

Whooping Crane

Scientific Name: *Grus americana*

Federal Status: Endangered, 6/2/70 • State Status: Endangered

Description

The stately Whooping Crane is the tallest bird found in North America, with males approaching nearly five feet in height. Adult birds are white overall with some red and black on the head. Their inner wing feathers droop over the rump in a “bustle” that distinguishes cranes from herons. With a seven foot wingspan and a slow wing beat, Whooping Cranes fly with their long necks and legs fully extended. When in flight, the birds’ black wingtips or primary feathers



Whooping Crane
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can be seen, and their long legs extend beyond their tail. Their dark olive-gray beaks are long and pointed. The area at the base of the beak is pink and the eyes are yellow. The Whooping Crane’s call, from which it derives its name, has been described as a shrill, bugle-like trumpeting.

Whooping Crane chicks are a reddish cinnamon color. At four months

of age, white feathers begin to appear on the neck and back. Juvenile feathers are replaced through the winter months. By the following spring, juvenile plumage is primarily white, with rusty colored feathers remaining only on the head, upper neck, and on the tips of wing feathers. Young birds generally have adult plumage by late in their second summer.

There are a number of birds that may appear similar to the Whooping Crane. The Sandhill Crane, the Whooping Crane’s closest relative, is gray in color, not white.

Also, Sandhill Cranes are somewhat smaller, with a wingspan of about five feet. Sandhill Cranes occur in flocks of two to hundreds, whereas Whooping Cranes are most often seen in flocks of two to as many as 10 to 15, although they sometimes migrate with Sandhill Cranes. Snow Geese and White Pelicans are white birds with black wingtips, however both of these birds have short legs that do not extend beyond the tail when in flight. In addition, Snow Geese generally occur in large flocks, are much smaller, and fly with a rapid wing beat. White Pelicans fly with their neck folded and can be distinguished by their long yellow bill. Finally, swans are all white and have short legs, and herons and egrets fly with their long necks folded.

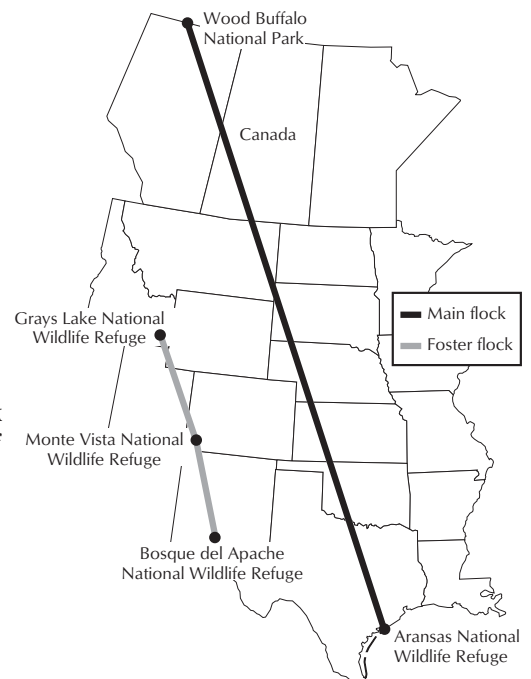
Status and Distribution

The historical range of the Whooping Crane extended from the Arctic coast south to central Mexico, and from Utah east to New Jersey, South Carolina, Georgia, and Florida. Distribution of fossil remains suggests a wider distribution during the cooler, wetter climate of the Pleistocene.

Although once numbering above 10,000, it has been estimated that

only 500 to 1,400 Whooping Cranes inhabited North America in 1870. Although the exact number is unknown, Whooping Cranes were uncommon, and their numbers had rapidly declined by the late 19th century.

In the mid 1800’s, the principal breeding range extended from central Illinois northwestward through northern Iowa, western Minnesota, north-eastern North Dakota, southern Manitoba and Saskatchewan, to the area near Edmonton, Alberta. The



Whooping Crane disappeared from the heart of its breeding range in the north-central United States by the 1890’s. The last documented nesting in southern Canada occurred in Saskatchewan in 1922. By 1937, only two small breeding populations remained; a nonmigratory population in southwestern Louisiana and a migratory population that wintered on the Aransas National Wildlife Refuge (NWR) on the Texas coast and nested in a location that at the time was unknown. The remnant population in southwestern Louisiana was reduced from 13 to 6 birds following a hurri-

cane in 1940, and the last individual was taken into captivity in 1950. In the winter of 1938-39, only 14 adult and 4 juvenile Whooping Cranes were found on the Aransas NWR. The nesting area of the Aransas Wildlife Refuge population was discovered in 1954 in Wood Buffalo National Park (NP), Northwest Territories, Canada. This population is the only historical one that survives.

Whooping Cranes currently exist in three wild populations and a breeding population kept in captivity. The species numbers approximately 420 birds, all in Canada and the United States. The only self-sustaining wild population is the one that winters on the Texas coast and nests primarily within Wood Buffalo NP. In 2002, this population consisted of 50 nesting pairs, with a total of 185 birds wintering in Texas.

In 1975, Whooping Crane eggs were transferred from Wood Buffalo NP to Grays Lake National Wildlife Refuge in Idaho and placed in Sandhill Crane nests in an effort to establish a migratory population in the Rocky Mountains. The Rocky Mountain birds spend the summer in Idaho, western Wyoming, and southwestern Montana, and winter in the middle Rio Grande Valley of New Mexico. Reintroductions ended in 1989 after the adult Whooping Cranes did not pair up or mate due to imprinting problems from their foster Sandhill Crane parents. The last Whooping Crane in the flock died in 2002.

The second persisting wild population in 2003 consisted of approximately 90 birds remaining from over 250 captive-reared Whooping Cranes released in central Florida south of Orlando beginning in 1993. These birds were released as the first step in an effort to establish a non-migratory population in Florida, and in 2002, produced the first whooping crane chick born in the wild in the United States since 1939.

The third wild population was initiated in 2001 when several young captive-reared whooping cranes were released in potential nesting habitat at Necedah National Wildlife Refuge in Wisconsin. The young birds were trained to migrate to Florida's Gulf Coast by following ultra light aircraft.

Although not yet of breeding age, the birds led south in both 2001 and 2002 returned north on their own the following spring.

Habitat

Within Wood Buffalo NP, Whooping Cranes nest in poorly drained wetlands interspersed with numerous potholes (small areas of open water). These wetlands are separated by narrow ridges that support trees such as white and black spruce, tamarack, and willows, and shrubs such as dwarf birch, Labrador tea, and bearberry. Bulrush is the dominant plant in areas used by nesting birds, although cattail, sedge, musk-grass and other aquatic plants are common. Nest sites are often located in the rushes or sedges of marshes and sloughs, or along lake margins. An abundance of invertebrates, such as mollusks, crustaceans, and aquatic insects have been found in the ponds near occupied nests.

Whooping Cranes use a variety of habitats during their long migrations between northern Canada and the Texas coast. Croplands are used for feeding, and large wetland areas are used for feeding and roosting. Whooping Cranes are known to roost in riverine habitat along the Platte, Middle Loup, and Niobrara Rivers in Nebraska, Cimarron River in Oklahoma, and the Red River in Texas. The birds often roost on submerged sandbars in wide unobstructed channels isolated from human disturbance. Whooping Cranes also use large wetland areas associated with lakes for roosting and feeding during migration.

The Whooping Crane's principal wintering habitat consists of about 22,500 acres of marshes and salt flats on Aransas National Wildlife Refuge and adjacent publicly and privately owned wetlands. Plants such as salt grass, saltwort, smooth cordgrass, glasswort, and sea ox-eye dominate the outer marshes. At slightly higher elevations, Gulf cordgrass is more common. The interior portions of the refuge are characterized by oak mottes, grassland, swales, and ponds on gently rolling sandy soils. Live oak, redbay, and bluestems are typical plants found on upland sites. Upland sites have been managed using grazing, mowing, and controlled burning. About 14,250 acres of grassland are managed for cranes, waterfowl, and other wildlife.



Whooping Crane at Aransas National Wildlife Refuge
© TPWD Bill Reeves



Whooping Crane chick
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Life History

Whooping Cranes usually mate for life, although they will remate following the death of their mate. They mature at 3 to 4 years of age, and most females are capable of producing eggs by 4 years of age. It is estimated that Whooping Cranes can live up to 22 to 24 years in the wild. Captive individuals live 30 to 40 years.

Whooping Cranes begin leaving the Texas coast in late March and early April, returning to their nesting area in Wood Buffalo NP by late April. Experienced pairs arrive first and normally nest in the same vicinity each year. Nesting territories vary considerably in size, ranging from 0.5 to 1.8 square miles. From the start of egg laying until the chicks are a few months old, the birds' activities are restricted to the breeding territory. Eggs are normally laid in late April to mid May, and



Aerial view of Aransas National Wildlife Refuge
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Whooping Crane in flight
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hatching occurs one month later. Most nests contain 2 eggs. The eggs are light-brown or olive-buff in color with dark, purplish-brown blotches primarily at the blunt end. Whooping Cranes will occasionally renest if their first clutch is destroyed during the first half of the incubation period. They usually nest each year, but occasionally a pair will skip a nesting season for no apparent reason. When nesting conditions are unsuitable, some pairs do not attempt to nest.

Whooping Crane parents share incubation and brood-rearing duties, and one member of the pair remains on the nest at all times. Females take the primary role in feeding and caring for the young. During the first 3 or 4 days after hatching, parents and young return to the nest each night. After that, the young are protected by their parents wherever they happen to be during inclement weather or at nightfall. During the first 20 days after hatching, families generally remain within 1 mile of the nest site.

Whooping cranes feed by probing the soil with their bills or taking food items from the soil surface or vegetation. Parents feed young chicks. Summer foods include large insect nymphs or larvae, frogs, rodents, small birds, minnows, and berries.

Fall migration begins in mid-September. Whooping Cranes nor-

mally migrate as a single, pair, family group, or in small flocks, sometimes accompanying Sandhill Cranes. Flocks of up to 10 sub-adults have been observed feeding at stopover areas. Whooping Cranes migrate during the day, and make nightly stops to feed and rest. Although they use a variety of habitats during migration, they prefer isolated areas away from human disturbance.

Whooping Cranes arrive on the Texas coast between late-October and mid-December. They spend almost 6 months on the wintering grounds at and near Aransas NWR. Pairs and family groups generally occupy and defend discrete territories, although close association with other Whooping Cranes is sometimes tolerated. Juveniles stay close to their parents throughout their first winter. Recent estimates of territory size average 292 acres. Studies indicate a declining territory size as the wintering population increases. Sub adults and unpaired adults form small flocks and use areas outside occupied territories. Sub adult birds often spend the winter near the territories where they spent their first year. Also, young adult pairs will often locate their first territory near the winter territory of one of their parents.

During the wintering period on the Texas coast, Whooping Cranes eat a variety of plant and animal foods. Blue crabs, clams, and the fruits of wolfberry are predominant in the winter diet. Clams are relatively more important in the diet when water depths are low and blue crabs are less abundant. Most clams and small blue crabs (2 inches or less in width) are swallowed whole. Larger crabs are pecked into pieces before being swallowed.

Whooping Cranes feed mostly in the brackish bays, marshes, and salt flats. Occasionally, they fly to upland sites for foods such as acorns, snails, crayfish, and insects, returning to the marshes in the evening to roost. Upland sites are more attractive when they are flooded by rainfall, burned to reduce plant cover, or when food is less available in the marshes and salt flats. Some Whooping Cranes use the upland parts of the refuge occasionally in most years, but use of croplands adjacent to the refuge is rare.

As spring approaches, the courtship displays for which Whooping Cranes are famous begin. These displays include loud unison calling, wing

flapping, head bowing, and leaps into the air by one or both birds, increase in frequency. These rituals serve to forge and strengthen pair bonds. Family groups and pairs usually depart first, normally between March 25 and April 15. The last birds are usually gone by May 1, but occasional stragglers may stay into mid-May. During the 16-year period between 1938 and 1992, a total of 27 birds have remained at Aransas NWR throughout the summer. Some of these birds were ill or crippled or mates of birds which were crippled.

Parents separate from their young of the previous year at the beginning of spring migration, while in route to the breeding grounds, or soon after arrival on the breeding grounds. Most juveniles spend the summer near the area where they were born.

Threats and Reasons for Decline

Whooping Cranes gradually disappeared as agriculture claimed the northern Great Plains of the United States and Canada. Man's conversion of the native prairies and potholes to pasture and crop production made much of the original habitat unsuitable for Whooping Cranes. Rural electrification brought power lines, resulting in an increase in death and serious injury due to collisions.

Human disturbance has also played a role in the decline of the Whooping Crane. The birds are wary on the breeding grounds. They will tolerate human intrusion for short intervals, but will not remain near constant human activity. The mere presence of humans during settlement of the mid-continent and coastal prairies may have interfered with the continued use of traditional breeding habitat by Whooping Cranes.

The Aransas population, the only population that is self-sustaining, remains vulnerable to accidental spills that could occur along the Gulf Intracoastal Waterway. The Intracoastal Waterway carries some of the heaviest barge traffic of any waterway in the world, and it runs right through the center of the Whooping Crane winter range. Much of the cargo is petrochemical products. Although spill response plans have been developed,

an accident resulting in a spill could potentially destroy Whooping Cranes or their food resources.

Records of Whooping Cranes known to have died from gunshot or other causes from colonial times to 1948 show that about 66% of the losses occurred during migration. Shooting represented a substantial drain on the population, particularly from 1870 to 1920. Large and conspicuous, Whooping Cranes were shot for both meat and sport. Laws enacted to protect the birds have led to a decline in human caused mortality, but shootings still occur. The most recent known cases involved an adult female being mistaken for a snow goose near Aransas NWR in 1989, an adult female shot by a vandal as she migrated northward through Texas in 1991, and two shot by a vandal in Florida in 1990.

Biological factors such as delayed sexual maturity and small clutch size prevent rapid population recovery. The major population of Whooping Cranes is now restricted to breeding grounds in northern Canada. This may hamper productivity because the ice-free season is only 4 months, barely enough time to incubate their eggs for 29 to 31 days and rear their chicks to flight age in the remaining 3 months. Unless nest loss occurs early in the incubation period, there is rarely time to successfully rear a second clutch if the first clutch fails.

Drought during the breeding season presents a serious hazard because nest site availability and food supplies are reduced and newly hatched chicks are forced to travel long distances between wetlands. Drought also increases the exposure of eggs and chicks to predators such as ravens, bears, wolverines, foxes, and wolves.

Although little is known about the importance of disease and parasites as mortality factors, there have been documented cases of wild Whooping Cranes dying of avian tuberculosis, avian cholera, and lead poisoning. *Coccidia*, a parasite which causes digestive tract disorder, has also been found in wild and captive birds.

Finally, Whooping Cranes are exposed to a variety of hazards and problems during their long migrations. Natural events such as snow, hail storms, low temperatures, and

drought can make navigation hazardous or reduce food supplies. Collision with utility lines, predators, disease, and illegal shooting are other hazards that affect migrating cranes.

Recovery Efforts

The comeback story of the Whooping Crane has been heralded as one of the conservation victories of the 20th Century. The increase and stabilization of the Aransas/Wood Buffalo population has been a result of many factors, including legal protection, habitat protection, and biological research in both the United States and Canada.

In 1975, the U.S. Fish and Wildlife Service initiated a migration monitoring program to protect migrating Whooping Cranes from disease outbreaks and other potential hazards, and to compile information on the characteristics of stopover sites. This monitoring program is now coordinated with a network of people from the Canadian Wildlife Service, U.S. Fish and Wildlife Service, States, and Provinces along the migration corridor.

Flightless young Whooping Cranes were captured and marked with colored plastic leg bands in Wood Buffalo NP from 1977 through 1988. Of the 133 birds banded, 14% could still be identified in the spring of 2003. This marking program has provided a wealth of information on Whooping Crane biology. A radio tracking program, in which miniature radio transmitters were attached to the color leg bands of young Whooping Cranes banded at Wood Buffalo NP, has also yielded valuable information concerning migration timing and routes, stopover locations, habitat use, social behavior, daily activity, and causes of death. Recently, tests of line marking devices have identified techniques effective in reducing collisions with utility lines.

The wintering territories of Whooping Cranes on the Texas coast place the birds in close proximity to human disturbance factors such as tour boats, boat and barge traffic along the Intracoastal Waterway, recreational and commercial fishing boats, airboats, and air traffic. A number of recent and ongoing studies have addressed the issue of how human disturbance factors might affect wintering birds. Additional research studies currently underway



Oil spills are a potential threat
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include evaluating the relationship between freshwater inflows, blue crabs and Whooping Cranes. Significant habitat research has also been conducted on the nesting grounds in Canada.

Prescribed burning is used on Aransas NWR to reduce height and density of grasses, top kill brush, and to modify plant composition on the uplands to make them more attractive to Whooping Cranes. Burned areas are immediately used by the birds. Currently, 15 prescribed burning units averaging 1,410 acres in size are burned on a 3-year rotation.

The most complete count of the Aransas/Wood Buffalo population is made during the winter. Aerial counts are made weekly throughout the winter period, although counts are made less frequently during mid-winter. These flights provide information on mortality, habitat use, pair formation, territory establishment, and age structure by identifying all color banded birds present. Additional protection of habitat outside Aransas NWR is provided by the National Audubon Society, which leases several islands from the State of Texas, by Texas Parks and Wildlife Department, and by private landowners, several of whom have signed conservation agreements to protect Whooping Cranes on their property. Monitoring of nesting pairs also takes place at Wood Buffalo NP.

Construction of the Gulf Intra-coastal Waterway through the marshes of Aransas NWR in the early 1940's, and subsequent erosion by wind and boat wakes, has resulted in 11% loss of wintering habitat. Between 1989 and 1992, volunteers placed over 57,000 sacks of cement to protect 8,752 feet of shoreline. In 1992, the U.S. Army Corps of Engineers placed 2,013 feet of interlocking cement mats to stop erosion. Between 1999 and 2001, additional armoring done by the Corps protected 15.3 miles of



Erosion control efforts along the Intracoastal Waterway at Aransas National Wildlife Refuge
© TPWD

shoreline within critical habitat of the Whooping Crane.

Dredged material deposited from periodic maintenance of the Intracoastal Waterway has destroyed some marsh areas and unintentionally created others. In 1991, Mitchell Energy and Development Corporation built a dike around 10 acres of open shallow bay, filled the area with dredge material, and planted it to wetland vegetation. Whooping Cranes began using the area the following winter. In 1993 and 1995, Mitchell Energy built 20 more acres of marsh adjacent to the first area. In 1995, the Corps of Engineers created nearly 50 acres of marsh. The Corps has plans to create an additional 1,500 acres of marsh using dredged material beneficially over the next 50 years.

Several efforts have been initiated to establish new populations of Whooping Cranes as a means of safeguarding the species against a catastrophe in the Aransas/Wood Buffalo population. The effort in Idaho used Sandhill Cranes as foster parents to incubate Whooping Crane eggs, raise the chicks, and teach them migration paths to New Mexico. Foster-parenting has proved to be an unsuitable technique, however, as imprinting led to problems for the Whoopers in establishing pair bonds. An effort in Florida is using techniques developed successfully with the endangered Mississippi Sandhill Crane to try to establish a non-migratory flock of Whooping Cranes. Meanwhile, new techniques for establishing a second migratory population continue to be explored. In 2001 and 2002, 23 Whooping Crane chicks were costume-raised and flown behind an ultralight aircraft from Wisconsin to Florida. In the spring of 2003, the 16 surviving birds led south by ultralight returned to their summer reintroduction site on their own.

These reintroduction efforts have been made possible by a suc-

cessful captive breeding program for Whooping Cranes. Although Whoopers at Wood Buffalo NP lay two eggs, usually only one hatches. In most years between 1967 and 1996, biologists from the United States and Canada collected eggs from wild nests in order to establish captive populations and support reintroduction efforts. Three primary captive breeding facilities exist, including Patuxent Wildlife Research Center in Maryland, the International Crane Foundation in Wisconsin, and Calgary Zoo in Alberta, Canada. Additional breeding cranes are kept at the San Antonio Zoo, Texas, and the Audubon Center for Research on Endangered Species in Louisiana.

Finally, there is much evidence that people value Whooping Cranes. Numerous books, magazine articles, television programs, and nature documentary films have been produced about this magnificent bird. Each year 70,000 to 80,000 people visit Aransas NWR, most during the winter. These visitors spend a significant amount of money locally on lodging, gasoline, and supplies. In 2003, three large tour boats operating out of Rockport/Fulton offered trips to view Whooping Cranes along the Gulf Intracoastal Waterway. Approximately 10,000 people took these tours, paying an average of \$30 per ticket, for a total seasonal amount of \$300,000. The city of Rockport estimates that wildlife-related activities result in annual gross economic benefits of \$6 million to the local economy. Some of these benefits result from the nearby presence of Whooping Cranes. The possibility of sighting Whooping Cranes, along with large numbers of migrating Sandhill Cranes, is an additional attraction to tourists in other areas of the United States. For example, approximately 80,000 people visit the Platte River area of Nebraska each year during the peak of spring crane migrations, spending approximately \$15 million. The Chamber of Commerce of Grand Island, Nebraska has responded by sponsoring an annual festival, "Wings over the Platte," to further promote this interest in birds.

Where To See Whooping Cranes

Visit Aransas National Wildlife Refuge near Austwell, Texas during November through March to see Whooping

Cranes as well as migratory waterfowl and other wildlife. As mentioned above, there are a number of commercially operated boat tours, departing from both Rockport/Fulton and Port Aransas which offer visitors the chance for a close look at Whooping Cranes, waterfowl, shorebirds, herons, and hawks. Contact Aransas NWR (361) 286-3559, Rockport/Fulton Chamber of Commerce (800) 242-0071, or Port Aransas Chamber of Commerce (800) 452-6278 for more information. Also, the San Antonio Zoo exhibits captive Whooping Cranes as part of the recovery effort.

How You Can Help

Whooping Cranes migrate over north and east-central Texas on their way to and from Aransas NWR each fall and spring. The birds are particularly vulnerable to human disturbance and other hazards during this migration period. They sometimes stop in fields or wetlands near rivers or lakes to feed or rest. If you see migrating Whooping Cranes, view them from a distance and be careful not to disturb them. Report sightings to the Texas Parks and Wildlife Department (webcomments@tpwd.state.tx.us or 1-800-792-1112) or the U.S. Fish and Wildlife Service. Remember that harassing, shooting, or attempting to capture a Whooping Crane is a violation of Federal Law. If you find a dead or injured bird, report it immediately to one of the numbers listed below or to your local game warden. Since injured Whooping Cranes are delicate and require special care, you should quickly contact a representative of Texas Parks and Wildlife or U.S. Fish and Wildlife and carefully follow their instructions.

You can be involved in the conservation of Texas' nongame wildlife resources by supporting the Special Nongame and Endangered Species Conservation Fund. Special nongame stamps and decals are available at Texas Parks and Wildlife Department (TPWD) Field Offices, most State Parks, and the License Branch of TPWD headquarters in Austin. Some of the proceeds from the sale of these items are used to conserve habitat and provide information concerning rare and endangered species. Conservation organizations such as the Whooping Crane Conservation Associ-

ation, National Audubon Society, International Crane Foundation, and The Nature Conservancy of Texas also welcome your participation and support.

For More Information Contact

Texas Parks and Wildlife Department
Wildlife Diversity Branch
4200 Smith School Road
Austin, Texas 78744
(512) 912-7011 or (800) 792-1112
or

U.S. Fish and Wildlife Service
Ecological Services Field Office
10711 Burnet Road, Suite 200
Austin, Texas 78758
(512) 490-0057
or

U.S. Fish and Wildlife Service
Corpus Christi Ecological Services
Field Office
c/o TAMU-CC, Campus Box 338
6300 Ocean Drive, Room 118
Corpus Christi, Texas 78412
(361) 994-9005
or

Aransas National Wildlife Refuge
P.O. Box 100
Austwell, Texas 77950
(361) 286-3559

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