Whooping Crane Status

2024 BREEDING SEASON TO 2025 SPRING MIGRATION

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February 2026

Executive Summary

Whooping cranes (*Grus americana*) are one of the rarest and most intensively monitored bird species in North America. The Aransas-Wood Buffalo Population (AWBP), which breeds in northern Canada and winters in coastal Texas, is the only remaining wild, self-sustaining population of whooping cranes. During the summer 2024 breeding season, surveys of the AWBP detected 95 nests and 33 juveniles. During the winter of 2024-2025, surveys estimated a population abundance of 557 whooping cranes. These monitoring data demonstrate the AWBP continues to steadily recover from a near extinction population bottleneck in the 1940s.

In addition to the AWBP, reintroduction efforts have established populations of whooping cranes in Wisconsin and Louisiana, while a discontinued reintroduction program in Florida still harbors birds. As of January 2025, there were 149 cranes in reintroduced populations (Table 1), representing a decline from 162 birds the previous year. Reintroduced populations continued to see low levels of wild recruitment and population growth is dependent on introductions; adult mortalities are also higher in reintroduced populations than in the AWBP. Reintroduction efforts are supported by conservation breeding centers where whooping cranes are reared for reintroduction. Whooping cranes under human care, including breeding pairs and non-breeding individuals, are managed as a population under the American Zoological Association (AZA) Saving Animals From Extinction (SAFE) program. At the end of 2025, there were 138 cranes managed under human care (Table 2), including 75 males and 63 females. The age distribution of the population is somewhat skewed towards older individuals. The conservation breeding capacity of the SAFE is currently below desired levels to support all the conservation efforts, but partners are attempting to increase the capacity of whooping crane production to support increased conservation demand.

Aransas-Wood Buffalo Population

The Aransas-Wood Buffalo Population (AWBP) of whooping cranes is the only remaining wild, self-sustaining whooping crane population. The AWBP breeds during the summer in and around Wood Buffalo National Park (WBNP) in the Canadian jurisdictions of Alberta and the Northwest Territories and migrates more than 4,000 kilometers (km) (2,500 miles [mi]) through the Canadian prairies and U.S. Great Plains to the mid-coast of Texas to spend the winter. Whooping cranes from the AWBP were reduced to a mere 16[1] individuals in 1941 but have grown to an estimated 557 in January 2025, representing an approximately 4% long term growth rate. The ongoing recovery of this whooping crane population is perhaps one of the greatest endangered species success stories. A wide variety of local, state, federal and private conservation organizations are actively involved in planning and implementing whooping crane recovery efforts.

[1] 14 adults and 2 juveniles

2024 Breeding Season[2]

Below-average annual precipitation prior to the breeding season was evidenced by low water levels in the whooping crane breeding areas during May 2024. While habitat was sufficient for nest attempts by at least 95 breeding pairs, multiple examples of nest failure were documented during May monitoring activities. Dry conditions persisted through the breeding season with precipitation well below long-term averages. During fieldwork in July and August, observers noted that water had receded significantly from May-levels and many breeding-area ponds were dry. Despite ongoing drought in 2024, wildfire was not a threat in the whooping crane breeding range.

Aerial surveys to estimate abundance of breeding pairs with and without nests were conducted May 21-25, 2024. Observers detected 95 nests and 38 pairs without nests. Twenty-five nests were outside the area designated as critical habitat (CH) under Canada's Species at Risk Act, and 13 of those were outside WBNP. Of nests outside WBNP, where CH has not yet been identified, all were north of the Nyarling River. Nests were not detected on Salt River First Nation reserve lands east of WBNP where up to two nesting pairs have been found in recent years (one pair without a nest was observed here).

Aerial surveys to estimate abundance of juveniles were conducted July 27-30, 2024. Observers detected 33 juveniles and 81 pairs without juveniles. All family groups consisted of two adults and one juvenile. Using information collected during the breeding pair and juvenile surveys, annual productivity was calculated at 0.35 juveniles per nest which is well below the 20-year average of 0.51.

2024 Fall Migration

Information from cranes marked with satellite transmitters indicates that the 2024 fall migration initiated as early as August 25. Visual observations in Canada were first reported in Saskatchewan on September 8. Reporting increased substantially after October 1 and peaked during the 2nd week of October. The highest counts occurred in the Rural Municipality of Leask, Saskatchewan where >100 individuals were observed in individual counts. The last visual observation was on 28 October, though data from birds marked with satellite transmitters confirms that whooping cranes were present in Canada as late as November 13.

Prolonged staging in Saskatchewan resulted in the U.S. migration starting later than in typical years. The first migrating whooping cranes were reported in North Dakota on October 21, more than a month later than 2023. This led to a steady pronounced migration throughout the last week of October and the majority of November. As in recent years, whooping cranes remained in migration into the month of December, with two crane groups staying along the Platte River, Nebraska into early December. The last recorded group during fall migration was confirmed at Salt Plains NWR in Oklahoma on December 11, 2024.

The highest number of unique crane groups were reported in North Dakota and Nebraska. Of note, the Platte River bottoms witnessed the 2nd highest proportion of the population stopping during any fall migration on record. Large groups of 15 or more were detected at other federally designated critical habitats in Kansas and Oklahoma (Cheyenne Bottoms Wildlife Area, 18; Quivira NWR, 16 and 22; Salt Plains NWR, 18), and in multiple other locations such as along the Missouri River near Fort Rice, North Dakota (20) and near Devil's Lake, ND. While hot spots were apparent and detected in the northern half of the U.S. migration corridor, Oklahoma and Texas were not well represented from reported public sightings. In total, 111 unique crane groups were reported throughout the U.S. through public sightings, which represents a record high.

[2] For the full update, see the attached report prepared by Canadian Wildlife Service.

2024-2025 Wintering

Whooping cranes first arrived on the Texas coastal wintering grounds in and around Aransas NWR during the week of October 27, 2024, which is within the typical arrival window. Most whooping cranes arrived before January. Aerial surveys to estimate abundance of wintering whooping cranes were completed in late January to ensure the maximum number of individuals had completed migration and were present on the wintering grounds.

The United States Fish and Wildlife Service (USFWS) conducted abundance surveys[3] using a Quest Kodiak aircraft between January 22 and February 2, 2025 (Butler et al. 2025). The primary survey areas (approximately 170,500 acres) were surveyed six times between January 22–31, 2025 and secondary survey areas (approximately 85,250 acres) were surveyed twice between February 1 and 2 (Figure 1). The USFWS estimated that 557 whooping cranes inhabited the primary survey (95% CI = 478.7 – 645.1; CV = 0.137). This population estimate included at least 41 juveniles and 193 adult pairs. Recruitment of juveniles into the winter flock was estimated at 8.1 chicks per 100 adults. The population grew compared to the previous two surveys in January 2022 and 2023[4], which estimated 543 and 536 whooping cranes, respectively. The long-term growth rate in the whooping crane population has averaged 4.33%. Discrepancy between juvenile abundance estimates on the breeding-grounds (33) and wintering-grounds (41) is likely caused by differences in survey methodology and detectability of young during the two survey periods.

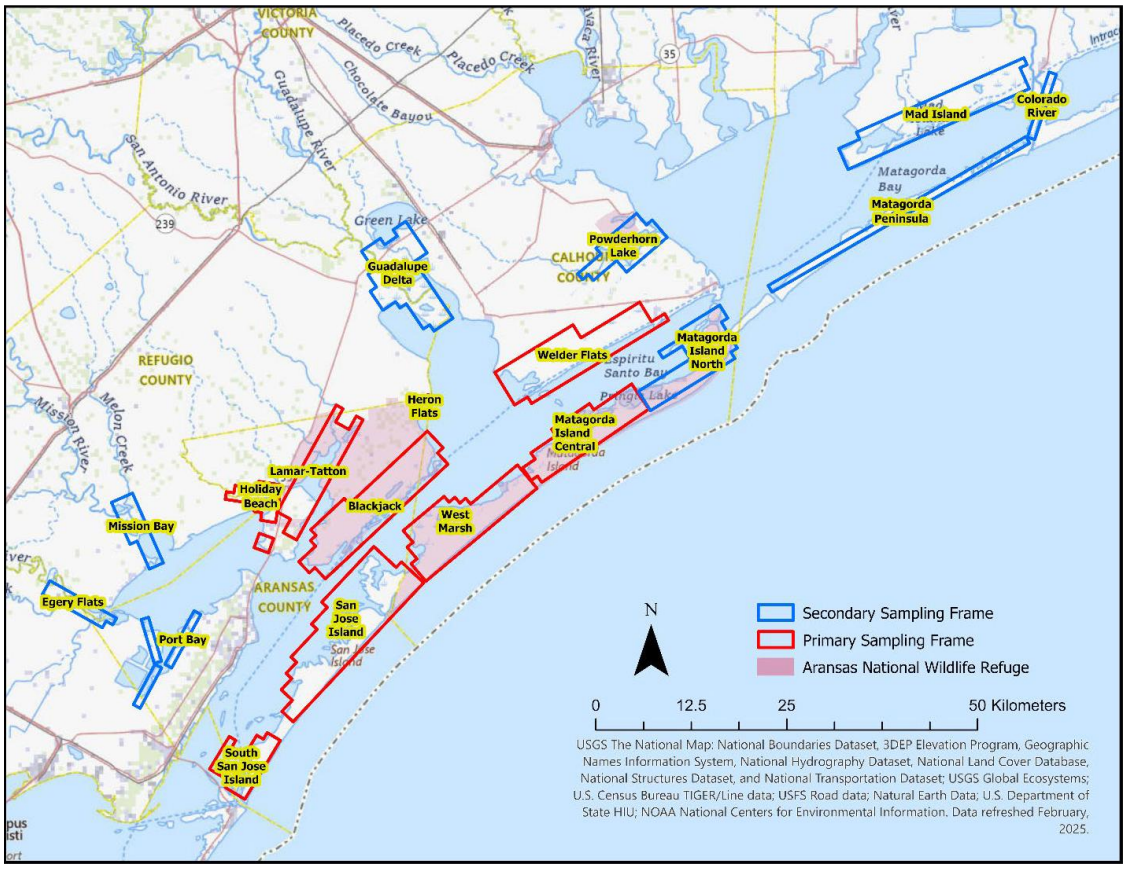

Figure 1. The sampling area used to monitor whooping crane abundance on their wintering grounds along the Texas coast. Reproduced from Butler et al. 2025.

[3] For the full update, see the attached report by USFWS.
[4] Surveys were not conducted in January 2024.

Distribution of whooping crane continues to expand, as birds inhabit the Texas coast from Port Aransas to Matagorda, but continue to be most densely found in and around the units of Aransas NWR. Observed numbers of whooping cranes in the Guadalupe Delta survey area during 2025 met the criteria for inclusion as a primary survey area in future surveys. Interestingly, an increasing number of individuals have been using inland areas for portions of the winter (Crouch et al. 2024), demonstrating the evolution of the species ecology as population numbers increase. At least 21 individuals used this area in winter 2024-2025 (ICF, pers. comm.).

Winter habitat conditions were marked with below average precipitation and elevated salinity. The 2024 annual precipitation total of 31 inches (recorded at Rockport Airport) was below the thirty-year annual average of 35 inches[5]. Precipitation in January, July, and September exceeded 4 inches, while June precipitation was almost nine inches. These four months accounted for 75% of the annual rainfall. San Antonio Bay salinities were near 22 parts-per-thousand (ppt) upon whooping crane arrival in November and exceeded 25 ppt monthly averages most of the winter season[6].

Staff at Aransas NWR used prescribed fire to improve whooping crane foraging opportunities and overall coastal prairie conditions during the 2024-2025 winter season. NWR staff conducted prescribed burns on approximately 3,575 acres and continued with mechanically mulching select areas of running live oak to enhance coastal prairie habitat, while also benefiting whooping cranes secondary feeding areas. Approximately 8 acres of invasive Chinese tallow (*Triadica sebifera*) and Salt cedar (*Tamarisk sp.*) were treated in refuge wetlands to benefit habitat historically used by whooping cranes. Fresh water wetlands were also maintained by controlling brush around their perimeter and maintaining solar wells. A multi-year coastal prairie restoration project supported by several non-profit partners was initiated in Spring 2025. NWR staff and partners began treating areas of Aransas NWR with approved herbicide that were historically coastal prairie or grassland but had become dominated by running live oak. This multi-year project will include utilizing the fire program to burn these areas after 2 years. These treatments will continue for the next 3-5 years.

2025 Spring Migration

Information from cranes marked with satellite transmitters indicates that the 2025 spring migration initiated as early as March 2, although the arrival of whooping cranes at Quivira NWR on March 5 indicates the migration may have started in late February. A single bird or two arrived in Oklahoma on March 9 and the Platte River on March 11, along with the largest concentration of mid-continent sandhill cranes. While the public sightings tracking effort rarely identifies unique individuals, it is widely believed that many of these early arriving singles were sub-adults with near (rust remaining on head or neck) or full white plumage. While it is well known that public sightings data locations are biased by proximity to humans, sightings do elucidate frequency and intensity of occupied habitat.

A pronounced “migration push” was immediately evident starting around March 20 as a combined 36 whooping cranes arrived at Quivira NWR, another 10 at Cheyenne Bottoms, and another 17 in the southern half of Nebraska. Quivira NWR saw multiple large groups and recorded the single largest group of the spring 2025 migration (25) while the largest season-wide use was recorded on the Platte River bottoms where nearly 100 whooping cranes stopped over on their journey north. Texas, Oklahoma, and South Dakota had lower reported crane groups, while Kansas, Nebraska, and North Dakota comprised the bulk of stopovers detected. Most of the migration was completed by the end of April, with a few trailing groups in early May. The final U.S. public sighting occurring May 16, 2025, at Des Lacs NWR in North Dakota. As is typical, few visual observations were reported for Canada during spring migration. Detections via satellite telemetry indicate that whooping cranes were present in Canada by April 7, and that cranes arrived on the breeding grounds as early as April 23.

[5] National Weather Service station KRKP. Seven years of data are not available for this data station: 2004 & 2013-2018.
[6] Texas A&M Corpus Christi Division of Nearshore Research, GBRA Station #2

AWBP Whooping Crane Tracking Partnership

In 2009, a multi-agency, collaborative research and monitoring project to capture and mark whooping cranes was initiated to quantify behavior, movement, and habitat use of cranes during all aspects of their annual cycle. That project, which continued through 2016 (Phase 1), was carried out by the Whooping Crane Tracking Partnership (WCTP), a cooperative effort between five core partners: Canadian Wildlife Service (CWS), US Geological Survey (USGS), USFWS, the Crane Trust, and Platte River Recovery Implementation Program, with additional support from Parks Canada Agency (PCA), International Crane Foundation (ICF), and Gulf Coast Bird Observatory. Specific objectives were to: 1) advance knowledge of breeding, wintering, and migration ecology including threats to survival and population persistence; 2) disseminate research findings in reports, presentations, and peer-reviewed literature to provide reliable scientific knowledge for conservation, management, and recovery of whooping cranes; and 3) minimize negative effects of research activities to whooping cranes.

During Phase 1 of the WCTP, captured birds were fitted with a GPS/PTT (Global Positioning System/Platform Transmitting Terminal) satellite transmitter mounted on a two-piece leg band. Transmitters were programmed to record each bird's spatial location four times daily, recording both daytime and nighttime locations throughout the annual cycle. From December 2009 to February 2014, 68 whooping cranes were captured and marked with satellite transmitters; 37 adults and two juveniles were marked on the Texas Gulf Coast wintering range, and 31 juveniles were marked during the breeding season in WBNP. Transmitters are expected to function for three to five years, but the number and frequency of GPS transmissions decline over time. By the end of 2018, Phase 1 transmitters were offline. Additional information on this project is available at the Platte River Program Whooping Crane Library.

Beginning in 2017, a renewed effort was made to capture whooping cranes and mark them with GPS tracking devices. This work is Phase 2 of the WCTP, which consists of four core partners: CWS, PCA, USFWS and USGS, with additional support from ICF, Wilder Institute and the Joint Canada-Alberta Oil Sands Monitoring Program. Data collected through this project builds on monitoring conducted via satellite telemetry since 2010 and will be used to investigate potential risk to whooping cranes from industrial development (e.g., extraction of oil and gas, mining and wind power). During Phase 2, captured birds are fitted with GPS/GSM (GPS/Global System for Mobile Communication) transmitters and color leg bands. During 2017-2018, GPS/GSM transmitters were programmed to collect up to 48 GPS locations daily at equal time intervals and to upload location data to the GSM system every 24 hours. This data acquisition schedule allows for highly detailed information on diurnal and nocturnal (roosting) habitat use during all stages of the annual cycle, and on migratory behavior in spring and fall. Beginning in 2019, more frequent GPS location collections (up to 1440 locations daily) are programmed for certain locales (e.g., the oil sands region of Northern Alberta and in proximity to wind farms in U.S.) to allow fine-scale tracking of movement and habitat use through these specific areas of interest. From 2017 through 2024, WCTP partners marked 70 juvenile whooping cranes during the breeding season in WBNP and 53 adults and five juveniles on the Texas Gulf Coast during winter.

Several scientific publications have resulted from WCTP activities. Please see the literature cited for a list of current publications.

Reintroduced Populations

Florida Non-migratory Population

Whooping cranes were released in Florida from 1993 to 2004, with the goal of establishing a non-migratory population. Unfortunately, low productivity and high mortality prevented establishment of a self-sustaining

population. Florida Fish and Wildlife Conservation Commission (FWCC) ended intensive monitoring of the remaining 18 non-migratory cranes in June 2012. Since then, monitoring efforts have been opportunistic and relied heavily on public observations. A few pairs continued to produce offspring after monitoring ceased, but there are no longer any active breeding pairs.

As there are no plans for future reintroductions into this flock, efforts began in 2017 to translocate wild-hatched chicks and single cranes to Louisiana to aid in recovery efforts there. A partnership consisting of Florida FWCC, Louisiana Department of Wildlife and Fisheries (LDWF), White Oak Conservation, and the USFWS translocated five whooping cranes between 2019 and 2022.

During March 2025, a 25-year old male whooping crane from the Florida population was translocated to Louisiana after an intermediate health check period at White Oak Conservation. The male was becoming habituated to human presence from human feeding and its territory was being actively developed, so translocation was decided as the best option for his safety and the safety of the local community. He successfully adjusted to his new location at White Lake Wetlands Conservation Area and remains alive as of December 2025.

The Florida non-migratory population now consists of four whooping cranes.

Louisiana Non-migratory Population

The maximum size of the Louisiana Non-migratory Population (LNMP) as measured on January 5, 2025, was 75 fledged individuals (34 males, 33 females, 8 unknown) with 74 birds located in Louisiana and one of unknown or long-term missing status. Based on location data generated via remote transmitters, cranes were documented in 24 parishes throughout Louisiana. Six cranes were documented in 14 counties in Texas and three counties in Mississippi during the report period. Except for one pair who moved into Texas in late May 2025 and remained until October, most out-of-state visits were short, with cranes either flying through or spending only a few days in most locations.

Five costume reared juvenile whooping cranes (two males, three females) were received in early November 2024 from the Freeport-McMoRan Audubon Species Survival Center in New Orleans and transported to the White Lake Wetlands Conservation Area (WLWCA) in Vermilion Parish on November 7. Unfortunately, one male was found dead in the pen two days later from apparent trauma, likely due to hitting and/or becoming caught in the fencing. The remaining four were released on November 15 and left the area around the pen by the end of the month. Two females quickly joined and remained with an unbanded wild-hatched individual. The remaining male and female began using fields just to the north of the WLWCA marsh where the male died after he apparently hit a powerline while flying after sunset. Two females remain alive at the end of the reporting period, and both are regularly associating with other cranes. The final female went missing in the spring and is presumed dead but has not yet been removed from the population total.

As previously described, one 25-year-old male whooping crane from the discontinued Florida non-migratory population was transferred to Louisiana in March 2025, making him the sixth crane to be relocated since 2019. He began consistently associating with a wild-hatched yearling female several months after his release. One additional translocated Florida male, who had been discovered with a severe, but non-fatal, leg injury in February 2024, died during the report period, and a 27-year-old female went missing; she was removed from the population totals after the end of the report period. In addition to the newly transferred male, one female, transferred from the Florida population in 2019, also remains alive and paired in Louisiana.

During the 2025 breeding season, 21 pairs initiated 38 nests in seven different parishes in Louisiana, producing 14 wild-hatched chicks; seven pairs hatched one chick, one pair hatched two, one pair hatched two from two separate nesting attempts and one pair hatched three from two separate nesting efforts. All chicks hatched to their biological

parents. Three chicks were confirmed fledged by the end of the report period and two others remained alive (and later fledged). Four pairs with chicks have successfully fledged chicks together in the past, and one pair consisted of individuals with no previous rearing experience.

Now in its 15th year, the Louisiana whooping crane reintroduction is focusing on the issues surrounding the high amount of embryo mortality that has been documented. Louisiana Department of Wildlife and Fisheries planned and initiated a third year of egg, eggshell and embryo sample collection, as well as a small number of samples from breeding females specifically to examine potential bacterial causes of embryo death. However, budget and staffing cuts affected our collaborators at the USGS Alaska Science Center and currently, sample analysis has been put on hold. Despite the embryo mortality issue, a small number of pairs continue to successfully hatch and fledge their own chicks in the wild.

Eastern Migratory Population[7]

The maximum size of the Eastern Migratory Population (EMP), as measured on January 10, 2025, was 70 fledged individuals (31 males, 36 females, 3 unknown). In 2024, the majority spent the summer in Wisconsin, except for two birds that traveled to South Dakota and one bird that spent the summer in Minnesota. During winter 2024-2025 individuals in the population overwintered in seven states – Illinois, Indiana, Kentucky, Tennessee, Alabama, Georgia, and Florida. Most of the population overwintered in either northern Alabama (17) near and on Wheeler NWR or central Indiana (25) near or on Goose Pond Fish & Wildlife Area.

In fall 2024, The International Crane Foundation (ICF) released five whooping cranes into the wild: one parent-reared and four costume-reared. All five juveniles survived migration to the wintering grounds. The parent-reared crane migrated with adult whooping cranes, and the costume-reared juveniles migrated to separate locations throughout the flyway.

During the 2025 breeding season, ICF recorded a total of 22 nests by 16 different pairs breeding in Wisconsin. ICF collected 15 eggs from eight first nesting attempts, encouraging pairs to renest after black flies were no longer on the landscape. Additionally, they recovered one egg from an abandoned nest and collected nine additional eggs from partial clutch collection (taking one egg from two-egg clutches). In total, 25 eggs were brought into captivity for rearing and release. Six chicks hatched from four first nests and one re-nest. One wild-hatched chick fledged and survived to migration.

Now in its 25th year, the EMP is focusing on the issues surrounding low fledging rate and low survival, resulting in a declining population. ICF has initiated a ten-year strategic planning effort to improve a variety of demographic factors. Actions include enhancing the production of juveniles from breeding facilities, increasing threat vigilance of released birds, reducing threats of poaching and powerline collisions, and working with partners and landowners to improve vegetation and water management at breeding and release sites to reduce depredation levels. The goal of these actions are to improve demographic trends over the next ten years by increasing the rate of natural recruitment, reducing post-fledge mortality, and increasing artificial recruitment such that the population is on track to be self-sustaining and significantly larger.

[7] For the full 2023 report, see attached prepared by International Crane Foundation

Table 1. Estimated size of wild whooping crane populations in 2024-25.

Population	Date of Count	Male	Female	Unknown	Total	Breeding Pairs
Aransas-Wood Buffalo	January 2025	N/A	N/A	N/A	557	95
Eastern Migratory	January 2025	31	36	3	70	16
Louisiana Non-migratory	January 2025	34	33	8	75	21
Florida Non-migratory	March 2025	2	2	0	4	0
Total in wild populations		N/A	N/A	N/A	706	132

Table 2. Number of whooping cranes held at American Zoological Association (AZA) Saving Animals From Extinction (SAFE) institutions on December 31, 2025. Those denoted with a * are breeding centers.

Institution	Male	Female	Total
International Crane Foundation, Wisconsin*	18	15	33
Calgary Zoo, Alberta*	10	7	17
Audubon SSC (Species Survival Center), Louisiana*	12	8	20
Smithsonian Conservation Biology Institute, Virginia*	4	4	8
Dallas Zoo, Texas*	6	3	9
White Oak Conservation Center, Florida*	11	12	23
African Lion Safari, Ontario	2	2	4
Abilene Zoo, Texas	0	1	1
Audubon Zoo, Louisiana	1	1	2
Homosassa Springs Wildlife State Park, Florida	1	1	2
Houston Zoo, Texas	1	1	2
Milwaukee County Zoo, Wisconsin	1	1	2
Smithsonian National Zoo, Washington DC	1	1	2
Dakota Zoo, North Dakota	1	1	2
Oklahoma City Zoo, Oklahoma	1	1	2
Northeastern Wisconsin Zoo, Wisconsin	1	1	2
San Antonio Zoological Gardens and Aquarium, Texas	2	1	3
Sylvan Heights Bird Park, North Carolina	1	1	2
Zoo New England, Massachusetts	1	1	2
Total in captive population	**75**	**63**	**138**

Acknowledgments

No one organization or individual can provide all the necessary elements to recover the magnificent whooping crane. We see this recovery effort not only successful due to the great increase in the whooping crane population over the last 60 + years, but also the great deal of cooperation and collaboration that takes place amongst a wide variety of private, state and federal organizations alongside a slew of highly dedicated individuals. If not for everyone's continued effort to assist in the recovery of this species, it is likely that the species would have become extinct long ago. Our hope, as the biologists tasked by our respective agencies with the coordination of the recovery of this revered species, is that we can all continue to work together to ensure that the species is able to be removed from the endangered species list as recently occurred for the US national bird, the bald eagle. As the population continues to grow, a greater portion of the public will have opportunities to view and appreciate the majesty of the species. We want to thank all the organizations and individuals that contributed to this report along with the wide range of recovery efforts being undertaken. Special thanks to Matt Rabbe and Allison Gitter for providing summary write-ups to support this report.

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Recovery and Ecology of Endangered Whooping Cranes: Monitoring of the Aransas-Wood Buffalo Population during the 2024 Breeding Season

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Summary

Annual, long-term monitoring of the Aransas-Wood Buffalo Population of whooping cranes (*Grus americana*), which numbers approximately 536, is a key element of Canada's efforts to recover the species under the *Species at Risk Act*. In 2024, the Canadian Wildlife Service and Parks Canada conducted surveys for whooping cranes in breeding areas in southern Northwest Territories and northern Alberta, in and adjacent to Wood Buffalo National Park (WBNP). Breeding pair surveys in May detected 95 nests; 38 pairs without nests were also observed. Twenty-five nests were outside the area designated as critical habitat and 13 of those were outside WBNP. Surveys in July detected 33 juveniles in 33 family groups. Annual productivity was 0.35 juveniles per nest, which is well below the 20-year average of 0.51. Results of monitoring in 2024 highlight the continued increase in the breeding population (although still below Canadian and international recovery goals) and the associated expansion of the breeding range outside WBNP and areas designated as critical habitat.

In addition to long-term monitoring of the breeding population, Canadian Wildlife Service worked collaboratively with partners in 2024 to conduct scientific activities designed to improve our knowledge of the ecology of whooping cranes. In May and September, we performed fieldwork to identify factors that may limit nest success of Aransas-Wood Buffalo Population whooping cranes by deploying remote cameras with time-lapse surveillance, autonomous recording units and water level loggers at 20 crane nests. We also continued efforts to monitor movement, behaviour and survival of whooping cranes throughout the annual cycle by capturing and banding 12 fledged juveniles in and near WBNP with coloured leg bands and GPS transmitters. Data collected through this project builds on existing baseline monitoring conducted via satellite telemetry since 2010 and is being used to investigate potential risk to cranes from industrial development.

Background and Rationale

The Government of Canada and its partners, via implementation of the Recovery Strategy for the Whooping Crane in Canada (hereafter RS, Environment Canada 2007) and the joint US-Canada International Recovery Plan (hereafter IRP, CWS and USFWS 2007), aims to protect, restore and manage the whooping crane to be self-sustaining in the wild by establishing 1,000 individuals in North America by 2035 (Environment Canada 2007). By reaching this goal and achieving other recovery criteria, the species may be considered for re-designation from Endangered to Threatened under the *Species at Risk Act* (SARA) in Canada, and under the *Endangered Species Act* in the United States. Coordination of activities designed to recover the species, including establishment and operation of a joint International Recovery Team, is governed by a memorandum of understanding between the Canadian Wildlife Service (CWS) of Environment and Climate Change Canada (ECCC), Parks Canada Agency (PCA), the US Fish and Wildlife Service (USFWS) and the US Geological Survey (USGS).

The only naturally occurring population of whooping cranes, the migratory Aransas-Wood Buffalo Population (AWBP), which numbered about 536 individuals during winter 2022-

23 (USFWS 2023), spends half of its annual cycle in Canada. During the summer breeding season, breeding adults and some non-breeding sub-adults reside in and adjacent to Wood Buffalo National Park (WBNP) in Alberta and the Northwest Territories. During fall, cranes spend up to six weeks staging in central Saskatchewan before migrating to the Texas Gulf Coast where they spend winter in and near the Aransas National Wildlife Refuge. During spring migration, cranes return to WBNP and adjacent areas via Saskatchewan, for initiation of breeding in May.

Annual monitoring of the AWBP by CWS and our partners is a key element of Canada's implementation of the RS and IRP and is specified in those documents as an activity required to achieve recovery goals. Data collected are used to (1) track progress towards recovery goals by estimating the abundance and productivity of breeding pairs annually; (2) identify and designate areas as critical habitat (CH) (i.e., areas vital to the survival or recovery of cranes) under SARA; and (3) predict future population dynamics and range expansion of the AWBP. Most breeding pairs nest inside WBNP, but the population has expanded its range outside the national park with up to 18 pairs nesting annually in the Northwest Territories, and up to two pairs on Salt River First Nation reserve lands.

Given the population's small size, we monitor almost all breeding individuals by conducting annual aerial surveys of (1) breeding pairs and nests in late spring and (2) juveniles in mid-summer. Information obtained from both surveys is used to derive metrics required by the RS and IRP to track progress towards recovery (i.e., number of breeding pairs, annual productivity). Aerial surveys are conducted in the core breeding areas within WBNP, and in areas outside the national park. This monitoring work has been conducted annually since 1966 by CWS, and in close cooperation with PCA since 2011.

Habitat Conditions in Breeding Areas

Annual precipitation at Fort Smith, Northwest Territories preceding the breeding season (May 2023 to April 2024) was 51% of the 60-year average (Environment and Climate Change Canada 2024). Below-average annual precipitation prior to the breeding season was evidenced by low water levels in the whooping crane breeding areas during May. While habitat was sufficient for nest attempts by at least 95 breeding pairs, multiple examples of nest failure were documents during May monitoring activities (i.e., several nests observed in mid-May had failed by late-May). Dry conditions persisted through the breeding season (May to September) with precipitation 71% of the 60-year average (Environment and Climate Change Canada 2024). During fieldwork in July and August, observers noted that water had receded significantly from May-levels and many breeding-area ponds were dry. Dry conditions typically translate to reduced whooping crane productivity due to reduced abundance of aquatic food sources and increased predation by terrestrial predators.

Despite continued drought in 2024, wildfire was not a threat in the whooping crane breeding range. In the South Slave Region of the Northwest Territories, 484,096 ha were affected by wildfires (GNWT 2024). Inside WBNP, wildfire affected 34,863 ha or 0.76% of the park (vs. the 25-year average of 2.4%) and 11 ha or 0.003% of the area designated as critical habitat (vs. the 25-year average of 1.6%). Two fires in the Preble Creek/Klewi Lake nesting area were within 1 and 3 km of nesting territories, respectively, though are not thought to have impacted breeding activities.

Abundance of Breeding Pairs and Juveniles

In 2024, aerial surveys to estimate abundance of breeding pairs with and without nests were conducted May 21-25 using methods described in Johns (2010). Observers detected 95 nests and 38 pairs without nests (Table 1, Figure 1). Of the 95 nests, 25 were outside the area designated as containing CH and 13 of those were outside WBNP. Of nests outside WBNP, where CH has not yet been identified, all were north of the Nyarling River. Nests were not detected on Salt River First Nation reserve lands (i.e., Lobstick Creek) east of WBNP where up to two nesting pairs have been found in recent years (one pair without a nest was observed here). Breeding pair surveys were conducted by John Conkin (ECCC), Nicolas Comerford and Katherine LaPointe (PCA), and Earl Evans and Cochise Paulette (community members) using an EC-120 helicopter (Phoenix Heli-flight, Fort McMurray, AB).

Aerial surveys to estimate abundance of juveniles were conducted July 27-30, 2024. Observers detected 33 juveniles and 81 pairs without juveniles (Table 1). All family groups consisted of two adults and one juvenile. Using information collected during the breeding pair and juvenile surveys, we determined that annual productivity was 0.35 juveniles per nest which is well below the 20-year average of 0.51 (Figure 2). Juvenile surveys were done by John Conkin (ECCC), Nicolas Comerford and Katherine LaPointe (PCA), and Kevin McAbee (USFWS) using an EC-120 helicopter (Phoenix Heli-flight, Fort McMurray, AB).

Effects of Predation and Weather on Whooping Crane Nest Success

In 2019, we initiated a project designed to evaluate nest success of AWBP cranes and identify factors that may limit nest success using remote cameras with time-lapse surveillance, acoustic recorder units (ARUs) and water level gauges at nest sites. This project represents a multi-agency effort between ECCC, PCA, USFWS and Calgary Zoo/Wilder Institute with specific objectives to (1) determine nest failure and success rates; (2) quantify causes of nest failure (e.g., predation, weather) and associations with reproductive behaviour (e.g., incubation); (3) evaluate the impacts of variation in nest survival on recruitment rates and population growth.

To ensure that equipment placement does not adversely affect nest success, activities under this project are implemented using a staged approach. A pre-pilot study was conducted at 11 inactive nests in 2019 to confirm that deployment of equipment near whooping crane nests does not increase predator activity at nest sites, and a pilot study at 10 active nests in 2022 was used to evaluate other possible adverse effects to cranes such as heightened anxiety or nest abandonment. Analysis of remote camera imagery and audio recordings from ARUs during the pre-pilot effort indicate that predator activity is not increased at treatment sites with monitoring equipment placed near inactive nests, and nest abandonment and heighted anxiety was not observed at active nests sampled in 2022.

Given positive results of pre-pilot and pilot studies, ECCC and partners proceeded with the full study by deploying monitoring equipment at active 20 nests in each of May 2023 and May 2024. Preliminary analysis of sampled nests from both years indicates that 26 hatched at least one egg, seven abandoned during late stages of incubation (five of those were likely infertile), five abandoned during early stages of incubation (two shortly after camera deployment), and two were depredated during incubation (black bear; wolverine). In 2023, project fieldwork was conducted by Mark Bidwell, John Conkin, Maureen Freemark, Susari Malala Irugal Bandaralage, and Lukas Mundy (ECCC), Hannah Edwards (Calgary Zoo/Wilder Institute), and Mike Forsberg. In 2024, project fieldwork was conducted by Mark Bidwell and Susari Malala Irugal Bandaralage (ECCC), Nicolas Comerford and Katherine Lapointe (PCA),

Laura Neary (University of Waterloo), Diana Christie (Wilder Institute/Calgary Zoo), and Matti Bradshaw (International Crane Foundation).

Capture and Banding of Fledged Juveniles

In 2009, a multi-agency, collaborative project to capture and mark whooping cranes was initiated to monitor movement, behaviour and survival of cranes during all aspects of their annual cycle. That project, which continued through 2016, was carried out by the Whooping Crane Tracking Partnership (WCTP, Phase 1), a cooperative effort between five core partners: ECCC, USGS, USFWS, the Crane Trust and Platte River Recovery Implementation Program, with support from PCA, ICF and the Gulf Coast Bird Observatory. Specific objectives were to 1) advance knowledge of breeding, wintering and migration ecology including threats to survival and population persistence; 2) disseminate research findings in reports, presentations and peer-reviewed literature to provide reliable scientific knowledge for conservation, management and recovery of whooping cranes; and 3) minimize negative effects of research activities to whooping cranes.

During Phase 1 of the WCTP, captured birds were fitted with a GPS/PTT (Global Positioning System/Platform Transmitting Terminal) satellite transmitter and unique colour leg bands. Transmitters were programmed to record each bird's spatial location four times daily, logging both daytime and nighttime locations throughout the annual cycle. From December 2009 to February 2014, 68 whooping cranes were captured and marked with transmitters; 37 adults and two juveniles were marked on the Texas Gulf Coast wintering grounds and 31 juveniles were marked during the breeding season in WBNP.

Beginning in 2017, a renewed effort was made to capture whooping cranes and mark them with GPS tracking devices. This work is Phase 2 of the WCTP, which consists of core partners, ECCC, PCA, USFWS and USGS, with support from ICF, Calgary Zoo and the Joint Canada-Alberta Oil Sands Monitoring Program. Data collected through this project will build on existing baseline monitoring conducted under Phase 1 and is being used to investigate potential risk to whooping cranes from industrial development. During Phase 2, captured birds are fitted with GPS/GSM (GPS/Global System for Mobile Communication) transmitters with Global Positioning System capabilities and colour leg bands. During 2017 and 2018, GPS/GSM transmitters were programmed to collect up to 48 GPS locations daily at equal time intervals and to upload location data to the GSM system every 24 hours. This data acquisition schedule allows for highly detailed information on diurnal and nocturnal (roosting) habitat use during all stages of the annual cycle, and on migratory behaviour in spring and fall. Beginning in 2019, more frequent GPS location collections (up to 1440 locations daily) were programmed for certain locales (e.g., the oil sands region of Northern Alberta and in proximity to wind farms in U.S.) to allow fine-scale tracking of movement and habitat use through these specific areas of interest. From 2017 through 2023, ECCC and WCTP partners marked 58 juvenile whooping cranes during the breeding season in and near WBNP, and USFWS and WCTP partners marked 53 adults and five juveniles during winter on the Texas Gulf Coast.

In August 2024, ECCC and WTCP partners again marked juveniles in and around WBNP. Family groups with young suitable for capture were located during juvenile fledging success surveys. During capture attempts, the helicopter circled to find a suitable landing spot to position the capture crew on the ground (typically 200-300 meters from the family group). The banding team consisted of John Conkin (ECCC), Valerie Edwards and Sandra Black, DVM (Calgary Zoo), and Nicolas Comerford and Katherine LaPointe (PCA). From August 1 to 3, 12

cranes were captured and banded with a satellite transmitter. For marked cranes, blood and feather samples were collected and basic biometric measurements (culmen, wing chord, tarsus and weight) were taken. Finally, Dr. Black performed a general assessment of the health of each bird before it was released. Capture activities were conducted using an AS350B2 helicopter operated by Phoenix Heli-flight.

Management Considerations

We confirmed nesting by 95 pairs in late spring, producing an average of 0.35 juveniles per nest by mid-summer. While the number of confirmed nests has increased steadily since surveys began in 1966, it also varies annually (Figure 2) possibly in response to environmental conditions during the breeding season. The ratio of juveniles to nests, which is an estimate of breeding success for the population, also varies annually (Figure 2) in response to environmental conditions but also in a periodic manner that tracks the 10-year boreal hare-lynx cycle (Boyce et al. 2005) likely because of periodicity in abundance of predators (e.g., wolves, lynx, red fox).

The 2024 nest count reflects the gradual but steady increase in the breeding population over time (Figure 2). Even so, the AWBP is many years away from achieving the Canadian down-listing goal of 250 productive pairs (Environment Canada 2007). Recovery of the species currently depends on growth of the AWBP, so monitoring should continue until recovery goals are reached (CWS & USFWS 2007). Twenty-five nests were detected outside the area designated as CH (Environment Canada 2007) under SARA, and 13 of these were outside WBNP. The first nest outside WBNP was detected in 1982 on reserve lands of the Salt River First Nation, east of WBNP, and in 1998 cranes were detected nesting north of WBNP, in the Northwest Territories. Up to 35% of nests occur outside CH annually, as defined in the current recovery strategy. Although cranes are protected under SARA and the *Migratory Birds Convention Act* wherever they occur, breeding habitat is not formally protected under federal legislation unless it is identified as CH. SARA prohibits destruction of CH in federal protected areas (e.g., WBNP) and includes measures that could protect CH in other areas. Moreover, up to 20% of nests occur outside WBNP annually, and these nests and associated habitat are not protected under the *Canada National Parks Act* or related regulations. Because the breeding range of whooping cranes has expanded outside existing CH into areas that could be impacted by human development, ECCC supports efforts to update CH identification to ensure it more closely corresponds to current and probable future breeding ranges of the species.

Acknowledgements

Financial and logistical support was provided by Environment and Climate Change Canada, Parks Canada, Calgary Zoo/Wilder Institute, United States Fish and Wildlife Service and United States Geological Survey. Activities were conducted under Environment and Climate Change Canada Scientific Permit SC-NR-2022-NT-001, Environment and Climate Change Canada Western & Northern Animal Care Committee Permit 24MB01, Environment and Climate Change Canada Permit to Capture and Band Migratory Birds 10975, Northwest Territories Wildlife Research Permit WL501043, Northwest Territories Wildlife Care Committee Permit NWTWCC2022-003 and Parks Canada Agency Research and Collection Permit WB-2022-41918-3.

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Table 1. The number and type of observations of whooping cranes that were detected during breeding pair and juvenile surveys in May and July 2024, respectively.

Observation type	May	July-Aug
Nests	95	n/a
Adults on or near nests	102	n/a
Pairs without nests	38	n/a
Pairs with juveniles	n/a	33
Juveniles	n/a	33
Pairs without juveniles	n/a	81
Lone cranes	31	7
Grouped cranes	3	6
Total cranes	212	274

Notes:
(i) Many lone cranes observed in May are likely mates of adults detected on nests.

Figure 1. Density per 100 km^2 of whooping crane pairs, with and without nests, detected during the breeding pair survey in May 2024.

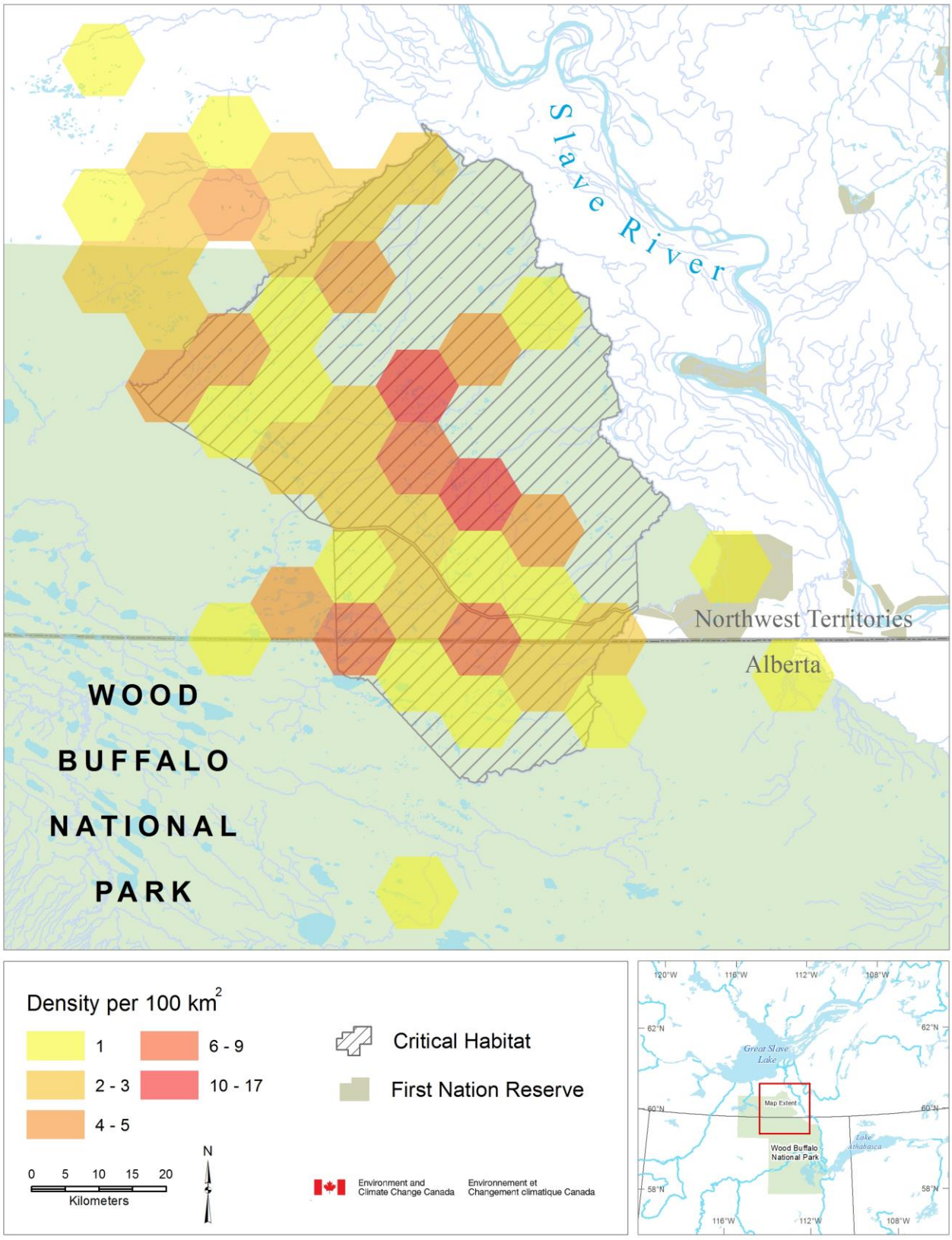
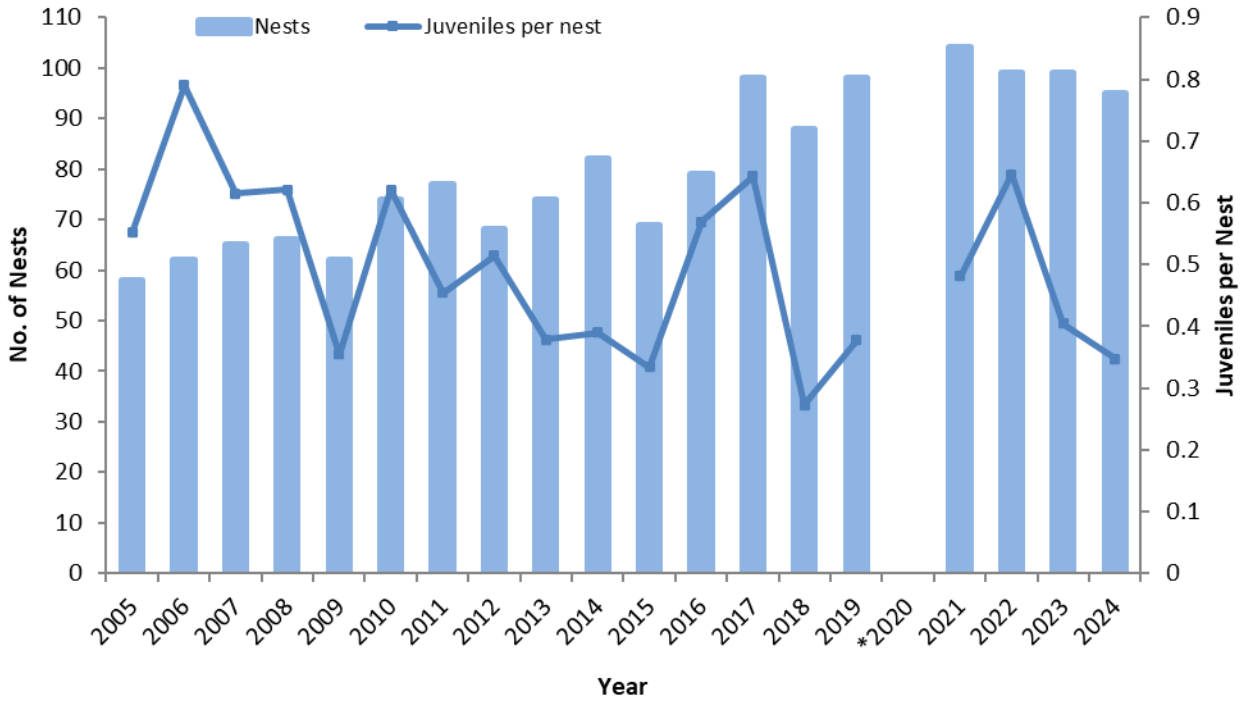


Figure 2. The number of whooping crane nests, and juveniles per nest, detected during aerial surveys from 2005-2024. The number of nests and juveniles are estimated during breeding pair (May) and juvenile (July-August) surveys, respectively; the number of juveniles per nest is calculated using information from both surveys. *Aerial surveys were not conducted during 2020 due to restrictions related to the COVID-19 pandemic.



Appendix A. List of acronyms used in this report.

Acronym	Description
AWBP	Aransas-Wood Buffalo Population
CH	Critical Habitat
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CWS	Canadian Wildlife Service
ECCC	Environment and Climate Change Canada
IRP	US-Canada International Recovery Plan
PCA	Parks Canada Agency
RS	Recovery Strategy for the Whooping Crane in Canada
SARA	Species at Risk Act
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WBNP	Wood Buffalo National Park

Whooping Crane Survey Results: Winter 2024–2025
*557 Wild Whooping Cranes Estimated (*95% CI = 478.7–645.1)

The U.S. Fish and Wildlife Service estimated the abundance of whooping cranes in the Aransas-Wood Buffalo population for the winter of 2024–2025. Preliminary analyses of the survey indicated 557 whooping cranes (95% CI = 478.7–645.1; CV = 0.137) inhabited the primary survey area (Figure 1). This estimate included at least 41 juveniles (95% CI =37.7–53.4; CV = 0.172) and 193 adult pairs (95% CI = 167.5–221.4; CV = 0.135). Recruitment of juveniles into the winter flock this winter was 8.1 chicks (95% CI = 6.3–10.5; CV = 0.132) per 100 adults.

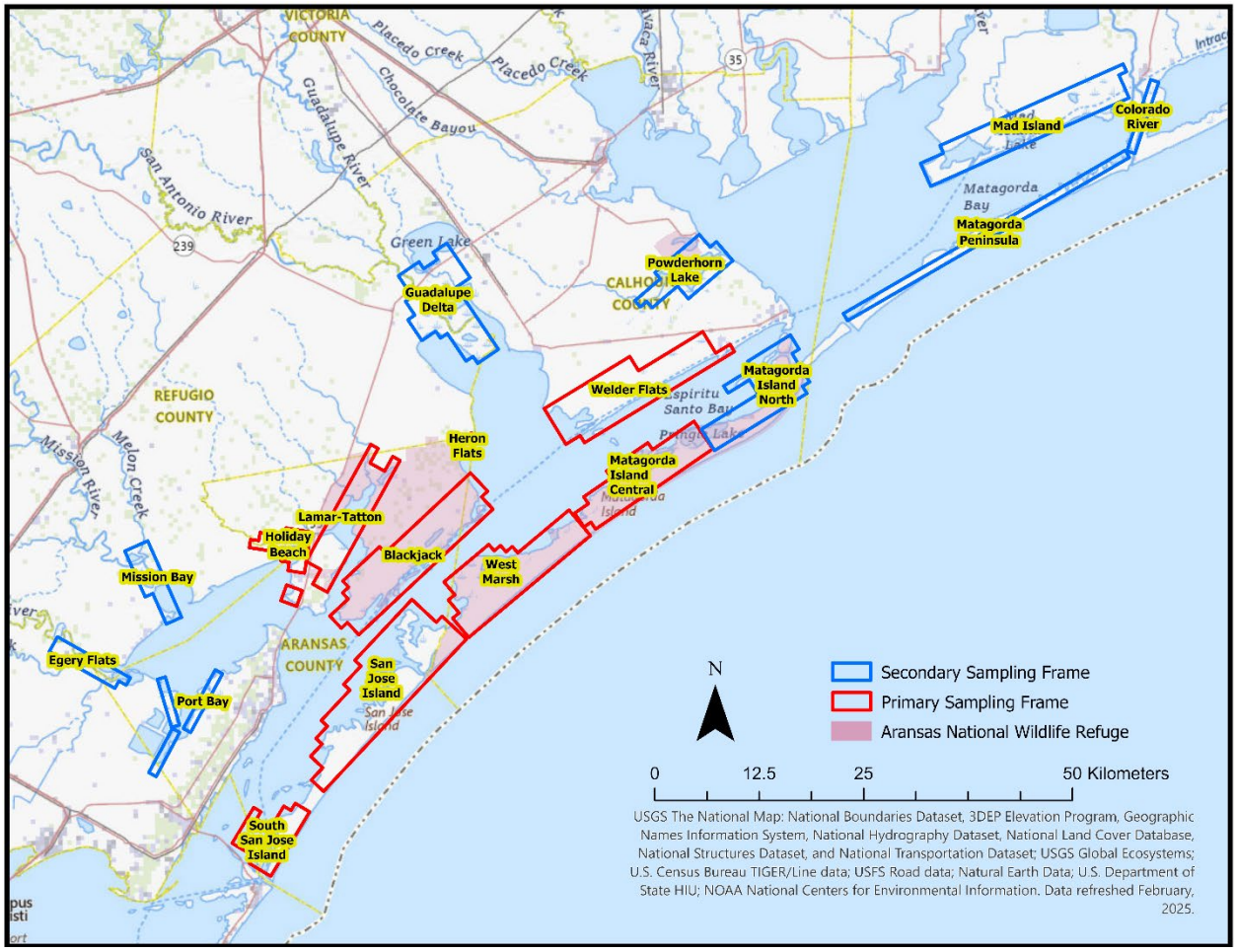


Figure 1. The sampling area used to monitor whooping crane abundance on their wintering grounds along the Texas coast of the Gulf of America, USA.

During winter 2024–2025, the U.S. Fish and Wildlife Service conducted surveys in late January and early February using a Quest Kodiak aircraft. The primary survey areas (approximately 170,500 acres; Figure 1) were flown six times during January 22–31, 2025 (6 surveys each). The secondary survey areas (approximately 85,250 acres; Figure 1) were flown twice between February 1–2, 2025. This survey was a cooperative effort conducted by the U.S. Fish and Wildlife Service National Wildlife Refuge System in

Region 2, U.S. Fish and Wildlife Service Migratory Bird Program, U.S. Fish and Wildlife Service Ecological Services, Guadalupe-Blanco River Authority, and Canadian Wildlife Service.

The long-term growth rate (winter 1938–1939 to winter 2024–2025) in the whooping crane population has averaged 4.33% (*n* = 83; 95% CI = 1.78–6.80%). The population has appeared to remain stable over the last two years (Table 1; Figure 2). The Canadian Wildlife Service reported at least 33 whooping crane chicks were fledged at Wood-Buffalo National Park in summer 2024. We estimated 41 juveniles (95% CI = 32.7–53.4) on the wintering grounds this year. Although juvenile plumage color can be less distinct in late-January, biasing estimates of productivity low, the Canadian Wildlife Service reported productivity was below the 20-year average this year.

During the survey period, many whooping cranes were observed outside of the primary survey areas. Table 2 provides our best understanding of whooping cranes outside the primary survey areas during the survey period. We cannot ascertain if all or some of these birds moved in and out of the primary survey area during the survey period. Therefore, some unknown number of birds may be missed while others counted.

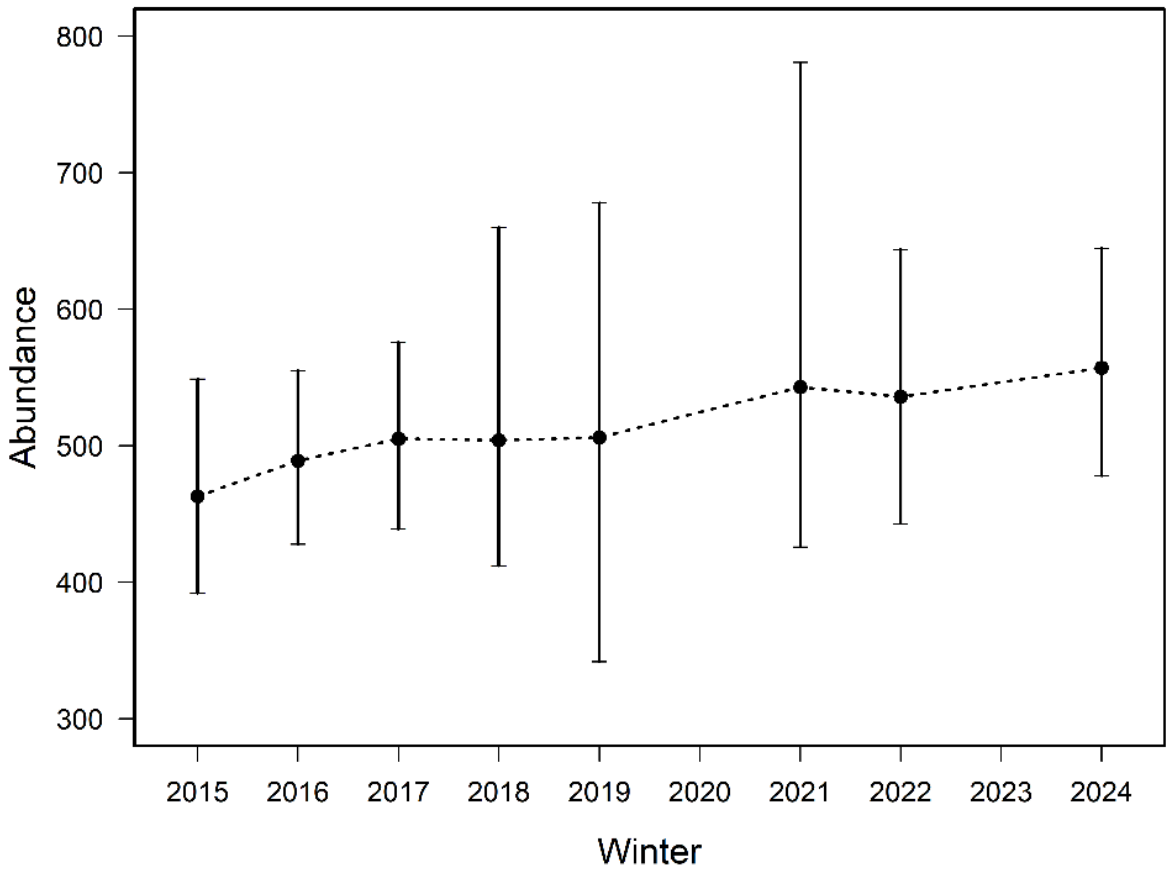


Figure 2. Time-series of whooping crane abundance estimates and 95% confidence intervals for the Aransas-Wood Buffalo population on their wintering grounds (primary sampling frame), winter 2015–2016 through winter 2024–2025.

The survey protocol contains guidelines for promoting secondary survey areas into the primary survey areas. During winter 2021–2022, we observed enough whooping crane groups in the Heron Flats and the South San Jose Island survey areas to promote them into the primary survey area. These two areas were included as part of the primary survey area beginning in winter 2022–2023. During winter 2024–2025, the observed number of whooping cranes within the Guadalupe Delta survey area met the criteria for inclusion in future surveys.

Table 1. Preliminary whooping crane abundance estimates for the Aransas-Wood Buffalo population on their wintering grounds, winter 2015–2016 through winter 2024–2025.

Survey year[a]	Survey month	Aircraft	Abundance[b]	CV	95% LCL	95% UCL	No. assumed beyond primary survey area[c]
winter 2015–2016	March	Kodiak	463	0.095	392	549	8
winter 2016–2017	March	Kodiak	489	0.116	428	555	6
winter 2017–2018	February	Kodiak	505	0.069	439	576	21
winter 2018–2019	February	Kodiak	504	0.122	412	660	12
winter 2019–2020	January	Kodiak	506	0.168	342	678	29
winter 2021–2022	January	Kodiak	543	0.182	426	781	38
winter 2022–2023	January	Kodiak	536	0.146	443	644	14
winter 2024–2025	January	Kodiak	557	0.137	478	645	68

[a] Surveys were not conducted during winter 2020–2021 and winter 2023–2024.

[b] Estimated whooping crane abundance in the primary sampling area using aerial surveys and hierarchical distance sampling. CV = coefficient of variation, LCL = lower confidence limit, and UCL = upper confidence limit.

[c] Provides our best understanding of the number of whooping cranes, at the time of the aerial surveys, that were outside of the primary survey areas. This information was based on data from Texas Whooper Watch, eBird reports, iNaturalist reports, the whooping crane GPS tracking study, and aerial surveys conducted in the secondary survey areas.

Table 2. Whooping cranes documented outside of the primary survey area during January 22–February 2, 2025.

General area[a]	Data source	Adults	Juveniles	Total	Notes
Nueces County, Texas	eBird, iNaturalist	2	1	3	One family group reported near Leonabelle Turnbull Birding Center during the survey period.
Wharton and Colorado counties, Texas	GPS tracking study, International Crane Foundation, iNaturalist	16	2	18	Multiple family groups reported during survey period using flooded agricultural habitat; observed throughout the winter period.
Guadalupe Delta (secondary survey area)	Aerial Survey, GPS tracking study	29	1	30	Multiple family groups detected during survey period.
Matagorda Island North (secondary survey area)	Aerial Survey, GPS tracking study	4	0	4	Multiple family groups detected during survey period.
Mad Island (secondary survey area)	Aerial Survey	8	1	9	Multiple family groups detected during survey period.
Powderhorn Lake (secondary survey area)	Aerial Survey, GPS tracking study	3	1	4	Multiple family groups detected during survey period.

[a] All the secondary survey areas were flown twice during winter 2024–2025.

The data and results presented in this report are preliminary and subject to revision. This information is distributed solely for the purpose of providing the most recent information from aerial surveys. This information does not represent and should not be construed to represent any U.S. Fish and Wildlife Service determination or policy.

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EMP FIELD TEAM ANNUAL REPORT 2025

Prepared by Nicki Gordon, Eleanor Laack, Hannah MacInnes, Clare Crenshaw, and Hillary Thompson, International Crane Foundation

Executive Summary

Highlights related to monitoring and management of the EMP from 2025 include:

- During 2025, there were approximately 68 Whooping Cranes in the Eastern Migratory Population. To the best of our knowledge, all birds spent the summer in Wisconsin (Fig. 1).

- We recorded a total of 22 nests by 16 different pairs of Whooping Cranes breeding in Wisconsin. We collected 15 eggs from 8 first nests for forced renesting, to encourage pairs to renest after black flies were gone. We collected 9 eggs from 4 first nests and 5 re-nests with 2 egg clutches and 1 egg from an abandoned nest. We collected an additional 3 non-viable eggs for veterinary research projects. In total, we collected 25 eggs to be raised in human care for SAFE holdback or release. Six chicks hatched in the wild from 4 first nests and 1 re-nest (Table 2). One wild-hatched chick fledged and survived to migration (Table 3).

- Six adults were captured for transmitter replacement, and 1 wild-hatched adult was captured for initial banding.

- There was 1 juvenile costume-reared crane that was slated for release at Horicon NWR that died of Highly Pathogenic Avian Influenza (HPAI) prior to release. It had symptoms while in the acclimation pen at Horicon and died en route to ICF for assessment and treatment. This is the first documented case of a Whooping Crane dying from HPAI.

- We released 8 captive-reared Whooping cranes into the wild. One was parent-reared (from ICF) and 7 were costume-reared (from ICF). One costume-reared juvenile died in November before migration. The other 7 juveniles survived migration and are on the wintering grounds. All of the juveniles have been seen associating with or are near other juveniles or adult Whooping Cranes throughout the flyway.

- There were 7 confirmed adult mortalities and 1 post-release juvenile mortality during 2025, due to various causes. Additionally, 3 cranes were classified as long-term missing during 2025.

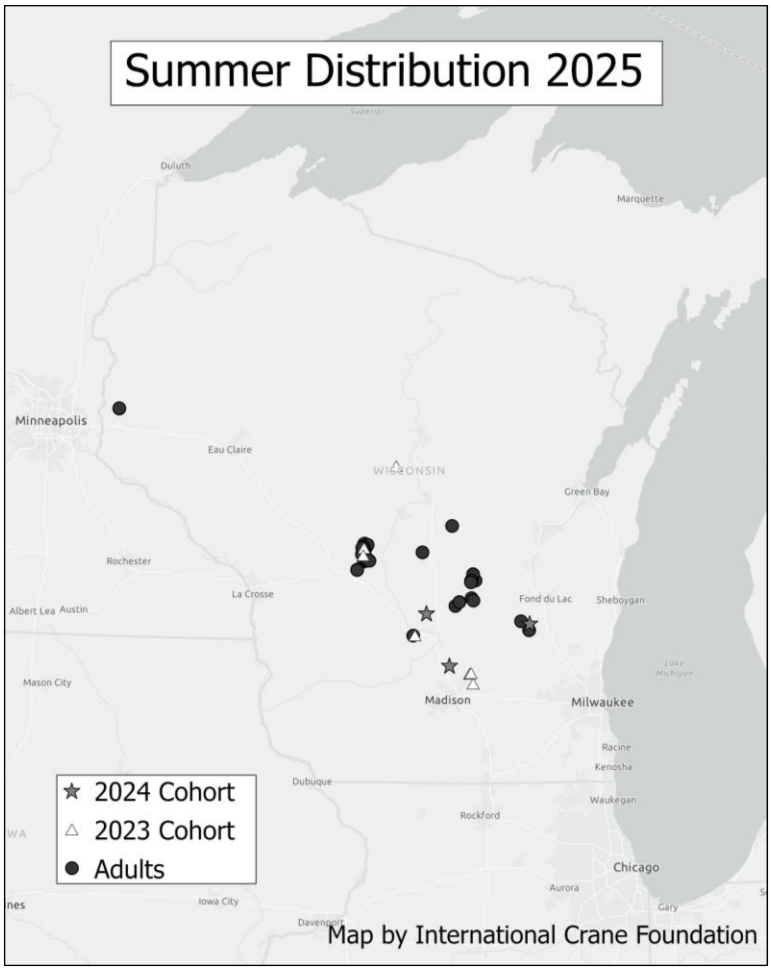

Figure 1. Summer distribution of the Eastern Migratory Population of Whooping Cranes during 2025. At least 61 cranes spent the summer in Wisconsin.

Winter 2024-25

The maximum population size as of 10 January 2025 was 70 (36 F, 31 M, 3 U). The final wintering locations of Whooping Cranes in the EMP during winter 2024-25 were as follows (Fig. 2): 17 birds in Alabama, 2 in Tennessee, 8 in Kentucky, 6 in Illinois, 25 in Indiana, 2 in Georgia, and 2 in Florida. There were 8 in unknown locations. Three of these birds were later classified as long-term missing, including 1 bird from the 2023 cohort.

Winter distribution as of 2 January 2026

The maximum population size as of 2 January 2026 was 66 (37 F, 26 M, 3 U). The distribution of these birds is as follows (Fig. 3): 20 birds in Alabama, 17 in Indiana, 2 in Illinois, 5 in Kentucky, 3 in Tennessee, 1 in Florida, and 3 in Georgia. There were 15 in unknown locations or that had not been confirmed in the last month.

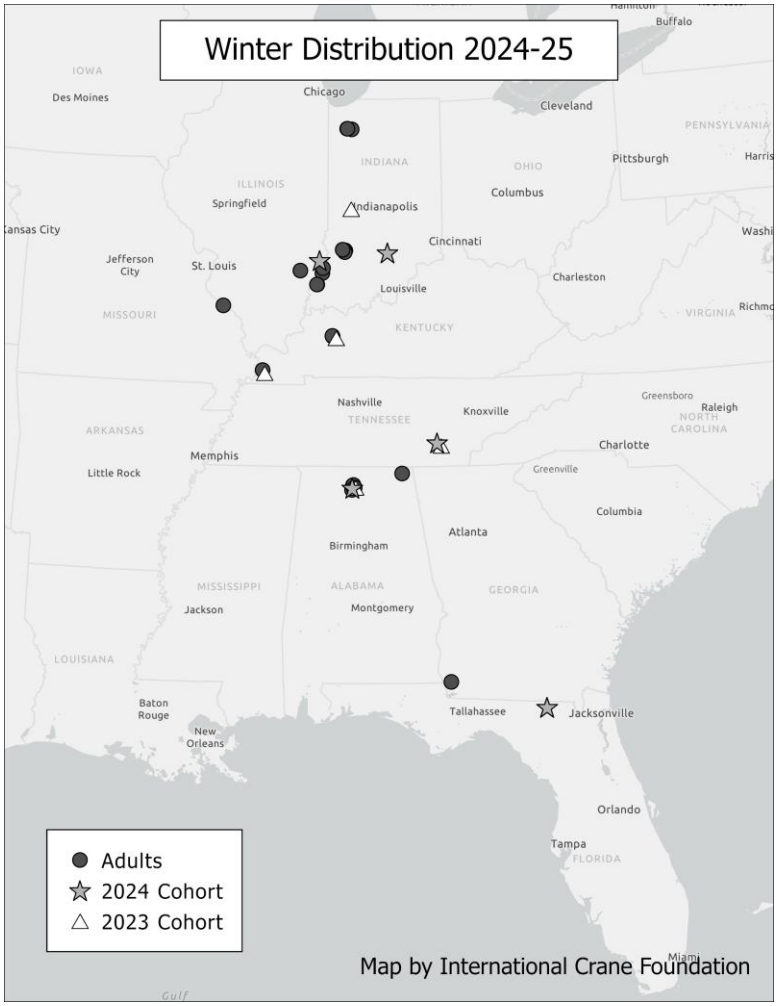

Figure 2. Distribution of wintering Whooping Cranes in the EMP 2024-25

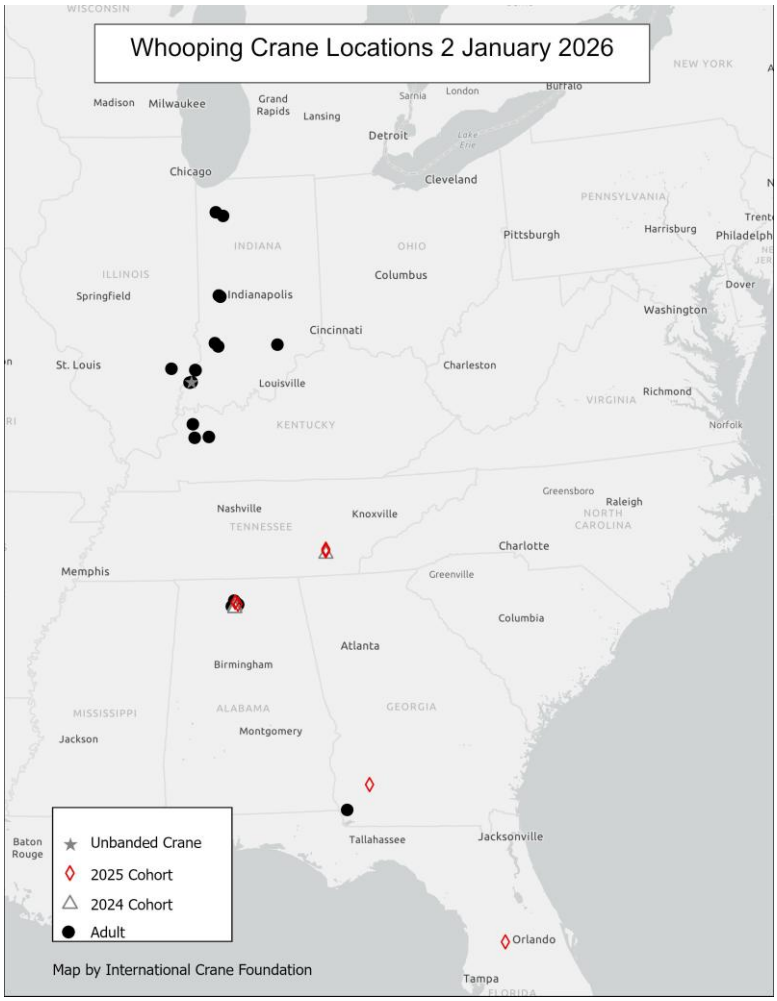

Figure 3. Distribution of wintering Whooping Cranes in the EMP as of 2 Jan 2026.

Captures and Banding in 2025

- Captures for transmitter replacement:
  - W13-23, Sauk County, Wisconsin, 27 March
  - 13-02, Juneau County, Wisconsin, 14 April
  - 20-23, Dane County, Wisconsin, 21 May
  - 5-11, Dane County, Wisconsin, 29 August
  - 3-14, Green Lake County, Wisconsin, 5 September
  - 7-11, Adams County, Wisconsin, 24 October
  - 21-23, Juneau County, Wisconsin, 30 October
- Banding prior to release for captive-reared birds:
  - 30-25, 31-25, 32-25, 33-25, 34-25, 35-25, 37-25, 38-25, ICF, 2 September
  - 36-25, ICF, 16 September

Releases of captive-reared cranes

Eight captive-reared juvenile cranes were released in Wisconsin into the Eastern Migratory Population during 2025. One of these was parent-reared (36-25), and 7 were costume-reared (30-25, 31-25, 32-25, 34-25, 35-25, 37-25, 38-25) at the International Crane Foundation. The costume-reared cranes were transferred to a pen on September 8th at Horicon National Wildlife Refuge (NWR), where they were then released on October 7th. One of the costume-reared birds moved to release site, 33-25, died before release, due to Highly Pathogenic Avian Influenza (HPAI), and 37-25, died in November at Horicon NWR from a non-HPAI respiratory disease. After release, the costume-reared birds typically remained in a large group with adults 79-19 (F) and 28-25 (M).

- 36-25 (M) was parent-reared at the International Crane Foundation then released on private property in Green Lake County, Wisconsin, on 8 October 2025 near an established pair (10-15 and 4-13). After release, he briefly associated with pair 67-15 and 3-17. In December, he moved to Sauk County, Wisconsin with Sandhill Cranes and then migrated to Hiawasee Wildlife Refuge in Meigs County, Tennessee, stopping in Illinois, Indiana, and Kentucky along the way.
- 30-25 (M) and 79-19 (F) migrated together on 27 November from Horicon NWR to Goose Pond Fish and Wildlife Area in Greene County, Indiana. In December, 30-25 and 79-19 traveled farther south to Wheeler NWR in Alabama.
- 31-25 (F), 34-25 (F), 38-25 (F), and likely 28-24 (M) migrated together from Horicon NWR on 27 November. 38-25 and 28-24 split from the group and continued to Wheeler NWR in Morgan County, Alabama, where 38-25 has been seen associating with multiple adult Whooping Cranes. Meanwhile, 31-25 and 34-25 migrated to Hiawasee Wildlife Refuge in Meigs County, Tennessee. From there, 31-25 continued south to Lake County, Florida with Sandhill Cranes.
- 32-25 (M) and 35-25 (F) migrated together on 27 November from Horicon NWR to Muscatatuck NWR in Jackson County, Indiana. In December, they continued south to Taylor County, Florida. Later in December, they moved to Baker County, Georgia.

Survival

- The total number of birds (both captive releases and wild-hatched chicks) coming into this population since 2001 is 363 cranes (Fig. 4), of which 66 (18%) may be alive as of 2 January 2026 (Fig. 5). There have been 324 captive raised Whooping Cranes released since the beginning of the reintroduction in 2001. This number does not include the 17 HY2006 ultralight-led juveniles that died during confinement in a storm and one HY2007 ultralight-led juvenile that was removed from the project prior to release. There have been 39 wild-hatched chicks that survived to fledging (see Reproduction section below).
- There were 7 confirmed adult mortalities and 1 post-release juvenile mortality in 2025 (mortalities of pre-fledge wild-hatched chicks born in 2025 are in the table listed below, Table 1, Fig. 6):
    - 4-12 (M) confirmed dead on 9 May 2025 in Green Lake County, Wisconsin, confirmed predation.
    - 15_11 (F) confirmed dead on 6 August 2025 in Juneau County, Wisconsin, in August, suspected predation.

    - 37_07 (M) confirmed dead on 8 August 2025 in Juneau County, Wisconsin, in August, unknown cause during molting season.
    - 16_04 (M) confirmed dead on 8 August 2025 in Juneau County, Wisconsin, in August, suspected predation.
    - 4-17 (M) confirmed dead on 11 August 2025 in Sauk County, Wisconsin, in August, likely due to a leg injury and molting.
    - 21-23 (F) confirmed dead on 7 November 2025 in Juneau County, Wisconsin, asphyxiation caused by a corn kernel.
    - 37-25 (F) confirmed dead on 12 November 2025 in Dodge County, Wisconsin, non-HPAI respiratory disease.
    - 7-17 (F) confirmed dead on 13 November 2025 in Lee County, Illinois, unknown cause.
- There were 3 cranes classified as long-term missing during 2025.
    - W6-18 (M) was last seen in May 2024 in Juneau County, Wisconsin.
    - 85-21 (M) was last seen in July 2024 in Juneau County, Wisconsin.
    - W9-23 (F) was last seen in November 2024 in De Witt County, Illinois.
- The average annual survival rate for adult cranes over 4yo was 87.9% (range = 66.7 - 100%, Fig. 7). For older age classes, sample sizes were quite small (5 or less for ages 20+).

Table 1. Causes of death for fledged, wild-hatched and captive-reared Whooping Cranes in the Eastern Migratory Population. We did not include confirmed mortalities for wild-hatched pre-fledged chicks. "Other" causes of mortality included euthanasia due to injuries, hemorrhages, capture myopathy, emaciation, egg binding, asphyxiation caused by a corn kernel, and leg injury.

Cause of Death	**Number of cases cumulatively 2001-2024**	**Number of cases 2025**	**Percent of total mortalities 2001-2025**	**Percent of known causes 2001-2025**
Predation – confirmed or suspected	42	3	23.4%	40.5%
Impact Trauma – confirmed or suspected power line collision	13	0	6.3%	11.7%
Impact Trauma – other (vehicle or aircraft collision, unknown source of trauma)	12	0	7.3%	10.8%
Gunshot	14	0	7.3%	12.6%
Disease (including lead poisoning)	8	1	4.7%	8.1%
Other	16	2	9.4%	16.22%
Unknown	79	2	42.2%	
Total confirmed mortalities	184	8		

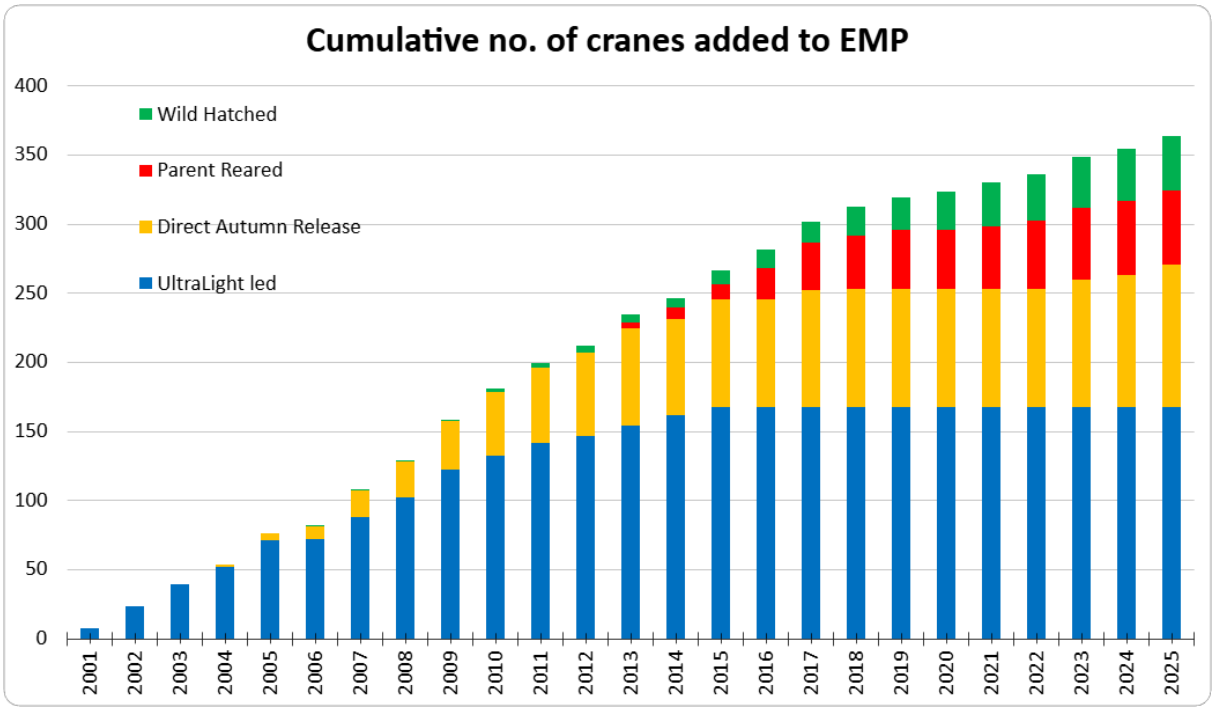

Figure 4. Cumulative number of cranes added to the Eastern Migratory Population by rearing method since 2001. As of 2025, there have been 167 UltraLight led, 103 Direct Autumn Release, 54 Parent Reared, and 39 Wild Hatched Whooping Cranes added to the EMP.

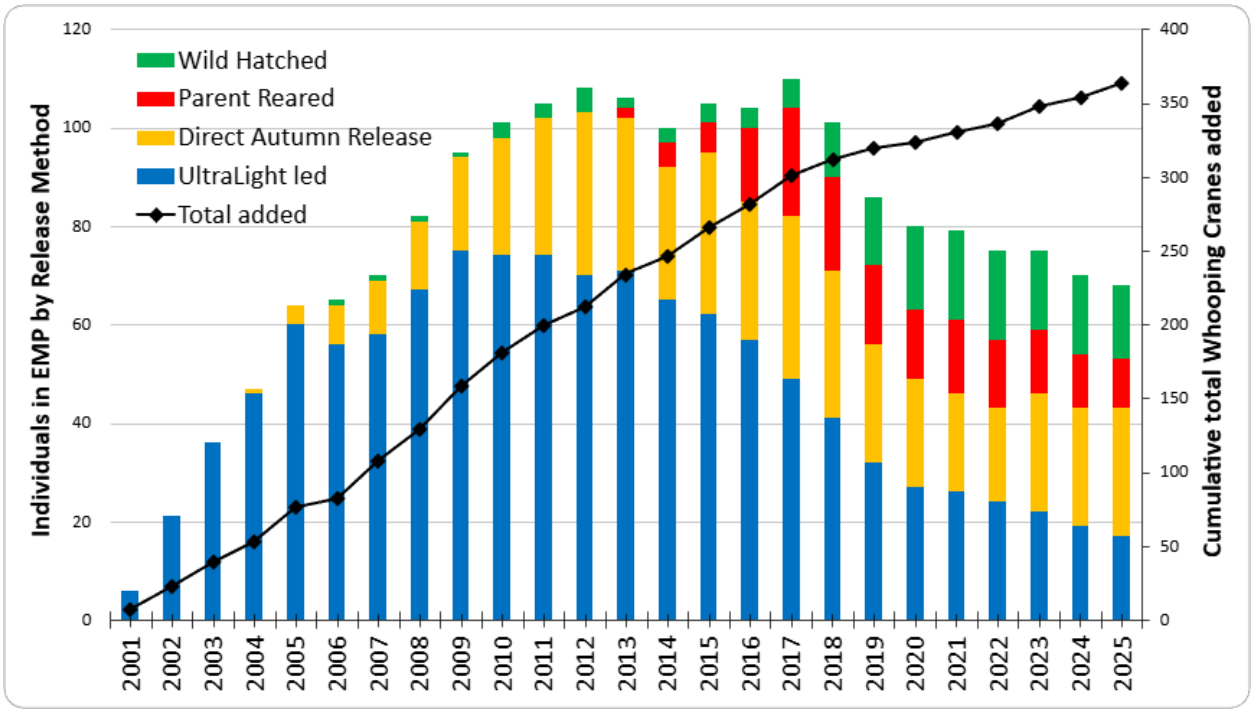

Figure 5. Population size of EMP by rearing method. As of 2 January 2026, there were 66 birds recorded in the EMP (left axis; 26 M, 37 F, 3 U). Black line indicates the total birds released (or wild-fledged) into the population cumulatively (right axis).

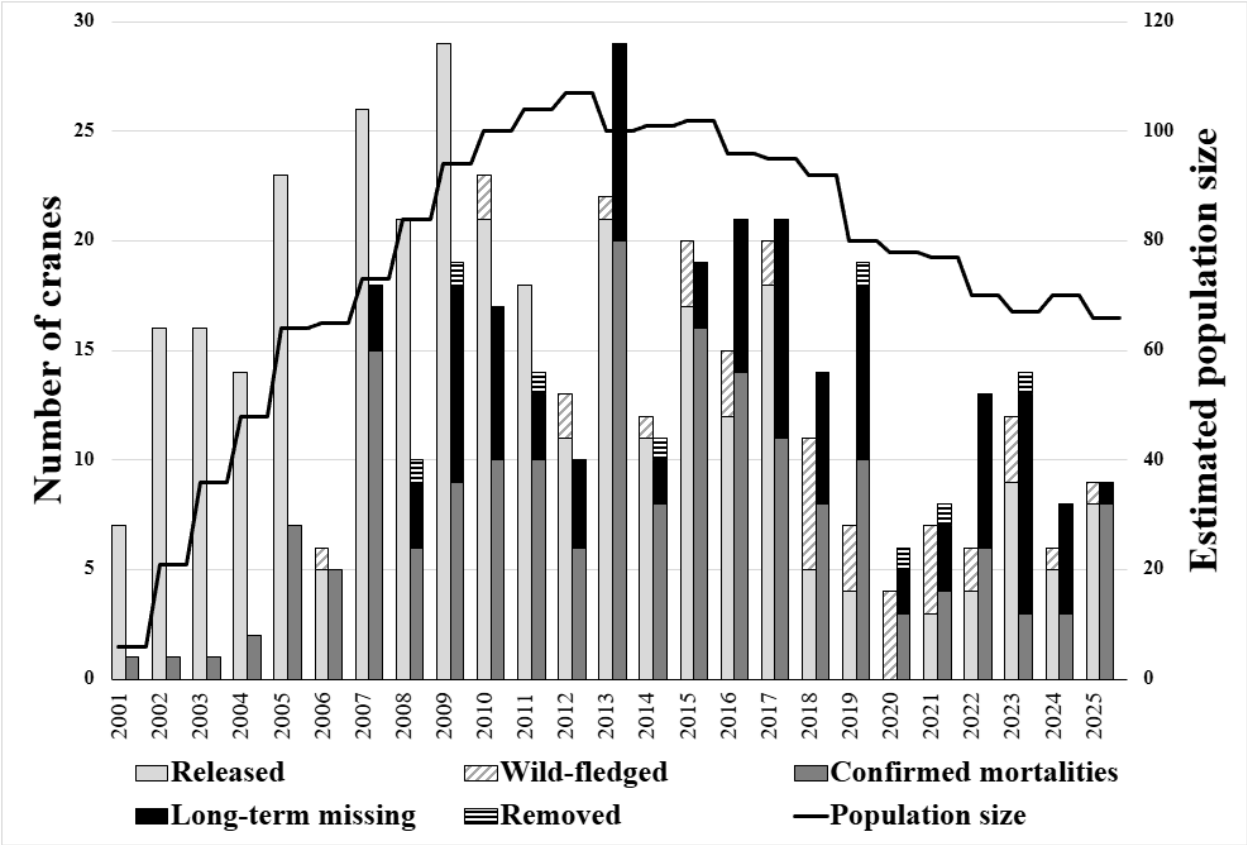

Figure 6. Estimated population size of the Eastern Migratory Population of Whooping Cranes from 2001-25 (right axis). The number of cranes added into the population each year is shown in a stacked bar on the left, those subtracted on the right bar (left axis).

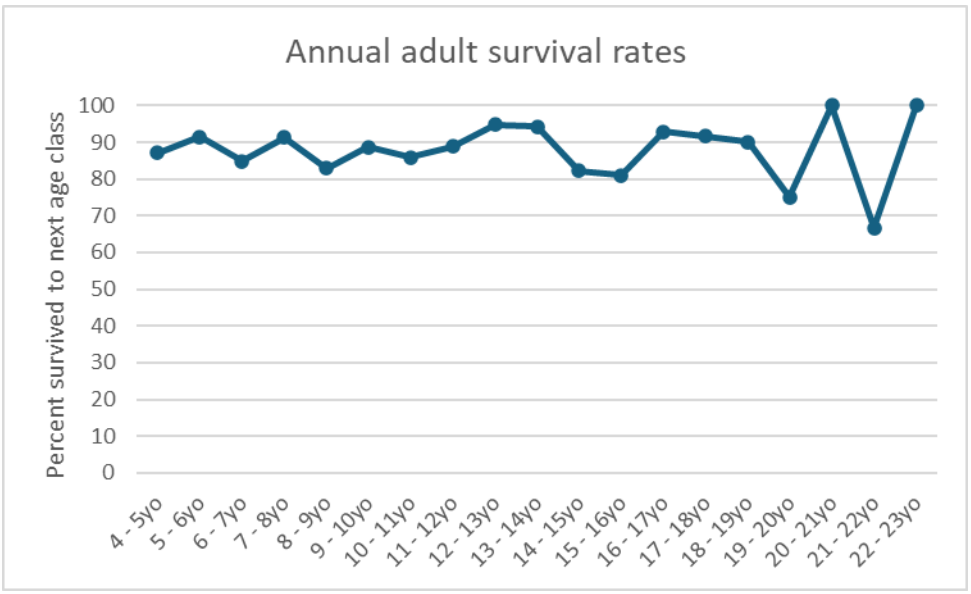

Figure 7. Annual adult survival rates calculated as the percentage of birds in each age class that survived to the next age class. On average, the annual adult survival rate for cranes at least 4yo is 87.9%.

Reproduction

- This year we recorded a total of 22 nests by 16 different Whooping Crane pairs breeding in Wisconsin. The numbers reported here are the total we observed but there may have been a few missed nests or young chicks.
- We collected 15 eggs from 8 first nests for forced renesting, to encourage pairs to renest after black flies were gone. We collected 9 eggs from 4 first nests and 5 re-nests with 2 egg clutches and 1 egg from an abandoned nest. We collected an additional 3 non-viable eggs for veterinary research projects. In total, we collected 25 eggs to be raised in human care for SAFE holdback or release.
- Nine nests failed, 1 was predated by a coyote, 2 were abandoned for unknown reasons, 1 likely flooded, and 5 were incubated full term but did not hatch (Table 2).
- Six chicks hatched from 4 first nests and 1 re-nest (Table 2). One wild-hatched chick fledged and survived to migration (Table 3).
- At the end of 2025, there have been a total of 476 nests (372 first nests, and 104 re-nests). 208 chicks hatched in the wild, of which 39 have fledged. As of 2 January 2026, 15 of the 39 wild-fledged cranes survive in the wild (Tables 3 and 4, Fig. 8).

Table 2. Nesting summary for 2025. Asterisks indicate a re-nest. Active nest management was implemented to reduce the impact of black fly disturbance. Some nests with two-egg clutches had one egg removed as a part of Partial Clutch Collection (PCC) to increase the number of eggs and chicks raised in captivity for release into reintroduced populations.

Female	Male	Nest Outcome	Date Completed	County	Chicks	Notes
6_15	19_09	Active nest management	13 Apr	Juneau		2 eggs collected
73_18	3_04	Active nest management	13 Apr	Juneau		2 eggs collected
6_17	16_04	Active nest management	13 Apr	Juneau		2 eggs collected
W14_19	2_04	Active nest management	13 Apr	Juneau		1 egg collected, 1 egg found in water
12_03	12_05	Active nest management	14 Apr	Juneau		2 eggs collected
24_08	13_02	Active nest management	14 Apr	Juneau		2 eggs collected
W3_10	7_07	Active nest management	14 Apr	Juneau		2 eggs collected
W3_17	W2_21	Failed – unknown, full term	14 May	Green Lake		
36_09	W5_18	Active nest management	14 Apr	Juneau		2 eggs collected
W1_19	1_17	Hatched	28 Apr	Portage	W1, W2	W1 fledged

10_15	4_13	Hatched	29 Apr	Green Lake	W4	PCC
15_11	37_07	Failed – unknown, full term	4 May	Juneau		1 non-viable egg collected
12_11	5_11	Hatched	4 May	Juneau	W3	
W13_23	4_17	Failed – predation	4 May	Sauk		PCC
3_14	4_12	Hatched	8 May	Green Lake	W5	PCC, male predated 9 May
W14_19	2_04	Failed* - flooded	16 May	Juneau		
67_15	3_17	Failed – unknown, full term	19 May	Green Lake		PCC
12_03	12_05	Hatched*	25 May	Juneau	W6	PCC
36_09	W5_18	Failed* - abandoned	31 May	Juneau		PCC
W3_10	7_07	Failed* – unknown, full term	5 Jun	Juneau		PCC
W13_23	4_17	Failed* - abandoned	13 Jun	Sauk		1 PCC, 1 abandoned egg collected
24_08	13_02	Failed* – full term	25 Jun	Juneau		1 PCC, 1 non-viable egg collected

Table 3. Nest initiation dates, number of nests (including number of first nests, renests, and those with eggs collected as a part of Forced Renesting (FRN)), number of chicks hatched, and number of chicks fledged, and number of chicks that survived to 6 months of age, during 2005-2025. This does not include hybrid nests or chicks, nor does it include same-sex pairs. There was one same-sex female pair that nested in 2020, was given fertile eggs, and hatched a chick that did not fledge. This chick is included in the number of chicks hatched, but the nest is not included in nest totals.

Year	First Nest Initiation	# First Nests	# Re-nests	Total Nests	# Nests FRN	# Successful Nests	# Chicks Hatched	# Fledged	# Survived to 6 mo.
2005	16 Apr	2	0	2	0	0	0	0	0
2006	5-6 Apr	5	1	6	0	1	2	1	1
2007	3 Apr	4	1	5	0	0	0	0	0
2008	7 Apr	11	0	11	0	0	0	0	0
2009	2 Apr	12	5	17	0	2	2	0	0
2010	<1 Apr	12	5	17	0	5	7	2	2
2011	3-4 Apr	20	2	22	2	4	4	0	0
2012	<26 Mar	22	7	29	0	8	9	2	2
2013	15 Apr	21	2	23	0	2	3	1	0
2014	7 Apr	25	3	28	4	8	13	1	1
2015	1-3 Apr	27	9	36	8	16	24	3	2
2016	29-31 Mar	25	16	41	7	16	23**	3*	0
2017	30 Mar	25	10	35	13	14	19**	2	2

2018	8 Apr	17	6	23	1	7	10	6*	5
2019	30 Mar	25	11	36	12	14	19	3	3
2020	25 Mar	20	3	23	1	15	18	4	4
2021	<31 Mar	21	2	23	1	10	14	4	3
2022	30 Mar - 2 Apr	24	7	31	9	12	14	2	2
2023	30 Mar	22	3	25	1	13	14	3	3
2024	31 Mar	17	5	22	4	5	7	1	1
2025	28 Mar	16	6	22	8	5	6	1	1
Total		372	104	477	71	157	208	39	32

*One chick was old enough to have fledged when it died, but flights were never observed.

**There was an error in previous annual reports that we have fixed here. There should be 23 chicks hatched in 2016, not 24 as previously reported. Additionally, when reviewing nest camera photos, there was an additional chick that hatched in 2017 that was not previously detected, so the number of chicks hatched in 2017 is 19 instead of the previously reported 18. The additional 2017 chick was only seen for one day on the nest camera. The total chicks hatched is still correct (208 chicks). We apologize for the error.

Table 4. Pairs that have successfully fledged chicks with years of fledging

Sire	Dam	Year(s)				
11-02	17-02	2006				
3-04	9-03	2010	2013	2015		
12-02	19-04	2010	2012	2014		
9-05	13-03	2012	2019			
10-09	17-07	2015				
2-04	25-09	2015	2021			
29-09	12-03	2016				
12-05	12-03	2019	2020	2021		
1-04	8-05	2016				
12-02	4-11	2016*				
14-08	24-08	2017	2018**			
13-02	24-08	2020	2023			
24-09	42-09	2017	2018			
11-15	42-09	2020				
5-11	12-11	2018	2019	2022	2023	2024
4-08	23-10	2018				
8-04	W3-10	2018				
1-04	16-07	2018				
63-15	38-17	2020				
18-03	36-09	2021				
4-12	3-14	2021				
1-17	W1-19	2022	2025			
29-08	15-11	2023				

*12-02 died before chick fledged. Chick was old enough to have fledged when it died, but flights were never observed. 4-11 was found shot at her wintering area at the beginning of 2017.

** 14-08 disappeared before chick fledged and 14-08 is believed to be dead. The chick (W9-18) was old enough to have fledged when it died, but flights were never observed.

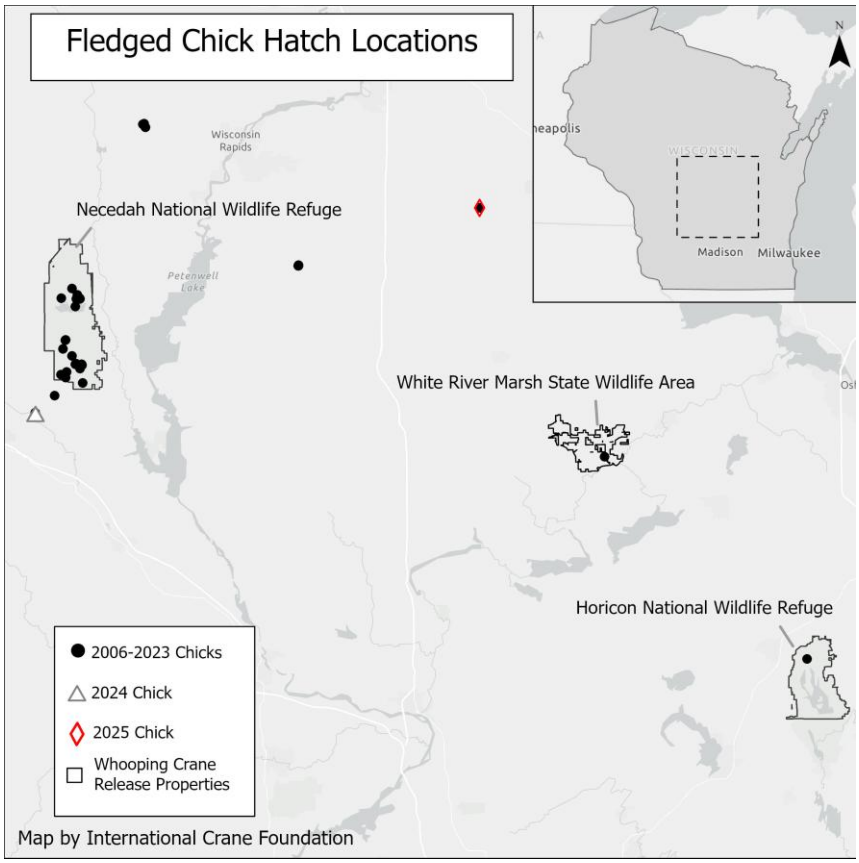

Figure 1. Map of hatch locations of wild fledged Whooping Crane chicks from 2006-2025 in the Eastern Migratory Population with an inset map of Wisconsin highlighting the focal area. From 2006 to 2023, 37 chicks fledged, with 1 additional chick in 2024 and 1 in 2025.

Research

During 2025, members of the Field Team had 12 papers published, one completed MS thesis, and one completed PhD. Below are research products (done by Field Team members or partners) that were published during 2025, or were previously unreported in an annual report, that focus on the Eastern Migratory Population.

Anderson, M., G. H. Olsen. S. Dunham. H. L. Thompson, and M. M. Wellington. 2025. Comparisons of migration patterns between parent-reared and costume-reared whooping cranes in the Eastern Migratory Population, 2012-2023. Proceedings of the North American Crane Workshop 16:182-194.

Anderson, M., G. H. Olsen, and H. L. Thompson. 2025. Comparisons of habitat use between parent-reared and costume-reared whooping cranes in the Eastern Migratory Population, 2012-2023. Proceedings of the North American Crane Workshop 16:157-166.

Caven, A. J. 2025. Whooping Crane ecology and conservation in remnant and reintroduced populations. Dissertation, Charles Darwin University, Casuarina, Australia.

Fontsere, C., S. A. Speak, A. J. Caven. J. A. Rodriguez, X. Wang, C. Pacheco, M. Cassatt-Johnstone, G. Femerling, B. Maloney, J. Balacco, J. Collins, Y. Sims, L. Abueg, O. Fedrigo, E. D. Jarvis, B. K. Hartup, B. Shapiro, M. T. P. Gilbert, C. van Oosterhout, H. E. Morales. 2025. Persistent genomic erosion in Whooping Cranes despite demographic recovery. Molecular Ecology: e70088.

Gordon, N. M., E. A. Laack, H. R. MacInnes, A. M. Ward, and H. L. Thompson. 2025. Movement of eastern migratory whooping cranes outside the Nonessential Experimental Population range, 2002-2024. Proceedings of the North American Crane Workshop 16:231-236.

Hartup, B. K., A. E. Lacy, and H. L. Thompson. 2025. Lead and mercury exposure in eastern whooping cranes: cause for concern? Proceedings of the North American Crane Workshop 16:210-217.

Inghram, W. R. 2025. Effects of captivity on roosting behavior in the endangered Whooping Crane (Grus Americana). Thesis, University of Wisconsin – Oshkosh, Oshkosh, WI, USA.

Macko, P. C., S. M. Schmidt, C. G. Crouch, A. N. Barajas, A. M. Ward, H. L. Thompson, M. R. Bradshaw, and E. H. Smith. 2025. Over-summering of migratory whooping cranes on their wintering grounds. Proceedings of the North American Crane Workshop 16:81-94.

Schmidt, S. M., and H. L. Thompson. 2025. Releases of after hatch year and adult whooping cranes in the reintroduced Eastern Migratory Population. Proceedings of the North American Crane Workshop 16:146-156.

Thompson, H. L., A. J. Caven, and N. M. Gordon. 2025. Renesting propensity of eastern migratory whooping cranes. Wild 2(2):19.

Thompson, H. L., A. J. Caven, S. M. Schmidt, B. R. F. Sicich, A. J. Sarrol, E. K. Szyszkoski, and N. M. Gordon. 2025. Whooping Crane chick survival in the reintroduced Eastern Migratory Population. Ecology and Evolution. 15: e71284.

Thompson, H. L., and N. M. Gordon. 2025. Predators and scavengers of eastern migratory whooping crane eggs. Proceedings of the North American Crane Workshop 16:237-242.

Thompson, H. L., A. E. Lacy, R. F. Baldwin, and P. G. R. Jodice. 2025. Differential habitat use of wintering whooping cranes throughout the range of the Eastern Migratory Population. Proceedings of the North American Crane Workshop 16:167-181.

Ward, A. M., H. L. Thompson, A.-M. T. Y. Gillet, A. J. Kearns, and A. J. Caven. 2025. Maximum daily dispersal distance of wintering whooping cranes at Goose Pond Fish and Wildlife Area, Indiana. Proceedings of the North American Crane Workshop 16:195-202.