to reach areas of the coastal crane marshes. This program has been very successful with fewer abandoned traps currently in the water catching crabs, fish, and getting tangled on boat props.

In October, 2008, new Aransas NWR project leader Dan Alonso took over the reins managing all aspects of the refuge. Dan is originally from San Antonio and has worked on numerous refuges including Anahuac on the upper Texas coast.

In a new management action implemented by Dan Alonso in February 2009, refuge staff posted “closed to crabbing” all waters within the boundary of Matagorda Island National Wildlife Refuge, including marshes and interior lakes. Commercial fishing has never been allowed on National Wildlife Refuges, so this effort was simply a decision to start enforcing the law. Signs were placed in most entrances to the marsh to mark this permanent closure. Notification letters were sent to licensed crabbers in the area. Only a few fishermen were affected as the number of commercial crabbers in the crane area has continued to decline. The action should make additional blue crabs available for the whooping cranes, and should stop crab traps from being placed in the shallow marshes and later abandoned when tides become too low to check traps.

In the spring, Refuge staff held two meetings with TPWD about a proposed expansion of the crab closure zone in all marshes being used by the whooping cranes. Also proposed was a

closure 300 feet out from the marshes in the shallow parts of the bays where whooping cranes may forage. With crabbing currently prohibited on Aransas and Matagorda Island NWRs, the proposal would affect marshes on San Jose Island and Welder Flats as well as bay edges throughout the crane area. A proposal along these lines had been rejected about 10 years ago, but with the struggles of the cranes this winter and continued decline in blue crab populations, now may be the time to pass additional regulations. The original proposal was scaled back to the current crane range and excluded areas the cranes may expand into in future. Also, the proposed closure would be seasonal in nature only for when the cranes are on the Texas Coast from October 15th through April 15th. TPWD is considering the proposal, but decided not to propose it in their next regulatory framework cycle in the spring, 2010.

After most of the cranes had migrated north, a feral hog control program was carried out by Animal Services the week of April 27th on the refuge, Matagorda Island, and the Lamar Peninsula. Aerial gunning from a helicopter killed 840 hogs (422 on MI, 20 on MFW, and 395 on Blackjack). On the refuge tour loop, shooting started at a pace of 42 hogs shot in the first 35 minutes. The number of hogs on the refuge is simply unbelievable. Helicopter gunning on Matagorda Island had been initiated a year ago, so the take of 422 hogs this year demonstrates how quickly they breed and/or re-colonize the island. However, the dramatic reduction in hog numbers on Matagorda in recent years has greatly reduced the amount of coastal prairie rooted up by the hogs, especially in prescribed burn areas where the hogs like to concentrate.

Multiple professional biologists with interest in whooping cranes make the long pilgrimage to Aransas. Visitors hosted by the refuge in the 2008-09 winter included the following;

Dec. 02 – Klaus Nigge, photographer for National Geographic, spent time on the Johnson Ranch at Crane House to take photos for a planned magazine article and book. He also filmed cranes at a nest in Wood Buffalo National Park. Look for a National Geographic magazine article on the Aransas-Wood Buffalo flock in February, 2010, as well as a coffee-table book of photographs to be published by U. of Texas Press.

Dec. 13 – Sandhill Crane biologist Inga Bysykatova from Yakutiva and Bob Dusek of the National Wildlife Health Center visit. They were accompanied by reporter Tara Bozick from the Victoria Advocate that wrote a human interest story on the visiting Russian scientist.

Feb. 19 – A 10-person delegation of resource managers from China visit Aransas for 3 days that included a hydrologist and a manager from crane refuges in China that spent two weeks working at Aransas as part of an exchange program. Aransas NWR Assistant Manager Vicki Muller spend the month of July in China to complete the exchange program.

The two whooping crane tour boats (Black Skimmer and Wharf Cat) provided excellent opportunities to photograph the cranes. The cranes see these two boats on nearly a daily basis and allow close approach. The media is directed to these tour boats because of the opportunities they provide. Records compiled by refuge staff from monthly reports supplied by the tour boats found that an estimated 6,942 people had gotten rides during the 2008-09 winter. Trips were down 22% from the previous winter as tourism was hammered by the general economy.

Spring 2009 Migration

Departures from Aransas

Departures from Aransas started on the early side in the spring, 2009. For example, by March 27th, a family group had made it all the way to Nebraska, and on March 31st, a group of 5 were at Salt Plains NWR in northern Oklahoma. It is unknown if this early departure was related to the poor body condition that the cranes apparently were in. Fortunately, the cranes seemed to have foraged on fiddler crabs just prior to the migration that may have provided needed energy reserves. By April 7th, 56% of the flock had headed north, and 92% had left by April 21st with some cranes already reported in Saskatchewan. One pair of adults started the migration with their juvenile remaining at Aransas. On April 30th, at least 15 whoopers were still at Aransas and a month later on May 28th, four whooping cranes were still present. Two of these apparently migrated and two over-summered, including the crane known as “Scarbaby”. Scarbaby, recognizable by a black mark on his neck, was the hatch year 2004 crane injured in the spring of 2005 that had almost died and had failed to migrate in 2005 and 2006 but had migrated in 2007 and 2008. The two birds that over-summered were separate much of the summer, so it seems doubtful that Scarbaby’s mate had stayed at Aransas. It is remarkable that they survived given how thin they looked. At least one of the cranes went through a flightless molt, once observed walking to a refuge dugout located in the uplands and then foraging in oak savannah habitat.

Sightings in the Migration Corridor

Sandhills begin gathering on the Platte River the first week in February. One juvenile whooping crane was confirmed on the Platte River in Nebraska February 20th-April 14th. This was presumably the juvenile that had over-wintered in Oklahoma and probably had moved north with sandhill cranes. On April 8th, a second solitary juvenile was confirmed on the Platte. The separation of a juvenile from its parents also apparently occurred at Jensen Waterfowl Production Area (WPA) in southeast Kearney County, Nebraska the second week in April.

One crane with an injured foot or leg was observed April 26 – May 2 at LaCreek NWR in South Dakota. It was observed leaving the refuge and flying to a pile of corn put out by a landowner near their house to feed pheasants.

Between February 20th and May 19th, 38 sightings were confirmed by the USFWS Whooping Crane Cooperative Tracking Project headed up by Martha Tacha in Grand Island, Nebraska. Sightings were located in Nebraska (n=17), North Dakota (6), Kansas (6), South Dakota (5), and Oklahoma (4). The largest group size reported was 8 adults and 2 juveniles at Quivira NWR in central Kansas on April 10th.

There was a sighting report and photograph taken on approximately May 20, 2009 of an immature whooping crane near Ross River, Yukon Territory in northwestern Canada. The photo sure seemed to show an immature whooping crane with a little brown remaining on the head and neck and starting to get a black face patch. This may be the longest one-way migration trip ever documented for a whooping crane.

Wood Buffalo National Park, Canada

Aerial surveys, 2009

Three summer surveys of the nesting area were carried out in 2009. In May, Canadian Wildlife Service biologists Lea Craig-Moore and Kathy St. Laurent found 61 nests, 10 pairs on territories that had failed to nests, as well as some known territories that were vacant. Water levels looked excellent although it was a late spring and snow patches made it very hard to find some of the cranes. A 62nd nesting pair was confirmed on the surveys done in June by Lea Craig-Moore, Jim Bredy and Tom Stehn of USFWS when a family group with a very young chick was found in an area where no nests had been located in May. The 62 nests were just 4 less than the record 66 nests recoded in 2008. This level of nesting was unexpected since the birds were felt to be in poor body condition following the stressful winter at Aransas. The June surveys accounted for 52 chicks, (0.84 chicks per nest), including 10 sets of twins. Forty-two of the 62 nests (73%) produced at least 1 chick which was equivalent to the average over the past 16 years of 72% nest success. Thus, 2009 looked to be an average production year.

Habitat conditions in mid-June looked good, although a few ponds showed dry mud edges. However, summer survival turned out to be below average when on the mid-August fledging surveys only 22 chicks were found with no twins. This added up to 0.35 chicks per nest versus the long-term average of 0.47 chicks per nest. Habitat conditions in August were excellent with water levels higher than Canadian Whooping Crane Coordinator Brian Johns had ever seen them at that time of the year. To achieve those high water levels, a much higher than average amount of rain had fallen during June (113.6mm or 2.5 times normal) and July (86mm or 1.5 times

normal). Although the rain was welcome, it came at a time when the young were still vulnerable to cool wet conditions and may have contributed to the lower than average survival of chicks. The high water levels will however, ensure that spring 2010 conditions are favorable. Given the disappointing number of young produced in 2009, combined with the record high mortality at Aransas during the 2008-09 winter, the population is expected to decline in 2009

THREATS to the ARANSAS-WOOD BUFFALO FLOCK

Species Status

Every year, USFWS reports to Congress on the status of all endangered species. Since 2007, the whooping crane status has been changed from “increasing” to “stable” to “decreasing” based on what I perceive as growing threats. Even though whooping crane numbers in 2007 and 2008 were continuing to increase, threats to the winter range had become imminent. With the loss of 53 Aransas-Wood Buffalo whooping cranes in the past year (21.4% of the flock), the decrease in ranking seems justified. Resource threats at Aransas have all worsened, ranging from land development, reduced freshwater inflows, spread of black mangrove, and sea level rise, as well as wind development and power line construction in the migration corridor. Biologists from the Corpus Christi Ecological Services office and I gave a briefing to the Regional Director of USFWS in Albuquerque in June 4th, 2009. Much fruitful discussion ensued about the predicament the whooping crane faces and what steps are needed to promote recovery.

The sections below provide details on threats faced by the whooping cranes.

Land Development

Forty percent of the whooping crane flock winters on private lands outside of Aransas and Matagorda Island NWRs. Some of these areas are included as designated Critical Habitat, but many are not. Real estate development pressures are rapidly increasing as illustrated by the 38% growth of the population of the town of Rockport since 1990. Developments that have applied for permits or are in the process of applying included Falcon Point Ranch, The Boardwalk and Reserve at St. Charles, Shell Point Ranch, and the Big Tree Ranch. Whooping cranes have occasionally been sighted using all of these properties. The USFWS is likely to recommend formal consultation under the Endangered Species Act (ESA) for all of these actions.

Without protecting additional lands, whooping cranes will not have additional winter areas to support flock expansion and recovery goals may never be reached. These lands must be protected in the next 10 years or it may be too late. To try to conserve key lands currently used by whooping cranes as well as set aside lands expected to be used in the future, the Texas Nature Conservancy (TNC) has carved out a strong partnership with USFWS and is working hard to

protect key pieces of real estate to help whooping cranes. However, funding is limited and must be applied for one grant at a time with little certainty and no fast action for landowners willing to protect their lands from development. On December 18, 2008 TNC closed on a 2,162-acre conservation easement on the John Welder property. The easement will protect wintering habitat at Welder Flats that supports approximately 3 or 4 whooping crane pairs. This was really great news! Of all the areas needing protection for whooping cranes, this was my number one priority since it had the most documented whooping crane use occurring on it. However, negotiations on a nearby parcel with an adjacent landowner broke down. TNC did receive a grant of \$740,425 for purchasing a conservation easement on the 3,500-acre Swan Point Ranch in the Guadalupe Delta.

Freshwater Inflows

Water issues continued to receive a tremendous amount of attention in Texas and are of great concern for whooping cranes. Data show that the health and survival of the endangered whooping crane flock is directly related to freshwater inflows from the Guadalupe and San Antonio rivers. The two rivers emerge from underground springs near San Antonio and run 250 miles southeast where they join before entering San Antonio Bay and flow into whooping crane critical habitat north of Aransas. When inflows are high, blue crabs, the primary food of the whooping crane, are usually abundant. Inflows carry sediments and nutrients which increase bay productivity and boost crab populations. Inflows also lower bay and marsh salinities which also boosts blue crab survival. Inflows also maintain salinity levels below 23 parts per thousand needed for drinking water by whooping cranes. Inflows are the most beneficial in spring through early fall when blue crabs are more actively growing and reproducing.

Unfortunately, inflows are reduced over historic levels and may already be insufficient in times of drought. The Texas Water Development Board projects in 40 years an 8% reduction in blue crab populations due to reduced inflows as the human population grows and takes more water from the Guadalupe and San Antonio Rivers. Some climate change models predict inflows to be reduced by about 20% if temperatures increase by 2 degrees centigrade and precipitation is reduced 5%.

Without implementation of effective legislation, the bays and whooping cranes will suffer from insufficient inflows, particularly in drought years. An analysis by Dr. Norman Johns of the National Wildlife Federation (NWF) found that if a repeat of the 1950's worst year drought occurs and current water rights are fully utilized, that because of all the water appropriated since that time, there would only be 28% of river water reaching the bays compared to the drastic low flows that occurred during the 1950s. Recent research based on tree rings has shown several historic droughts even worse than in the 1950s.

Highlights of water issues between October, 2008 and October, 2009 are briefly highlighted below.

Conservation Flow Water Right

In the summer of 2008, the San Marcos River Authority's (SMRF) October, 2007 appeal of their application for an instream water right of 1.13 million acre-feet for the Guadalupe River was dismissed by the Federal Court in Corpus Christi. The Court basically ruled that Texas' Senate Bill 3 prohibited granting an in-stream water right since the bill specifically established a methodology for addressing inflow needs. SMRF disagreed since their application in 2000 had preceded Senate Bill 3 and the date that water rights are obtained is crucial in Texas law. Unfortunately, this matter which lasted over 7 years was a loss for conservationists and is apparently over, although it could still be appealed to the Texas Supreme Court. I consider a mandatory minimum conservation flow to be critical for whooping cranes.

Environmental Flows Allocation Process

The Senate Bill 3 Environmental Flows Allocation Process for establishing minimum inflows for the whooping crane area got started with the appointment of stakeholders in the fall, 2009 for the Guadalupe, San Antonio, Mission & Aransas Rivers/Aransas & San Antonio Bay area. Federal entities cannot be voting stakeholders, but can be scientific advisors to the process.

Edwards Aquifer Recovery Implementation Plan

As set up by the 2007 state water act, a process was started called the Edwards Aquifer Recovery Implementation Program (EARIP) for determining the sustainable levels of pumping from the aquifer. The Edwards Aquifer serves 1.7 million people in South Central Texas and provides San Antonio with 95% of the city's water. The human population over the aquifer is expected to double by mid-century, increasing the demand for water. The 2007 Texas legislature raised the pumping cap of the Edwards Aquifer from 400,000 acre-feet to 572,000 acre-feet. As part of the agreement, lawmakers required that an EARIP be completed by the end of 2012. Excessive water withdrawals from the aquifer threaten the habitat of 8 endangered species including cave invertebrates and fish that suffer loss of habitat when spring flows are reduced. It has not been decided by the stakeholders if the whooping crane will be a part of the EARIP. Regardless, the HCP must be reviewed under Section 7 of the Endangered Species Act (ESA) before USFWS can approve it. During drought, spring flows can make up as much as 80% of the river flow. Thus, maintaining adequate spring flows is a crucial issue for whooping cranes that need inflows to support blue crab populations, the primary food of whooping cranes during winter.

To develop the HCP document which will be submitted to the USFWS, the EARIP will have to make difficult decisions regarding how the aquifer must be managed and other actions that must

be implemented to satisfy the requirements of the ESA while balancing the region's water needs. The results of scientific studies undertaken will be available to aid the EARIP in reaching these decisions. About 70 stakeholders, scientists and other interests held numerous meetings to devise scientifically based and defensible recommendations on sustainable pumping caps and drought management strategies. EARIP stakeholders include water utilities, cities, groundwater conservation districts, agricultural users, industrial users, environmental organizations, individuals, river authorities, downstream and coastal communities, and state and federal agencies. Funding received to carry out this process included \$1,063,125 awarded through the Cooperative Endangered Species Conservation Fund which supports land acquisition and conservation planning for endangered species. The fund provides grants to states to support the development of HCPs through funding of baseline surveys and inventories, document preparation, outreach and similar planning activities. Other funding included over \$775,000 from the stakeholders themselves and \$1.69 million from the Texas Legislature.

Lower Guadalupe Water Supply and Other Projects

The Lower Guadalupe Water Supply Project (LGWSP) as proposed would construct off-channel reservoirs in Calhoun County near the mouth of the Guadalupe River to impound water and pump 179,000 acre-feet back to a 10-county area in the upper end of the watershed for the growing population in the Texas Hill country. The Region L water planning group may decide to consider this proposal as an "alternate" project which would take it off the table for consideration in the near-term. Two additional proposed water development projects in the crane watershed include a Mid-Basin Project in Gonzales County, and a small dam on a tributary above Canyon Lake. All 3 projects, if permitted and built, would have environmental conditions placed on their permits.

The LGWSP and other water projects could negatively impact whooping cranes depending on how river inflows are impacted. The San Antonio/Guadalupe Estuary Study (SAGES) funded by the project developers was completed by Texas A & M University (TAMU) in April, 2009. This study seemed to conclude that inflows were not a major factor for the health of the whooping crane flock. However, the conclusions of the SAGES study did not fit what I have observed at Aransas over the past 27 winters, nor especially does it in any way account for the stressful conditions at Aransas in the 2008-09 winter when the flock experienced record mortality of 23 cranes. Scientists rebutted the SAGES model that seemed full of flaws and false assumptions and failed to incorporate key aspects of whooping crane biology. For example, the study failed to consider whooping crane mortality at Aransas that spikes in drought years when inflows are reduced and blue crabs are low. Nor did it take into account the energetic costs of whooping cranes forced to seek fresh water to drink when marsh salinities exceed 23 parts per thousand, or the effects of crabs moving out of the numerous cut-off marsh ponds that become hypersaline during drought periods. The SAGES model inputted a maximum bay salinity of 30 parts per

thousand (ppt), although bay salinities ranged between 30 and 40 ppt throughout the 2008-09 summer.

Exelon Nuclear Power Plant

Another project that has the potential to substantially impact bay inflows is the proposed construction of 2 nuclear reactors 12 miles south of Victoria, Texas. The Guadalupe-Blanco River Authority agreed to supply Exelon Nuclear with 75,000 acre-feet of water per year for the plant's cooling towers. The water would come from the Guadalupe River from an existing unutilized water right and would measure more than 7 times the amount of water the city of Victoria uses annually. The company renewed its water reservation agreement with the Guadalupe-Blanco River Authority for another year at a cost of \$1.1 million.

On June 30th, 2009 Exelon announced they were going to move slower on the proposed nuclear plants and will seek an early site permit instead of the construction and operating license they had originally applied for in September, 2008. Unforeseen U.S. economic woes, unpredictable energy prices and a lack of ample federal loan guarantees threw a reactor-sized wrench into those earlier plans. Their project had not been placed in the top tier for federal funding. However, the move showed Exelon hadn't given up on the project. An early site permit, if granted, gives a federal stamp of approval to the proposed Victoria County location. The process requires about three years of federal study. The company is not walking away from the Victoria site. They are simply extending the decision time for several years.

Texans for a Sound Energy Policy Alliance, a group started by the O'Connor family that owns land next to the proposed nuclear sites, urged residents to question how two nuclear reactors would affect the future of the Guadalupe River Basin. The Alliance claimed the proposed plant would create a water shortage that would forever change the river. Well-known environmental lawyer Jim Blackburn was retained by the Alliance to look into water issues. He suggested the idea of USFWS claiming a federal water right for the purpose of carrying out the mission of the Aransas NWR, namely to protect the whooping crane. Mr. Blackburn met with numerous groups and is promoting a new conservation initiative called the Aransas Project, which is a growing alliance of groups concerned about the future of the Texas flock of whooping cranes if a whole lot more fresh water is taken from the Guadalupe River. The Aransas Project may ultimately result in an endangered species "takings" lawsuit over excessive water removal that could be filed by the end of 2009.

Sea Level Rise

USFWS biologists Dawn Whitehead and Tom Stehn made a presentation on whooping crane issues at a conference focused on climate change impacts to coastal areas held in Austin, Texas in August, 2009. Sea level rise is a major threat to whooping cranes. Since whooping cranes

mostly only use water < 20 inches deep, a projected sea level rise that could exceed 39 inches by the end of the century announced by top climate scientists meeting in Copenhagen in March 2009 would make the current whooping crane winter range unusable. The realization that glaciers are melting more rapidly and waters are rising faster than originally predicted makes it even more important to carry out a land protection initiative for whooping cranes.

Regardless of future trends, waters along the Texas coast have been rising ever since records have been kept at the first Texas water level gauge installed in Galveston in 1922. The rising waters are a combination of seas level rise and land subsidence as minerals and water are pumped from the ground. Sea level has been rising 3.1 mm per year between 1993 and 2003 with a longer-term average of 2 mm per year. In places along the Texas coast, the combined effect has been > 6 mm per year with land subsidence accounting for a 4 mm drop. As waters have risen, gulf beaches have been retreating between 0.6 - 2 meters and the side of the barrier islands touching bays have also been retreating over a majority of the coast.

To project the effects of sea level rise at Aransas, USFWS scientists stationed in the Washington and Region 2 offices are working on a Sea Level Affecting Marshes Model (SLAMM) to project changes to coastal areas.

Wind Energy Development and Power Lines

Habitat Conservation Plan (HCP) for Whooping Cranes and Lesser Prairie Chickens

The development of wind farms is occurring at a rapid pace in the Central Flyway. Many of the best wind sites are located in the whooping crane migration corridor. Multiple wind farms have already been built, and it is important to evaluate, minimize, and mitigate for the potential impact of literally tens of thousands of wind turbines that will be placed in the whooping crane migration corridor in the coming years.

The impact of wind turbines to whooping cranes is unknown but could adversely impact the species. Wind farms have the potential to directly kill whooping cranes either from the turbines themselves or associated construction of power lines. If whooping cranes completely avoid wind farm areas, wind energy development could result in the removal of hundreds of square miles of migration stopover habitat from use by the cranes. The National Academy of Science Report in 2004 on Platte River endangered species report stated unequivocally the threat to whooping cranes if migration habitat is lost.

The majority of the wind farms do not require federal permits and thus there is no nexus for the companies to consult with USFWS under the ESA. However, the projects must avoid “take” of endangered species under Section 10 of the ESA. The Service in April, 2009 finalized a wind

development/whooping crane issue paper that provided information to wind developers about anticipated whooping crane impacts and compliance issues with the ESA. At the urging of USFWS with meetings held in Denver and Houston as well as regular conference calls, 11 of the largest wind development companies joined together to work on endangered species issues on a range-wide basis. With the support of the State of Oklahoma, the industry group applied for and received a total of \$1,080,990 to develop a landscape level, multi-species HCP. The grants were awarded through the Cooperative Endangered Species Conservation Fund under the HCP Planning Assistance Program that provides grants to states to support the development of HCPs through funding of baseline surveys and inventories, document preparation, outreach and similar planning activities. A contractor was selected and started initial work. The HCP will be designed to avoid and minimize impacts to endangered and threatened species associated with wind energy development. It will encompass the whooping crane migration route in the U.S. and their wintering grounds, along with a significant portion of current and historic habitat of the lesser prairie-chicken. This multi-species HCP will be the first of its kind about alternative fuel sources while protecting imperiled species.

The Service was approached by several companies involving projects next to the whooping crane winter range. The Palpalote project was built in a year's time with turbines placed on agricultural lands southwest of Taft, Texas that started operating in October, 2009. This is outside the normal winter range of the whooping crane, but an occasional whooping crane could be in the area either coming in from migration or spending time with wintering sandhills. Other wind projects are expected to be planned and built in the coming years. Impacts need to be considered in the range-wide HCP being developed.

Avian Power Line Interaction Committee (APLIC)

Communications continued in 2008 and 2009 between the Service and APLIC on measures that might be implemented to reduce the threat that continued power line expansion in the migration corridor poses for whooping cranes. This may be a major component of the wind development HCP with efforts made to mark key sections of line since collision with power lines is the number one known source of mortality for fledged whooping cranes. This issue was discussed in the wind development/whooping crane issue paper finalized by USFWS in April, 2009. Also in April, the APLIC whooping crane subcommittee held a meeting in Rockport which included a boat tour to see the cranes. USFWS- Ecological Services biologists from North Dakota, South Dakota and Nebraska attended the meeting to provide input from the field on power line / crane issues.

Early on in my meeting with wind companies, I talked of two possible scenarios for offsetting anticipated impacts of wind farms. These were to set aside whooping crane migration stopover habitat in perpetuity to counter potential loss of habitat from wind farm construction, as well as

to mark all new power lines as well as existing power lines to offset the threat of whooping cranes colliding with a wind turbine or power lines built to support wind development. In the course of all these discussions, I was able to suggest to all Ecological Services offices that marking new power lines was not enough of an offset since whooping cranes still collide with marked lines. Existing lines need to be marked as well so that there is no net increase in the threat of collision. The focus on marking existing lines would be on lines near known whooping crane stopover locations and/or within 50-miles of the migration corridor center line. Hopefully all lines within one mile of a wetland would be marked since the collision threat is greatest near wetland stopover sites.

ADMINISTRATION

Whooping Crane Coordinator Brian Johns retired in October, 2009 after 36 years with the Canadian Wildlife Service with many of them working on whooping cranes. His research and managements efforts were highly respected by all he encountered. Thank you, Brian! Lea Craig-Moore, who has been helping Brian for several years, carried out the May and June 2009 nest surveys with Kathy St. Laurent. Lea is extremely knowledgeable about whooping cranes and will continue handling whooping crane business until Brian's position can be filled.

The Nature Conservancy initiated a Conservation Action Planning (CAP) process for whooping cranes. Meetings on migration issues were held in Nebraska in April and on summer and staging habitat issues in October in Saskatchewan. A third meeting will be held in February, 2009 at Aransas to look at threats to the species on the winter grounds. The CAP is designed to mold Nature Conservancy land protection and management strategies based on input from a wide array of biologists.

Steps have been initiated to do a telemetry study of AWBP whooping cranes designed to detect mortality, migration behavior, and habitat use. The loss of 57 whooping cranes in the past year makes it imperative that more be learned about causes of mortality. Plans call for capturing, doing health screening, and placing bands, GPS PTTs and conventional VHF transmitters on 60 birds over 3 years at both Aransas and Wood Buffalo. Dr. Felipe Chavez-Ramirez of the Platte River Whooping Crane Maintenance Trust is the principal investigator along with co-investigators Dr. Gary Krapu and Dr. Karine Gil. Jessica Rempel has been hired to coordinate all actions. Funding for this project is being provided by the Platte River Recovery Implementation Program, Platte River Whooping Crane Maintenance Trust, and the USGS Northern Prairie Wildlife Research Center. Two sandhill cranes were captured in March, 2009 in Nebraska and fitted with transmitters to make sure all systems were working properly.

A proposal from Dr. Ken Jones at the U. of Georgia genomics lab to describe the genetic composition of the captive flock is a top Recovery Team priority for 2010. Funding needs to be secured. Captive management decisions would be based on study results, and genetic samples

from radioed birds could be compared to the captive flock. The new genomics technology would derive genetic information from 454 single nucleotide polymorphisms, a substantial increase from the 12 loci used in the past on which most of our genetic decisions involving whooping crane pairing are currently based.

A proposed sandhill crane hunt in Alberta was rejected in April, 2009 by the Alberta government, saying there were lingering concerns that hunters could mistake endangered whooping cranes for their more common cousins.

The Crane Conservation Act was once again introduced into Congress and passed by the House. In the Senate, the bill was passed by the Committee on Environment and Public Works in May, 2009 for full consideration by the Senate. This legislation is aimed at helping species of cranes world-wide, and would allow 20% of appropriated funds to go towards crane species in North America.

A whooping crane and a California condor specimen were hand-carried to Mexico in February, 2009 by Marc Weitzel, Project Leader at Hopper Mountain NWR and given to the Museum of Mexican Birds in Saltillo. This request had come directly from the Director of USFWS. Getting permits for this was a difficult and time consuming task.

In March 2009, Tom Stehn made a presentation on whooping crane issues at the Central Flyway Non-Game Migratory Game Bird Technical Committee meeting. Items of interest were the radiotelemetry work of Dr. Sammy King on sandhill cranes captured in Louisiana that moved north to the Platte River in the Central Flyway before heading further north and east, as well as a proposed nonmigratory whooping crane reintroduction in Louisiana. Participants also felt that the permitted level of incidental take due to legal migratory bird hunting should be increased since there are more whooping cranes in the flock. The present level of taken given is one whooping crane every 10 years.

In March, Tom Stehn was selected to receive a Recovery Champion award from USFWS, one of 18 people so recognized in 2009 for their contributions to the recovery of endangered species. The USFWS press release of May 19, 2009 stated the following (*but don't believe everything you read*).

National Recovery Champion award recipient Tom Stehn has made innumerable outstanding contributions to the recovery of the whooping crane over the past 26 years. A globally endangered species, Stehn has worked to protect this species as the lead Service biologist for on the Aransas National Wildlife Refuge in southeastern Texas – home to the only wild migratory flock of whooping cranes. Stehn's efforts include: annual collection of population data, serving as the whooping crane recovery team co-leader, being the primary author of the recovery plan, facilitating recovery efforts, and working with a variety of stakeholders and partners to promote whooping crane

conservation efforts. Stehn's tireless efforts in habitat management, conservation, research, and monitoring at the Refuge, as well as his participation in international coordination for all aspects of whooping crane recovery, have contributed tremendously to the success of this flagship endangered species recovery program.

At the end of May 2009, Tom Stehn and Robyn Cobb (USFWS-Ecological Services in Corpus Christi) wrote a Whooping Crane Spotlight Species Action Plan. This is a new planning effort initiated by USFWS-Endangered Species aimed at measuring annual progress in carrying out recovery actions.

FLORIDA NONMIGRATORY POPULATION

The following is from a news release from the Florida Fish and Wildlife Conservation Commission (FWC) in November, 2008.

The FWC will discontinue the release of whooping cranes into Florida's non-migratory flock. The FWC accepted the recent recommendation from the multi-agency International Whooping Crane Recovery Team.

The team created the release program 15 years ago in an effort to establish a self-sustaining, non-migratory whooping crane population in Florida. Naturally-occurring whooping crane populations in the southeastern United States disappeared by the 1930s.

Scientists decided to stop releasing cranes into the non-migratory flock for a variety of reasons, including problems with survival and reproduction, both of which have been complicated by drought. Additional considerations included shorter-than-expected life spans, scarcity of birds for release, project costs and the loss of habitat from development. The team felt that project resources and birds produced in captivity could be better used for other whooping crane releases as well as to maintain the captive flock.

"It was a tough decision," said FWC biologist Marty Folk. "Many people were involved, but most agreed that this was the right decision and the right time to make it."

From 1993 to 2004, biologists released 289 captive-raised, non-migratory whooping cranes into Osceola, Lake and Polk counties in Central Florida. The last releases took place in winter of 2004-2005. FWC biologists will continue to study the remaining 31 birds.

The FWC was the lead agency in Florida in the cooperative effort to establish a non-migratory flock. Major partners included the U.S. Fish and Wildlife Service, U.S. Geological Survey, the Canadian Wildlife Service and the International Crane Foundation.

As a member of the Whooping Crane Eastern Partnership, the FWC continues its involvement with a separate project to reintroduce migratory whooping cranes in the eastern United States. This flock migrates from Wisconsin to Florida each year.

The decision to not resume reintroductions came after a series of meetings among crane experts in August and September, 2008 at which a population model created by Patuxent was discussed. The model had predicted there was less than a 50/50 chance that Florida's whooping crane flock would persist. One of the concerns for stopping the reintroduction was the projected loss of wetland habitat in Florida with continued development.

The following information is mostly from the July-September, 2009 quarterly report written by Whooping Crane Project Leader Marty Folk of the Florida Fish and Wildlife Conservation Commission:

The project is currently monitoring 27 nonmigratory whooping cranes (10 males, 17 females), with possibly 2 other birds in unknown locations. The flock during the past year has continued to deal with drought and below normal water levels. The South Florida Water Management District reported that the period from November 2008 through April 2009 ranked as the driest six-month period in South Florida history based on records dating back to 1932. This current drought began back in 2006 and had already accumulated a large deficit *prior* to November last year. In 2009, the drought presumably kept 7 pairs from breeding, with 1 of 4 nesting pairs managing to fledge a chick, the 10th chick fledged in Florida since the reintroduction was started in 1993. Four of the 10 are still alive. The sex ratio of these 10 chicks was 2 males and 8 females, likely indicating differential mortality rates depending on sex. Florida biologists had already indentified differential survival of older whooping cranes; males in Florida have not lived past 10 years of age while currently 6 of 15 females in the flock are > 10 years. Higher mortality of the males may be due to their propensity to be flock leaders and therefore the first ones to encounter predators or power lines.

With the reintroduction of nonmigratory cranes discontinued in Florida, the goal of the project has shifted to learning more about problems faced by the flock, especially regarding reproduction and survival. Biologists continued to collect data, logging 69 observations of flock movements over a distance of 9,181 meters. Computer entry is also being done on more than 1,150 hours of behavioral data from video tapes recorded at nests.

One whooping crane in August 2009 was struck by lighting and killed, with its transmitter shattered into small pieces scattered up to 20 meters from the bird. The

rubber coating on the transmitter had melted. Its mate survived the storm even though mated pairs of whooping cranes are often within 1-2 meters of each other.

EASTERN MIGRATORY POPULATION

The eastern migratory whooping crane population includes 106 birds (77 adults and 29 juveniles), an increase of 15 from one year ago. Most of the whooping cranes in the eastern migratory population make the desired migration between Wisconsin and Florida. A few birds continue to summer in Michigan, and a few wander into Minnesota.

Five whooping crane breeding facilities (Patuxent Wildlife Research Center, International Crane Foundation, Calgary Zoo, San Antonio Zoo, and Species Survival Center in New Orleans) either provided eggs or hatched and raised chicks in 2009. Eggs were shipped across international borders and between facilities to meet production targets for the ultralight (UL) and direct autumn release (DAR) reintroduction programs. Twenty-nine chicks were raised in 2009 for the release programs in central Wisconsin (20 UL, 9 DAR). This compares with fall 2008 when 22 birds were re-introduced into the eastern migratory population (15 UL and 7 DAR). Chicks were hatched and trained at Patuxent prior to shipment to Necedah NWR for the UL project. The Windway Capital Corporation flight team transported the chicks to Wisconsin. Additional eggs were hatched for the DAR project with chicks reared for several weeks at the International Crane Foundation (ICF) before being transported to Necedah NWR.

The nesting season for the wild migratory whooping cranes in Wisconsin was a disappointment. All 12 nests built in central Wisconsin were abandoned, most just prior to expected hatching. Five or 6 pairs re-nested with 2 chicks hatched, but both chicks died within a month. One of the chicks that hatched was from a captive-produced egg from ICF. The pair's own eggs were both infertile, so the eggs were removed and a viable captive egg had been placed in the wild nest.

Intensive studies headed up by Necedah NWR biologist Rich King with strong support from the International Crane Foundation indicated that black fly presence at nests was the most likely reason for many of the pairs to leave nests. Dr. Peter Adler of Clemson University documented biting insect numbers at Necedah NWR based on the collection of 341,054 specimens and found 25 species of black flies and well over 20 additional species of vertebrate-bloodsucking flies. Of the 25 species of black flies, 11 were bird feeders, 12 were mammal feeders, and 2 were non-blood feeders. His collections included two species recorded for the first time from the state of Wisconsin and one species recorded for the first time from the United States. Video tapes showed swarms of black flies on the nests with the cranes making numerous head rubs and bill flicks apparently in response to the flies. The initial appearance of black flies in the spring coincided with the majority of the nest abandonments. A broken egg collected on 24 April during the peak of nest abandonment had 757 black flies (all *Simulium annulus*) entrapped in the

albumen. A second broken egg collected on 20 May from a nest had 2,272 black flies (462 *S.annulus*, 1,810 *S. johannseni*) entrapped in its contents.

The majority of nests were abandoned during the period when *S. annulus* was active at the nests. Black flies seemed to home in on nests since CO² traps spread around Necedah NWR did not contain large numbers of black flies when the most nest abandonments occurred. Crane decoys on nests attracted substantially more biting insects than decoys placed 6 meters away from nests. However, the data was not completely conclusive since two nests were abandoned prior to black fly emergence, and two re-nests were successful despite the presence of biting insects.

The Whooping Crane Eastern Partnership (WCEP) held its annual fall meeting in September, 2009 to plan operations for the coming year. With so many partners involved in the eastern reintroduction, including agencies and non-profits, the meetings are important to handle the many issues that arise. The Recovery Team endorsed continued UL and DAR releases in 2010, but urged WCEP to focus on learning more about the reason for nest abandonment. WCEP and the Recovery Team both recommended doing black fly control as a 2-year experiment starting in 2010 in and near the breeding area of the cranes. The control agent would be a bactericide called BTi, a substance approved for black fly control by EPA that is used by several states, and one that has no direct known negative effect on other organisms besides biting insects. In addition, the Recovery Team urged that studies of black fly populations should be done at several other wetland sites in Wisconsin to determine if there are other potential release sites with negligible numbers of black flies. If a more suitable site can be found, the Recovery Team recommends moving forward with administrative steps and development of the capacity to release cranes at a new location. Patuxent has also proposed doing a DAR release in 2010 using parent-reared cranes to see if chicks raised by captive parents have better survival and breeding skills than birds raised by costumed handlers.

Two substantial changes made by WCEP in the fall, 2008 were both successful. Operation Migration successfully migrated 14 birds along a new migration route west of the Appalachians that increased the safety margin for the migration and brought new friends and partners to the reintroduction. However, the new route, at least in the fall of 2008, was still a lengthy journey. The flock covered 1,255 miles, making 21 stops over a period of 88 days excluding a 10-day break over Christmas. The second change involved splitting the wintering juveniles and taking half of them to St. Marks NWR. The main reason for this split is to avoid one disastrous event happening to the all the birds at once as happened in February 2007 with the loss of 17 cranes from a lightning strike at Chassahowitzka. St. Marks NWR did a wonderful job embracing the crane program. A new wintering facility including pen, blind, and access path was constructed at St. Marks and held birds without incident throughout the winter, although a lot of hard work was involved with staff getting the cranes back into the safety of the release pen every night. Other changes implemented in 2009 were the installation of a crane cam and a trike cam that provided a live video picture of the ultralight juveniles in the pen or actually in flight during migration

days. Check out the In the Field section on the OM web site www.operationmigration.org/crane-cam.html.

Operation Migration, based in Ontario Canada is a founding member of the Whooping Crane Eastern Partnership, a coalition of nine public and private agencies from Canada and the United States organized to reintroduce a self-sustaining population of whooping cranes (*Grus americana*) into their historic range in eastern North America. Since 2001, eight generations of whooping cranes have been taught to migrate in an effort designed to develop a self-sustaining population of the endangered species.

For their efforts to reintroduce the whooping crane to its native flyway in the eastern United States, Operation Migration (OM) was one of 26 national winners of the Department of the Interior's (DOI) "Partners in Conservation Award" with an awards ceremony held May 7, 2009 in Washington, DC. This is the highest civilian partnership award given by the DOI and recognizes conservation achievements through partnerships involving a diverse range of entities. OM also had one of their ultra light aircraft placed in the Smithsonian Museum. Quotations from news paper articles included the following:

From Secretary of the Interior Ken Salazar: "The Partners in Conservation Awards demonstrate that our greatest conservation legacies often emerge when stakeholders, agencies, and citizens from a wide range of backgrounds come together to address shared challenges," the Secretary said. "Operation Migration has successfully reintroduced whooping cranes into their historic range in eastern North America by teaching them to migrate; few other organizations have such a direct interaction with the species they are trying to preserve."

"We are gratified to have our work recognized with this high honor," said OM's Chair, Tennessean Vickie Henderson. "Not only does this Award acknowledge our successes and contributions to wildlife conservation, it affirms the capability of our very small organization."

"Operation Migration's participation in the project to safeguard the Whooping Crane from extinction is a stellar example of what international co-operation can achieve," said International Recovery Team co-chairs Brian Johns (Canadian Wildlife Service) and Tom Stehn (US Fish and Wildlife Service Whooping Crane Coordinator, Aransas National Wildlife Refuge). "Operation Migration has played a leading role in the reintroduction of whooping cranes to eastern North America since 2001. Their successes and commitment makes them a deserving recipient of this Award."

OM's Joe Duff, said, "While we are honored and grateful of receiving this high honor, we must share this Award with the many partners whose time, efforts, and support and have contributed to the success of the whooping crane reintroduction project."

With WCEP such a large partnership, others received awards as well. Honoring nearly a decade of whooping crane recovery efforts, John Christian, Assistant Regional Director for Migratory Birds and State Programs for the Midwest Region of USFWS, received a National Audubon Society's Green Hero Award for his instrumental role in establishing and supporting WCEP. Funded by Toyota, the Together Green program, "aims to provide inspiration, leadership and opportunities that inspire people everywhere to take action at home, in their communities and beyond to improve the health of our environment. Congratulations to John who continues his involvement with WCEP as a project advisor.

More about the eastern migratory whooping crane reintroduction can be learned on the web site: www.bringbackthecranes.org.

LOUISIANA

At their meeting held in September 2008, the Recovery Team recommended that multiple partners carry out actions working towards a potential future release of non-migratory whooping cranes in Louisiana. One of those actions was to initiate studies to evaluate the presence/absence of infectious bursal disease (IBD) in the migration corridor of the AWBP. Before the Team would support a reintroduction, study results had to demonstrate that the AWBP would not be threatened by IBD from the reintroduction of whooping cranes into Louisiana.

Two actions were taken involving the study of the virus IBD. The first was by happenstance. The necropsy of a juvenile whooping crane killed by a predator at Aransas in January, 2009 found that the bird had an IBD-like virus. For the first time ever, this type of virus was isolated by the National Wildlife Health Center in Madison, WI from the crane, something that had never been accomplished with the whooping cranes in Florida diagnosed with IBD. It is still not clear exactly what type of virus was isolated from the Aransas juvenile, but the blood showed an immune response to positive IBD-Type 2 antibody titer. Very little work has been done on IBD in cranes, so the disease presumably may have been epizootically affecting whooping cranes at Aransas in prior years. IBD has been documented in whooping cranes and other birds including wild turkeys in Florida (Candelora et al. 2008), and may be present at captive whooping crane breeding facilities. One of the symptoms of IBD is emaciation, even when the bird is receiving adequate food. However, the particular strain of IBD isolated from the Aransas whooping crane is different from other known strains, so how it affected the Aransas crane is speculative. IBD mainly affects juvenile cranes since the virus grows in the bursa, an out-pocket of the cloaca that is not present in white-plumaged cranes. Thus, the 7 mortalities of white-plumaged cranes at Aransas in the 2008 winter probably had nothing to do with IBD, but it certainly could have been a factor in the loss of 16 juveniles.

In the second action involving IBD research, the Platte River Whooping Crane Maintenance Trust in March, 2009 collected 19 blood samples from sandhill cranes on the Platte River, Nebraska. Tests done at the U. of Georgia showed the presence of IBD antibodies from 12 of the 19 samples, a result much higher than expected. This demonstrated that sandhill cranes in the Central Flyway, as is the case with sandhill cranes in the Mississippi and Eastern Flyways, have exposure to IBD. With the mixing of sandhill cranes and whooping cranes in the Central Flyway, and the IBD-like virus isolated from the Aransas whooping crane, the Recovery Team feels that IBD is already present in the Central Flyway, something we could only speculate about a year ago. Thus, the rare instance when a whooping crane from Louisiana might stray into the Central Flyway is not considered a significant risk of IBD transmission to the Aransas-Wood Buffalo whooping cranes. Also, the Recovery Team feels that placing nonmigratory cranes in Louisiana poses less risk of reintroduced cranes moving into the Central Flyway than would bringing a migratory flock back to winter in Louisiana.

With this hurdle apparently cleared, pending a final assessment to be done by the Whooping Crane Health Advisory team (WCHAT), things started to move along towards a possible reintroduction in Louisiana. Whooping crane reintroductions outside the primary historic range of the species have so far been unsuccessful. The Recovery Team is recommending reintroducing an experimental nonessential nonmigratory whooping crane flock to White Lake, Louisiana - back into the last known historic nesting area of the species in the U.S. where they were present through the 1940s. This would provide an opportunity for whooping cranes to utilize the extensive wetlands of southern Louisiana. The WCRT recommended that a cohort of birds raised in 2010 be released at White Lake, Louisiana in late 2010 or early 2011 if the administrative requirements for a Louisiana introduction can be completed in time.

The State of Louisiana and USFWS-Region 4 are strongly supportive of bringing nonmigratory whooping cranes back to Louisiana. A release site at White Lake has been selected. A new “experimental/nonessential” rule under the ESA is being drafted by Region 4 for the proposed nonmigratory flock. Efforts are underway by the Louisiana Department of Wildlife and Fisheries to assure landowners that a reintroduction of experimental/nonessential whooping cranes will not interfere with current land use practices including agriculture, oil and gas, and hunting. A preliminary briefing was made in March 2009 to the Central Flyway’s Migratory Bird Nongame Technical Committee about the status of the Louisiana proposal.

CAPTIVE FLOCKS

The whooping crane breeding facilities had a very good production season in 2009. Twenty-nine chicks (20 ultralight and 9 direct autumn release) were reintroduced into the eastern migratory population in the fall bringing that flock to 106 total birds. Eggs produced by the captive facilities and shipped to join reintroduction programs included Calgary (n=9), San Antonio (2), and the Species Survival Center in New Orleans (2). Three eggs came from wild nests abandoned in Wisconsin. Patuxent and ICF also made egg shipments between the two facilities so that similar-aged eggs could enter the same reintroduction program. All egg shipments were coordinated on weekly conference calls in the spring with the flock managers. Three cohorts of chicks were shipped in June and July from Patuxent to Necedah NWR in Wisconsin with Windway Corporation providing air transport in their aircraft. Three chicks of high genetic value were held back to become captive breeders.

The Species Survival Center in New Orleans had two females lay for the first time, both about 9 years old. Presumably the new large pens each containing a pond influenced the females to come into production.

The Calgary Zoo had another very good production season and transported 9 fertile eggs to Patuxent. Since 1992, the Calgary Zoo has produced 44 whooping crane chicks to help save this keystone species. Their artificial insemination program for the third year in a row greatly increased flock fertility. They were awarded a 2009 Nurture Nature award from Canon Canada, Inc. The zoo will use the award funding of \$20,000 to renovate and repair "cranedominiums" that house and encourage breeding of endangered whooping cranes.

Patuxent and ICF successfully carried out programs for the reintroduction of birds into the eastern migratory population. Both facilities also provided personnel for various field operations with that population throughout the year, and are great partners in helping out in all aspects of the reintroduction. ICF has completed renovation of some of the whooping crane pens and has built a new exhibit for their African crane species.

The C2S2 group of zoos has begun collaboration with Patuxent on several research projects involving captive crane issues.

WHOOPING CRANE NUMBERS IN NORTH AMERICA
October 31, 2009

Wild Populations

	Adult	Young	Total	Adult Pairs
Aransas/Wood Buffalo	247	0 ^A	247 ^B	72
Rocky Mountains	0	0	0	0
Florida non-migratory	28	1	29	8
Wisconsin/Florida migratory	77	29	106	11
Subtotal in the Wild	352	30	382	91

^A Fifty-two chicks hatched in Canada in 2009 but only 22 fledged. They will not be added to the table until they arrive at Aransas in the fall and it is learned how many adults have died.

^B The peak population for the Aransas-Wood Buffalo flock in the 2008-09 winter was 270. However, 23 birds died during the winter, leaving 247.

Captive Populations

	Adult	Young ^C	Total	Breeding Pairs
Patuxent WRC, Maryland	64	4	68	15
International Crane Foundation, WI	31	0	31	11
Devonian Wildlife Conservation Center, Calgary	23	0	23	6
San Antonio Zoo, Texas	7	0	7	1
Species Survival Center, Louisiana	11	0	11	1
Calgary Zoo, Alberta	2	0	2	0
Homosassa Springs Wildl State Park	2	0	2	0
Lowry Park Zoo, Tampa, Florida	2	0	2	0
Jacksonville Zoo, Florida	2	0	2	0
Milwaukee County Zoo, Wisconsin	2	0	2	0
New Orleans Zoo, Louisiana	2	0	2	0
Subtotal in Captivity	148	4	152	34

^C The captive numbers do not reflect the 29 chicks in 2009 that entered the wild population in Wisconsin.

TOTALS (Wild + Captive) 382 + 152 = 534