EASTERN CRANE BULLETIN

December 2021

The Eastern Crane E-bulletin covers news about the Eastern Populations of Sandhill and Whooping Cranes, as well as general information about cranes and the continuing work for the protection of these birds and their habitats.

Hunting may disrupt Sandhill Crane populations more than current seasonal limits predict

Editor: *Sandhill Cranes are a long-lived species that takes years to reach breeding age, find a mate, establish a nesting territory, and raise a chick to fledging age. Losing a mate may create a lag of years before the surviving bird can produce another chick. Eastern Population cranes from multiple northern nesting areas run the same Mississippi Flyway gauntlet during fall migration, and an unknown number of the cranes killed by hunting will be part of a breeding pair. As hunting occurs closer to the breeding grounds a higher percentage of the cranes killed will be breeding birds – leading to the long-term decline of the population. Extensive data and testimony on this topic from leading experts in crane biology and ecology have been available for over a decade, but the hunting seasons established in Kentucky, Tennessee, and Alabama largely ignored the vulnerability specific to the Sandhill Crane life cycle.*

These excerpts from the peer-reviewed article "Population Responses to Harvest Depend on Harvest Intensity, Demographics, and Mate Replacement in Sandhill Cranes" (Wheeler et al. 2020) *includes 2000-2014 data from the Briggsville (Wisconsin) population study that has run from 1988-present.*

Crane ecology

Sandhill Cranes are one of the most abundant crane species worldwide and commonly breed in Midwestern (USA) agricultural areas. The Eastern Population (EP) of Greater Sandhill Cranes (*Grus canadensis tabida*), which breeds primarily in Minnesota, Wisconsin, Michigan (USA), and Ontario experienced a recent population bottleneck. Unregulated hunting greatly diminished North American crane populations in the late 19th and early 20th centuries. Accounts of market hunting provide no estimates of cranes harvested, but hunting was a primary source of increased mortality prior to enactment of the Migratory Bird Treaty Act of 1918. Hunting of Sandhills continued during the 1930s, reducing the EP to 300 birds with approximately 50 breeding pairs in Minnesota, Wisconsin, and Michigan. The EP's most recent population index was 86,222 birds (2020), of which approximately 66% breed in Wisconsin. Though the EP has made a remarkable recovery in the past century, further research and continued monitoring are needed to manage this species as future climate and land use patterns change.

On average there is a 2-year lag between the time a new pair bond is established and the time the new pair will successfully fledge a chick.

Long-lived species with low birth rates – territorial pairs key to breeding success

Sandhill Cranes are long-lived, have low birth rates, and form long-term pair bonds. EP Sandhill Cranes are migratory and single-brooded, with most eggs laid during April and May. Roughly 90% of pairs will lay

two eggs in a clutch during the initial nesting attempt. Only territorial adults participate in breeding, and, like other crane species, Sandhill Cranes obtain territories and begin breeding at 3–7 years of age. The earliest observed age of territory acquisition and attempted reproduction in the study area (Briggsville) is 3 years of age. In the Briggsville study population, which contains the highest documented breeding density of Sandhill Cranes, individuals acquire a territory, on average, at 4 and 5 years of age for females and males, respectively. The progression from sexual maturity at 2 years of age to acquiring a territory is variable, with some birds either spending several years as non-territorial adults and some individuals never acquiring a territory.

Sandhill Cranes congregate at Crex Meadows Wildlife Area in Grantsburg WI. Photo by David Joles/Star Tribune

Territorial disruptions due to new mates – breeding delays

In this population, when birds acquire a territory for the first time, or when a territorial bird takes a new mate due to divorce or death of a mate, there is a 1- to 3-year time lag until the newly established pair successfully raises young. A newly established pair must learn to raise young together. Bi-parental care requires coordinated behavior between pair members. "Behavioral compatibility" is the umbrella term for several measures of how well pair members can coordinate parental incubation and caring for the chick, along with "affiliative behaviors" such as courting, copulation attempts, or pair-bond reinforcement, or territory defense. Having a certain amount of behavioral compatibility at the outset has a positive relationship with fledging success. Being able to adjust to and complement a new, behaviorally mismatched partner can be equally as important, and the failure to do so can increase the time until successful reproduction. In addition to behavioral compatibility, pair bond duration and individual breeding experience may affect reproductive success, as both have been positively correlated with annual or lifetime reproductive success. However, these factors vary in how much they contribute to reproductive success. When Sandhill Cranes must form a bond with a new mate, it is possible each pair member spends the first few breeding seasons behaviorally adjusting to their new mate.

Understanding population dynamics is critical for harvest management, whether the goal is population reduction or sustained yield.

Population growth rate in long-lived bird species is often sensitive to changes in adult survival. Population growth rates in Sandhill Crane populations are often strongly influenced by the survival of territorial adults that retain their territorial status. This, combined with the potential for lags in reproductive success exhibited by newly established pairs could have implications for what differentiates sustainable harvest from harvest associated with long-term declines.

Threat of overharvesting local subpopulations

Uncertainty regarding how many subpopulations are represented in a given hunting zone at a given time could influence the risk of overharvest of a single subpopulation. In northwestern Minnesota, for example, Sandhill Cranes harvested during initial early harvest seasons may have been mostly resident breeding individuals because the harvest began before migrant cranes arrived in the area. Harvesting isolated breeding populations or harvesting before subpopulations have mixed during migration are scenarios in which harvest is likely to have the greatest impact on a given subpopulation's growth rate, as only resident territorial and non-territorial cranes would be harvested.

Hunting pressure negatively impacts success of newly mated pairs
Only a few studies have addressed Sandhill Crane population responses to hunting pressure. The purpose of this study [the Briggsville study] was to estimate how implementation of a fall Sandhill Crane hunt in Wisconsin, a core breeding area might impact local crane subpopulations.

Outlined in the Management Plan for the Eastern Population of Sandhill Cranes (2010), early proposals for harvest within the breeding range of the EP suggested a maximum harvest intensity of 10% of the 3-year average indices from US Fish and Wildlife fall migration surveys. However, these population-based models were unable to capture one important aspect of crane breeding biology observed in the Briggsville study population: on average there is a 2-year lag between the time a new pair bond is established and the time the new pair will successfully fledge a chick.

Hunting proposals that plan for 10% harvest could greatly decrease portions of the EP if fully implemented. A population's ability to compensate for increased mortality can be strongly influenced by RLE [Reproductive Lag Effects], which, if it holds for the entire EP (or potentially all populations), makes Sandhill Crane populations even more sensitive to mortality than previously recognized.

Sandhill Cranes leave roost at Crex Meadows Wildlife Area in Grantsburg WI. Photo by David Joles/Star Tribune

>7% harvest rate will lead to population decline
Though the Briggsville study focused on a portion of the EP within Wisconsin, the following recommendations and research priorities could be readily applied to other harvested Sandhill populations in any of the North American flyways. Within limits, harvests (1–4%, any harvest scenario) could occur without incurring dramatic decreases in population growth rate or population abundance. However, because reproductive lags due to mate replacement as a result of hunting deaths can have substantial impacts on population response to harvest, harvests of a given subpopulation should not exceed 4% if stable populations are desired. Even if discounting reproductive lags, harvest rates >7% will lead to population decline.

> *Population growth rates in Sandhill Crane populations are often strongly influenced by the survival of territorial adults that retain their territorial status.* – "Effects of Territorial Status and Life History on Sandhill Cane Population Dynamics in South Central Wisconsin"

Understanding population dynamics is key
Understanding population dynamics is critical for harvest management, whether the goal is population reduction or sustained yield. If any hunt is to happen, sustained monitoring and further research are needed, especially to understand the degree to which subpopulations mix during migration and when that mixing occurs relative to desired hunting seasons. There is little information concerning the total number of breeding pairs, summer range population densities, accurate delineation of breeding subpopulations, and comprehensive spatiotemporal records of southerly migration. The following areas of research should be prioritized: (1) assessing population density at a fine scale within breeding ranges; (2) determining the degree to which reproductive lag effects occur among subpopulations; (3) investigating population responses to harvest at various levels of habitat saturation; (4) investigating how natal dispersal structures a metapopulation's composition during the breeding season and how movements among demographic classes occur during migration; and (5) quantifying the spatial variation in risk for overharvest along a flyway. These will be important future steps to describe population dynamics for wherever this species is hunted.

To read the full-text article or to download a full-text pdf, go here:
https://www.researchgate.net/publication/354106651_Population_responses_to_harvest_depend_on_harvest_intensity_demographics_and_mate_replacement_in_sandhill_cranes


(Left) Adult Sandhill Cranes at Goose Pond, WI. (Right) Adult with colt. Photos by Monica Hall.

.....

Wisconsin

Sandhill Cranes, crop depredation, and hunting in Wisconsin

Editor: *The following statement concerning the proposed Sandhill season in Wisconsin was issued by the International Crane Foundation, 6 October 2021*

Cranes evoke a strong emotional and spiritual connection for many people in Wisconsin and around the world. Cranes and the habitats they use are valued and supported by hunters, wildlife enthusiasts, farmers, and many other people in urban and rural areas across the state.

Once nearly lost from Wisconsin, Sandhill Cranes have undergone a dramatic population recovery over the past 70 years and are now a widespread breeding bird across our region. The recovery of the Sandhill Crane population is mostly attributed to their ability to adapt to agricultural landscapes in Wisconsin, coupled with hunting regulations and wetland protections that allowed this slow-reproducing species to thrive in the wild. Sandhill Cranes can be beneficial to farms at certain times of the year when they feed on agricultural pests and waste grain. However, cranes can also congregate in large numbers during the spring planting season, and in particular, locales cause damage to new shoots of corn and other crops.

A bill is currently under consideration in the Wisconsin State Assembly to create a hunting season for Sandhill Cranes in Wisconsin. Approval of a Sandhill Crane hunt is sought by the Wisconsin Corn Growers Association and other farmers to reduce crop depredation on farms and trigger compensation payments to farmers.

Any consideration of a potential crane hunt should be undertaken using the best available science and diverse opinions while sharing a vision for sustaining healthy crane populations on healthy landscapes. The International Crane Foundation has the following concerns about the proposed hunt:

Fall hunting of Sandhill Cranes will not solve the problem of crane damage to corn, which occurs in the spring when the cranes feed on the germinating corn seed after planting

1. Hunting is not a solution for crop damage caused by Sandhill Cranes, but solutions are available.

- Fall hunting of Sandhill Cranes will not solve the problem of crane damage to corn, which occurs in the spring when the cranes feed on the germinating corn seed after planting.
- Farmers already are permitted to shoot Sandhill Cranes on their farms, if eligible, using a depredation permit obtained from the Federal government. In 2019, more than 1,000 cranes were taken using these permits in Wisconsin. However, despite the prevalence of this permitted take, it has not reduced crop depredation. There is no evidence that a hunting season will address crop depredation in a meaningful way.
- The International Crane Foundation played a key role in developing an effective chemical deterrent (Avipel) that offers a much more effective alternative for reducing crop damage than a limited crane hunt. The total area that farmers have chosen to treat has grown every year since we first received permission to deploy the technique from the US Environmental Protection Agency in 2006. Learn more about this research and the use of Avipel to stop crop damage, and download the fact sheet Protect your corn from cranes.
- With Avipel-treated crops, cranes remain on the farm but switch from germinating corn to other food items (such as insects). In this way, the crop depredation problem doesn't move to other fields as occurs with hunting or other deterrents.

Although the eastern population of Sandhill Cranes is already hunted in several states, the proposed legislation would lead to the first authorized hunt on their core breeding grounds.

2. If not very carefully managed, Sandhill Crane hunting can harm populations.

- Over the last 70 years, Wisconsin's Sandhill Crane population has recovered remarkably from very low numbers. However, in contrast to most game bird species, Sandhill Cranes reproduce very slowly. Most pairs do not successfully nest until four to five years of age, lay only two eggs, and typically only one hatchling survives to fledge once every three years.
- Around the world, hunting poses a threat to other crane species due to their slow rate of reproduction. Hunting was a key factor in the near loss of Sandhill Cranes from the Midwest and near extinction of Whooping Cranes in North America, contributed to the demise of the west Asian population of Critically Endangered Siberian Cranes, and is now triggering a steady population decline for Demoiselle Cranes in central Asia.
- Although the eastern population of Sandhill Cranes is already hunted in several states, the proposed legislation would lead to the first authorized hunt on their core breeding grounds. There is a significant risk that local breeding populations of Sandhill Cranes can be overharvested.
- Managing a Sandhill Crane hunt to protect the important breeding populations in Wisconsin will present significant challenges, including the need to identify the number and location of fall migratory birds in relation to local breeding birds in the state. The initiation of a hunt in northwest Minnesota in 2011, targeting the migratory Mid-Continent population of Sandhill Cranes that breed in the Northwest corner of that state, for example, led to a measurable population decline for that population for the next two years.

We need to make Avipel more affordable and widely available as a response to crop damage caused by cranes and other wildlife. We are committed to working with farmers, seed producers, legislators, and all others to make this happen.

3. The financial cost of a crane hunt would outweigh the financial benefit to most farmers and the State of Wisconsin.

- Despite the advantages and effectiveness of Avipel for solving crop depredation on the farm, the International Crane Foundation acknowledges that the use of Avipel is an added expense for farmers. We need to make Avipel more affordable and widely available as a response to crop damage caused by cranes and other wildlife. We are committed to working with farmers, seed producers, legislators, and all others to make this happen.
- One argument for approving a Sandhill Crane hunt is that an approved hunting season is necessary for farmers to qualify for claims under the statewide Wildlife Damage Abatement and Claims Program. Monies obtained from a Sandhill Crane hunting season would be pooled into this program, which addresses crop damage by deer, turkeys, bears, geese, and elk. If Sandhill Cranes

are added to this program, however, we project that wildlife damage payments to corn producers would drain the available funds for all damage claims very quickly, for the following reasons:

- A limited Sandhill Crane hunt would generate a low level of permit revenue;
- Administrative costs would increase for enrolling producers in the program, providing abatement assistance, conducting crop appraisals, and processing damage claims;
- Program costs would increase for the purchase of damage prevention tools/supplies that are required.
- Alternative, more sustainable solutions for farmers include ensuring that all corn seed is treated at the point of manufacture with Avipel or other deterrents to cranes and other wildlife that may prey on germinating corn or seeds. Such availability would very substantially reduce the cost of deterrents per acre.

Since the Whooping Crane Eastern Partnership established the Eastern Migratory Population of Whooping Cranes in 2001, at least one in 10 deaths was caused by shooting. This has clearly delayed the success of the reintroduction, and a Sandhill Crane hunt would likely increase the risk further.

4. The accidental shooting of Whooping Cranes is a threat to their successful reintroduction into Wisconsin and the eastern United States.

- The International Crane Foundation and partners have worked for 20 years to reintroduce the endangered Whooping Crane to Wisconsin and its flyway in the eastern United States. This small and young population is highly vulnerable to any deaths of adult breeding birds (read about the shooting of a breeding female in Indiana).

- Since the Whooping Crane Eastern Partnership established the Eastern Migratory Population of Whooping Cranes in 2001, at least one in 10 deaths was caused by shooting. This has clearly delayed the success of the reintroduction, and a Sandhill Crane hunt would likely increase the risk further.

The International Crane Foundation is a trusted source of information on Sandhill Cranes and their management. Through over 30 years of research on Sandhill Cranes, and hosting of the Annual Midwest Crane Count, the International Crane Foundation has a unique database and understanding of Sandhill Cranes. We share this knowledge through our website and direct discussion with stakeholders concerned about the hunt decision or any other conservation issue involving Sandhill Cranes.

LEARN MORE

Federal and state conservation agencies have created a management plan for the Eastern Population of Greater Sandhill Cranes that identifies the framework for hunting in this population: **Management Plan for the Eastern Population of Sandhill Cranes (2010)**

We encourage you to get involved in the discussion about Sandhill Crane hunting.
Voice your opinion by contacting your State Representative to share your views on a possible Sandhill Crane hunt in Wisconsin. **Find Your State Legislatures**

.....

…it is possible that long-term productivity of a territory is as important as habitat quality within any single year. A similar situation is known from Sandhill Cranes where maintaining a breeding territory over the long term is the best measure of lifetime reproductive success.

– "Ecological Implications of Habitat Use by Reintroduced and Remnant Whooping Crane Populations"

Shifts in Sandhill distribution may expose local breeding birds to overharvest

The following excerpts address shifts in EP Sandhill breeding and wintering ranges due to weather, long-term climate change, and changes in land use and how these may be impacted by over-harvest are from the 2015 paper *"Changes in the number and distribution of Greater Sandhill Cranes in the Eastern Population" (Lacy et al. 2015).*

If the main reason for a shift in distribution is the increase in size of the Eastern Population (EP), hunting may be a core management activity. With increasing crane populations, there have been an increasing number of complaints regarding damage to crops caused by Sandhill Cranes, primarily in the spring. The EP management plan, written as a precursor to establishing Sandhill Crane hunting seasons in states of the Mississippi and Atlantic Flyways, calls for maintaining a total EP at 30,000–60,000 cranes to balance societal benefit for having cranes and individual costs that accrue with burgeoning crane populations. A managed harvest could slow or stabilize population growth, potentially minimizing conflict between farmers and cranes. However, as the winter distribution shifts further north, and as Sandhill Cranes delay their departure from breeding areas in the fall, implementation of hunting seasons in core breeding areas such as Wisconsin and newly colonized areas such as Ohio may expose more locally breeding birds to over-harvest. Disproportionate harvest is already a recognized issue with some cranes in the MCP [Mid-Continent Population] of Greater Sandhill Cranes.

Factors such as annual weather, long-term climate change, and changes in land use may influence future population trends and changes in both breeding and wintering ranges and are not mutually exclusive factors. Understanding which factor predominates, however, is important because each factor requires different management responses. Quantifying the increase or decrease in populations of Sandhill Cranes in the EP and their expansion into new areas is an important step in refining management plans in the future and offers an opportunity to improve our understanding of the recovery of recovering crane populations worldwide.

To read the full-text article or to download a full-text pdf, go here:
https://www.researchgate.net/publication/284663849_Changes_in_the_number_and_distribution_of_Greater_Sandhill_Cranes_in_the_Eastern_Population

.....

"Hunter opportunity" drove Kentucky, Tennessee, and Alabama Sandhill Crane seasons

Three states in the eastern U.S. – Kentucky, Tennessee, and Alabama – currently have seasons for the eastern population of the Greater Sandhill Crane (*Grus canadensis tabida*). And of the three reasons given whenever there is talk of beginning a crane season: 1) To stop crop damage (depredation); 2) To limit the population, and 3) "Hunter opportunity" – the latter seemingly was the lead factor in the establishment of these three seasons.

Kentucky

Editor: *Having personally attended numerous public meetings held by the KY Department of Fish and Wildlife Resources (KDFWR) as well as town hall meetings addressing the then proposed Sandhill season, it became obvious early on that the allure of being "first" in the eastern U.S. to hold a Sandhill season in almost 100 years was the driving force in making the Kentucky season a reality. Despite widespread opposition to the proposed season, little if any initial hunter interest, and disregard of scientific data presented by an expert from the International Crane Foundation – indicating a trend of declining productivity rates among Sandhill Cranes – a new season was pushed through.*

Final rule on Kentucky Sandhill Crane hunt published in USFWS Federal Register (2011)
The International Crane Foundation (ICF), Kentucky Resources Council (KRC), several other non-governmental organizations; 337 individuals from Alaska, California, Colorado, Connecticut, Florida, Illinois, Indiana, Kentucky, Massachusetts, Missouri, Ohio, Pennsylvania, Tennessee, Virginia, Washington, and Wisconsin; and several petitions containing signatures from over 3,000 people expressed both general and specific concerns about the scientific uncertainty of the Kentucky proposal, the EP Sandhill Crane Management Plan, and the potential taking of Whooping Cranes. All expressed opposition to the establishment of a new Sandhill Crane season in Kentucky. According to Alicia King, a spokeswoman for the U.S. Fish and Wildlife Service there were no letters that supported the hunt.
https://kyc4sandhillcranes.com/kyfws-and-usfws-documents/

EMP Whooping Cranes: Whooping Cranes have been annually observed with Sandhill Cranes at major staging areas (Cecilia, Hardin Co. and Barren River, Barren Co.) in central Kentucky. Hunters must pass a species identification test before receiving a permit. They must also monitor the Kentucky Fish and Wildlife website at fw.ky.gov daily for notices involving season closure and for the presence of Whooping Cranes in Kentucky. Hunters may also call 1-800-858-1549 for this information.

Direct Autumn Release (DAR) 28-05 Whooping Crane of the Eastern Migratory Population, flying with Sandhill Cranes in Hardin Co., Kentucky, January 25, 2017. Photo by Mary Yandell

Tennessee

On 22 August 2013, despite overwhelming public opposition to a hunt, and counter to expert scientific testimony indicating a trend of declining productivity rates among Sandhill Cranes, the Wildlife Management Committee of the Tennessee Fish and Wildlife Commission (TWRC) voted to approve the state's first Sandhill Crane hunting season. The initiative for the hunt came from a small group of hunters. Initially restricted to a southeast area in the state, the hunt was expanded statewide in 2017; the season runs 55-58 days.

EMP Whooping Cranes: The hunt is stopped for three days to allow for the annual "Tennessee Sandhill Crane Festival" at the Hiwassee Wildlife Refuge. Whooping Cranes have been observed at the refuge in the company of Sandhills. Hunters must pass a species identification test before receiving their permit.

Alabama

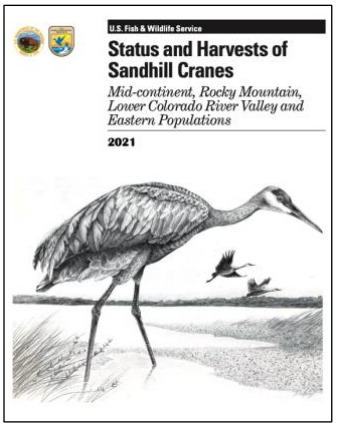
After the Eastern Population of Sandhill Cranes (*Antigone canadensis tabida*) was nearly extirpated from its historical breeding range because of habitat alteration and widespread unregulated hunting in the 1800's, it took passing the 1918 Migratory Bird Treaty Act to allow this population to slowly recover. Not hunted in Alabama since 1916, the inaugural 2019 Alabama season presented hunters their first "opportunity" in 103 years to hunt the migratory species.

> *"This Sandhill Crane season came about through the feedback of hunters,"* said Seth Maddox, Alabama Wildlife and Freshwater Fisheries (WFF) Migratory Game Bird Coordinator. *"They started seeing increased numbers of Sandhills while they were out hunting other species, especially waterfowl. Hunters wanted the opportunity to hunt this species in Alabama. They'd heard about the seasons in Kentucky and Tennessee from their friends… We want to provide hunting opportunities when they are available."*

EMP Whooping Cranes: The hunting season will run 3 December 2021 through 31 January 2022, with an almost two-week long break at mid-point for the annual January "Festival of Cranes" at the Wheeler National Wildlife Refuge. Founded in 1939, Wheeler NWR has hosted a number of the Eastern Migratory Population of Whooping Cranes that, beginning in 2006, overwinter at the refuge each year alongside thousands of Sandhill Cranes. Visitors to the refuge are awarded an excellent chance to observe the endangered birds at close range. During the winter of 2017-2018, a record 29 Whooping Cranes – over a quarter of the total eastern migratory population of Whoopers – spent a portion of the winter on the refuge.

"Managing" a species

Editor: *The following publications are from U.S. Fish and Wildlife Service and pertain to the Eastern Population of Sandhill Cranes.*



Prepared for The Atlantic and Mississippi Flyways Councils by the Ad Hoc Eastern Population Sandhill Crane Committee, to read or download a copy, go here:
Management Plan for the Eastern Population of Sandhill Cranes (2010)

USFWS/Status and Harvests of Sandhill Cranes
Mid-continent, Rocky Mountain, Lower Colorado River Valley and Eastern Populations 2021
https://www.fws.gov/migratorybirds/pdf/surveys-and-data/Population-status/SandhillCrane/StatusandHarvestofSandhillCranes21.pdf

USFWS/Information needs for EP Sandhill Cranes
On 7-9 April 2009, a workshop of the Association of Fish and Wildlife Agencies' Migratory Shore and Upland Game Bird Support Task Force was conducted to discuss the status of North American Sandhill Cranes and to update research and management priorities. By 2014 many of those initial priority information needs had been addressed by the research and management community. Therefore, a second workshop was convened during 14-15 April 2014 in Lafayette, Louisiana to review progress to date on the original priorities, and to develop a revised list of priorities based on that information. Workshop participants finalized an updated priority needs document, finalized in 2016, with the following priority pertaining to the Eastern Population of Greater Sandhill Cranes:

> **Priority 3. Improving the monitoring of Eastern Population of Greater Sandhill Cranes**
> The Eastern Population (EP) of Greater Sandhill Cranes has expanded in both population size and geographic range in the last several decades. Two states (Tennessee and Kentucky) [*Alabama has since begun a season*., Ed.], within the Mississippi Flyway have implemented hunting seasons for EP cranes and other states are likely to explore opportunities in the future. In response to the first priorities document, Amundson and Johnson (2010) completed a critical review of existing fall survey data, which is currently used to formulate harvest-management recommendations. They also assessed other data sources, including the North American Breeding Bird Survey (BBS) and the Christmas Bird Count (CBC), for their adequacy of indexing population abundance. Their analyses indicated that the fall survey tracks abundance well, but not the geographic expansion of the population. The fall survey traditionally occurs during the last week of October under the assumption that the majority of EP cranes that breed in Canada have migrated to traditional staging areas in the U.S. and are available to be counted. Recent satellite telemetry studies have identified that cranes breeding in Canada are in the U.S. during the current timing of the fall survey; however, between 20%-30% of marked EP cranes that summer in Wisconsin and Michigan are not present on staging areas during the current survey period and therefore are not available to be counted during the survey. A better understanding of the abundance and migration of birds in these areas is needed to complement the current information of EP distribution and migration chronology and further evaluate the adequacy of the fall survey for assessing population status.

To read the document "Priority Information Needs for Sandhill Cranes II," go here:
https://www.fws.gov/migratorybirds/pdf/surveys-and-data/Info-Needs-Sandhill-Crane-II_2016.pdf

Aransas-Wood Buffalo Whooping Cranes

A large group of Whooping Cranes gather in Saskatchewan, Canada. 30 October 2021. Photo by Valerie Joy

Wood Buffalo National Park Whooping Crane Conservation Update

The following is excerpted from Friends of the Wild Whoopers (FOTWW), 8 September 2021

Each year, Canadian Wildlife Service (CWS) and Parks Canada staff conduct aerial surveys over the extensive wetlands of Wood Buffalo National Park (WBNP) where the cranes nest and call home for the summer. These surveys occur at the end of May for the purpose of locating nests, and then again in late July to count the number of chicks fledged. COVID 19 prevented surveys from taking place in 2020, and in 2021 CWS was still unable to join Parks staff as they conducted surveys in both May and August.

As Whooping Crane nesting areas expand to regions outside of WBNP and begin to cover a wider area, new techniques in monitoring are needed. This past summer, CWS, the Calgary Zoo and Parks Canada launched a new crowdsourcing project to test the viability of using satellite photos to find Whooping Crane nesting sites. This was trialed in 2020 and launched on a wider scale pilot in 2021. Working through Zooniverse (the world's largest citizen science platform!) a virtual volunteering project with people from around the world helped detect several new nesting locations that were not previously known to biologists.

By the numbers:
• 2,095 citizen scientists have participated in the project
• 59,038 satellite images were reviewed
• 102 nests were identified, including 4 new nests

Parks Canada was back in the air again in August 2021, searching for chicks and cranes amongst the extensive wetlands of the park. During this time, staff return to observe the nesting sites again and to count the number of visible chicks. At least 50 chicks were seen during these aerial surveys. But the process of counting chicks amongst the thick wetlands of Wood Buffalo is far from perfect, and actual survival rate may be higher. At this time of year, the chicks are nearing fledging having gained the strength to fly on their own. By the end of August or early September, they will be ready to begin the long flight down to Aransas!

This wild Whooping Crane population, the only self-sustaining one in North America, has seen a steady increase in recent years and now has as many as 500 individuals flying from Wood Buffalo National Park in Canada to Aransas, Texas every year. 2021 was a terrific summer and marks the first time since conservation actions to conserve Whooping Cranes began that over

100 nests in total were counted, with at least 50% of the crane nests yielding surviving Whooping Crane chicks seen during survey flights. Parks Canada and the Canadian Wildlife Service are excited to continue seeing the species recover in the months and years ahead.

To read more and learn about the conservation work done by the Friends of the Wild Whoopers group on behalf of the Aransas Wood Buffalo population of Whooping Cranes, go here: https://www.friendsofthewildwhoopers.org

An amazing observation of a large flock of Whooping Cranes in Saskatchewan, Canada. Photo by Valerie Joy

Whooping Cranes headed to Texas

Wade Harrell, the U.S. Fish and Wildlife Service (USFWS) Whooping Crane Coordinator at the Aransas National Wildlife Refuge (NWR), reported that the first arrivals of the season was a family group consisting of two adults and a juvenile on the Aransas NWR, along with another tracked bird that arrived in the Port O' Connor-area, both on 29 October 2021.Typically, most of the tagged Whooping Cranes Harrell studies are on the move in November as they head for their wintering grounds. Most of the birds arrive on the Texas Coast in December.

According to Harrell, due to the La Niña weather pattern forecast for this winter, the Southwest is in for a drier, warmer season. While this past summer was relatively wet and freshwater wetlands currently have water, a dry winter may require the use of freshwater wells on the Aransas NWR and surrounding areas to provide freshwater to the Whooping Cranes later in the winter. The USFWS is encouraging landowners to consider providing freshwater on their properties as well to aid the birds during their migration and wintering period.

Biologists remain optimistic that continued research and restoration work will ultimately lead to improved numbers of Whooping Cranes and say that new pending federal legislation, the Recovering America's Wildlife Act (RAWA), could help in a big way. RAWA would provide the funding needed to continue the important conservation work that is vital for Whooping Cranes and other species throughout Texas. Learn how to help through the Texas Wildlife Alliance's online toolkit. Texas Wildlife Alliance is a grass roots coalition formed to support RAWA.

To read more about the crane migration, go here:
https://www.friendsofthewildwhoopers.org/whooping-cranes-are-making-their-way-to-the-texas-coast/

2021 Whooping Crane Fall migration underway – Report your sightings!

Friends of the Wild Whoopers is asking the public to report any Whooping Cranes they see along rivers, wetlands, and fields. If you should observe a Whooping Crane as they migrate along the Central Flyway, please report your observations to the proper wildlife agency/agencies in your state. Please include where and when the bird(s) were observed and whether they were banded and are carrying telemetry. Indicate color band combinations and which leg(s) the bands/telemetry are on. Please do not approach the cranes but use spotting scopes to ascertain the information. If a crane changes its behavior, you are too close!

Following is a list of agencies and contact information compiled by Friends of the Wild Whoopers:

Canada
For any sightings of Whooping Cranes in Canada: Whooping Crane Hotline is 306-975-5595 will get you to Wildlife Biologist John Conkin. Leave a detailed message for a callback.

Montana Reports
Allison Begley
MT Fish, Wildlife, & Parks
1420 East Sixth Avenue
Helena, MT 59620
abegley@mt.gov
(406) 444-3370

Jim Hansen
MT Fish, Wildlife, & Parks
2300 Lake Elmo Drive
Billings, MT 59105
jihansen@mt.gov
(406) 247-2957

North Dakota
U.S. Fish and Wildlife Service offices at
Lostwood, (701-848-2466)
Audubon, (701-442-5474)
National wildlife refuges
North Dakota Game and Fish Department in Bismarck, (701-328-6300)
or to local game wardens

South Dakota
Eileen Dowd Stukel
eileen.dowdstukel@state.sd.us (605-773-4229);
Casey Heimerl (605-773-4345);
Natalie Gates Natalie_Gates@fws.gov,
(605-224-8793), ext. 227;
Jay Peterson; Jay_Peterson@fws.gov;
(605-885-6320), ext. 213

Nebraska
Nebraska Game and Parks (402-471-0641)
U.S. Fish and Wildlife Service (308-379-5562)
The Crane Trust's Whooper Watch hotline (888-399-2824)
Emails may be submitted to
joel.jorgensen@nebraska.gov

Kansas
Jason Wagner
jason.wagner@ks.gov
(620-793-3066)

Ed Miller
ed.miller@ks.gov
(620-331-6820)

***Whooping Crane sightings at or near Quivira NWR should be reported to*:**
Quivira National Wildlife Refuge
620-486-2393
They can also be reported to this email: quivira@fws.gov

Oklahoma
Sightings can be logged online here https://wildlifedepartment.com/wildlife-diversity/citizen-science-programs/report-whooping-crane-sighting?utm_medium=email&utm_source=govdelivery

Matt Fullerton
Endangered Species Biologist
(580-571-5820)
Mark Howery
Wildlife Diversity Biologist
(405-990-7259)

Texas
Texas Whooper Watch also has a project in iNaturalist that is now fully functional. You can find it here. You can report sightings directly in iNaturalist via your Smart Phone. This allows you to easily provide photo verification and your location.

If you are not a smart phone app user, you can still report via email:
whoopingcranes@tpwd.state.tx.us
or phone: (512-389-999). Please note that our primary interest is in reports from outside the core wintering range.

Eastern Migratory Population of Whooping Cranes

Eastern Migratory Population WHCR Update – December 1, 2021

Below is the most recent update for the Eastern Migratory Population of Whooping Cranes. In the last month, all Whooping Cranes have migrated! A huge thank-you to the staff of the Fish and Wildlife Service, the Departments of Natural Resources of flyway states, the International Crane Foundation, and all the volunteers who help us keep track of the cranes throughout the year. We appreciate your contribution to the recovery of the Whooping Crane Eastern Migratory Population. This report is produced by the International Crane Foundation. Near real-time locations of Whooping Cranes in this population is at https://whoopermap.savingcranes.org/

Population Estimate

The current estimated population size is 79 (38 F, 38 M, 3 U). 18 of these 79 individuals are wild-hatched and the rest are captive-reared. To the best of our knowledge, as of 1 December, there are 5 Whooping Cranes last reported in Wisconsin that have likely migrated but have not yet been detected further south. There are 1-2 possibly still in Michigan, 16 in Illinois, 33 in Indiana, 8 in Kentucky, 1 in Tennessee, 11-12 in Alabama, and 1 in Florida. The remaining birds' locations have not been confirmed in the last month. It is also mid-migration so some birds still may be on the move and have not yet been detected further south.

2021 Cohort

- W2-21 (U) and parents 3-14 and 4-12 left Green Lake County, Wisconsin and arrived at Wheeler National Wildlife Refuge in Alabama.
- W11-21 (M) and parents 36-09 and 18-03 left Necedah National Wildlife Refuge and arrived at the wintering grounds in Greene County, Indiana.
- W14-21 (M) is still with parents 25-09 and 2-04 in Hopkins County, Kentucky.
- 84-21 (F) left Juneau County, Wisconsin and arrived in Gibson County, Indiana, where she is with 4-5 other Whooping Cranes. We believe she migrated with 6-15 and 37-07.
- 85-21 (M) left White River Marsh with 67-15 and 3-17 and is on his way south, currently in DeKalb County, Illinois.

2020 Cohort

- W3-20 (F) showed up in Jackson County, Indiana with W14-19 (F) during November, then moved over to Lawrence County, Illinois by the end of the month.
- W13-20 (M) and 74-18 (M) left Horicon but have not yet been detected further south.
- W14-20 (M) was last seen in Juneau County, Wisconsin, at the end of September.
- W18-20 (F) was last seen with 80-19 (F) in LaSalle County, Illinois. 80-19 has moved to Morgan County, Alabama, and we assume W18-20 is still with her, but we have not been able to confirm.

2019 Cohort

- W1-19 (F) and 1-17 (M) left Portage County, Wisconsin, and showed up in Greene County, Indiana.
- W14-19 (F) showed up in Jackson County, Indiana with W3-20 (F) then moved over to Lawrence County, Illinois.
- W19-19 (U) was last seen in Juneau County, Wisconsin, with W10-18 (U) during July.
- 79-19 (F) and 16-11 (M) left Horicon and arrived in Jasper County, Indiana.
- 80-19 (F) moved to Morgan County, Alabama, and we assume W18-20 (F) is still with her although we have not been able to confirm.

Mortality, Long-term missing

83-21 (M) was found dead in Juneau County, Wisconsin during October. There were not enough remains to submit for necropsy, but he was found in a marsh that had dried up, so we assume he had been predated.

W10-21 (U) disappeared during September or October, but since no remains were found we do not know what happened. Their parents 12-03 and 12-05 showed up on their wintering grounds in Knox County, Indiana, without their chick, so we assume W10-21 died sometime before or during migration.

There were no known mortalities in November.

To follow the reintroduced eastern population, go here: https://whoopermap.savingcranes.org/
Within map locations is a list of WHCR, click on links to individual cranes for its biographical information.

For biographies of the reintroduced eastern migratory population of Whooping Crane, go here:
https://www.savingcranes.org/whooping-crane-biographies/

***W = Wild hatched** to a wild Whooping Crane pair that then teach the migration route to the juvenile.*
To report a banded Whooping Crane sighting, go here:
https://www.savingcranes.org/report-whooping-crane/

General News

Florida:

New White Oak Whooping Crane breeding center underway

White Oak Conservation (established 1982) is currently working on a 25-acre Whooping Crane breeding center that is expected to be finished in September 2023. The center will expand the nonprofit's longtime conservation work to help the population of endangered Whooping Cranes rebound, by releasing juveniles into the wild.

The Whooping Crane center will include 10 large, naturalistic breeding habitats and one pre-release conditioning habitat within a secluded area of the 17,000-acre refuge along the St. Marys River at Yulee, according to Andrew Schumann, Avian Collection Manager.

Each habitat will measure over an acre and be 16-25 feet tall with top netting, thereby allowing the Whooping Cranes room to fly and perform the courtship dance freely within their space. Plans also include large, shallow ponds to promote breeding and appropriate roosting behavior in the effort to increase post-release survivability of juveniles. These will support natural prey items like crayfish and insects, aiding juveniles in becoming proficient foragers.

Philanthropists Mark and Kimbra Walter, both longtime conservationists, along with their family, established Walter Conservation — which includes White Oak — to preserve and protect rare, endangered, and threatened species as well as natural habitat worldwide.

The refuge received its first Whooping Cranes in 2016 – a wild migratory male named “Grasshopper” (#16-11) and a female named “Hemlock” (#18-12), who had been born and raised at the International Crane Foundation. Grasshopper and Hemlock soon became a pair. In 2018 Hemlock laid two eggs at White Oak. Both hatched and were reared to fledge successfully. The family group was then relocated to Horicon National Wildlife Refuge in eastern Wisconsin.

WHITE OAK CONSERVATION

To read more about this family of Whoopers, see the Eastern Crane Bulletin, December 2018 issue, p.5, go here: https://kyc4sandhillcranes.files.wordpress.com/2018/12/eastern-crane-bulletin_december-20181.pdf

Direct Autumn Release (DAR) 28-05 Whooping Crane of the Eastern Migratory Population, foraging with Sandhill Cranes in Hardin Co., Kentucky, January 25, 2017. Photo by Mary Yandell

Kentucky:

Industrial solar comes to Kentucky

When a proposed solar project (Rhudes Creek Solar, a subsidiary of ibV Solar Energy of Miami) came before Hardin County's Planning and Development Commission, residents from the packed meeting room voiced their opposition. Since that meeting in June 2021, a coalition of those residents, many from Cecilia, have organized, calling themselves "Hardin County Citizens for Responsible Solar." The group has made it clear that it is not against solar power – it is in favor of options for clean energy including wind, solar, hydroelectric, and natural gas. What the group opposes is using prime farmland in the heart of Kentucky for the project.

Initially the project was to be located on approximately 869 acres near the community of Cecilia in Hardin County, Kentucky. The proposed photovoltaic solar project would consist of solar panels with an approximate maximum height of 15 feet, inverters, an energy storage system, associated wiring and balance of system, and a substation. The power generated by the project will be linked to the electric transmission grid via a 1.5-mile transmission line to be built, which is also part of the project, connecting from the Project substation to the KU transmission line.

Many in attendance at the public hearings voiced concerns about the proposed change from residential to agricultural, and that the solar "farm" should be zoned industrial based on the facility construction/ infrastructure needs. There was discussion of the impact project construction would have on area creeks, flooding, and sinkholes being disturbed.

In addition to those concerns, the land under consideration for the Rhudes Creek Solar Project includes one of the main "staging" areas for Sandhill Cranes as they pass through Kentucky during migration. Seasonal, transient lakes form due to the region's karst topography providing the cranes with perfect roosting areas of shallow water. During the day the cranes forage in surrounding agricultural fields for leftover waste corn, invertebrates, rodents, etc. If timing and weather cooperate, one may see thousands of Sandhills moving about the area, and, although a much rarer sighting, Whooping Cranes from the Eastern Migratory Population in the mix.

As of mid-October, the proposed site was still under consideration.

Editor: *The following excerpts and map (below) are from the 2017 paper* "Distribution and migration Chronology of Eastern Population Sandhill Cranes*" by Fronczak, Andersen, Hanna and Cooper. See the "Science News" section below for the research abstract and a link to full-text PDF.*

Distribution and Migration Chronology of Eastern Population Sandhill Cranes

The Eastern Population (EP) of Greater Sandhill Cranes (*Antigone canadensis tabida*) is expanding in size and geographic range. Little information exists regarding the geographic extent of breeding, migration, and wintering ranges, migration chronology, or use of staging areas for cranes in the EP. To obtain these data, biologists attached solar global positioning system (GPS) platform transmitting terminals (PTTs) to 42 sandhill cranes and monitored daily locations from December 2009 through August 2014.

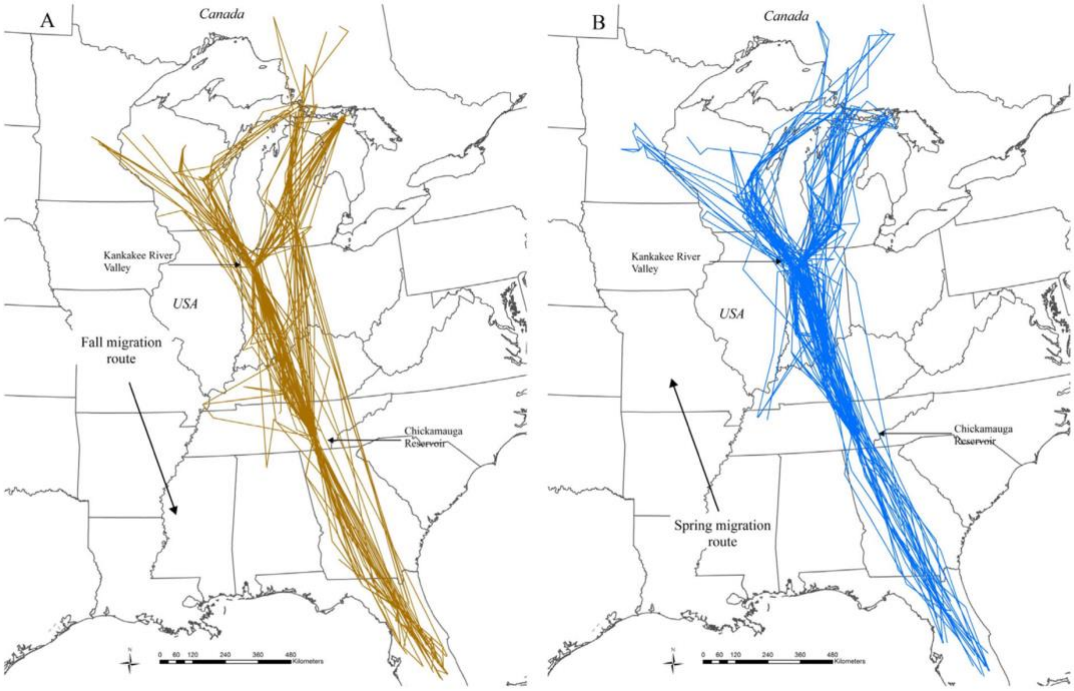


Figure 3. Fall (A) and spring (B) migration routes for platform transmitting terminal-marked Greater Sandhill Cranes, 2010-2014; from "Distribution and Migration Chronology of EP Sandhill Cranes"

Marked cranes used similar spring and fall migration routes (*See above map,* Fig. 3). Cranes that wintered in Florida and southern Georgia traversed central and western Georgia and northeastern Alabama and staged either within the Chickamauga Reservoir or migrated directly to staging areas in north-central Tennessee, central Kentucky, and southern Indiana. Cranes that wintered in the Chickamauga Reservoir used multiple staging areas in Kentucky, concentrated in south-central Kentucky (17, 40%; Barren and Metcalfe counties) and north-central Kentucky (25, 60%; Hardin and Larue counties).

Cranes used Hardin County, north-central Kentucky; White River Valley (Ewing Bottoms, Jackson County), south-central Indiana; and the Kankakee River Valley, northwestern Indiana more frequently during spring than during fall migration (Fig. 3B; Appendix B). These areas support shallow-marsh roosting habitat, have an abundant food supply from agricultural production, and are more likely to be protected from human disturbances (i.e., hunting and sporting activities). The Kankakee River Valley located in northwestern Indiana was the most frequented of all staging areas during fall and spring migration, where cranes spent 34% of migration days.

.....

Louisiana:

Three juvenile Whooping Cranes join LA population thanks to collaborative conservation partnership

The Louisiana Department of Wildlife and Fisheries (LDWF) added three Whooping Cranes in early November to the state's experimental population as it seeks to re-establish the state's Whooping Crane

population. Four juvenile cranes, hatched and reared at the Freeport-McMoRan Audubon Species Survival Center in New Orleans, part of the Audubon Nature Institute, were received at LDWF's White Lake Wetlands Conservation Area (WCA) near Gueydan on 10 November. Unfortunately, one of the cranes died just a few days after its release.

(Above) One of the four juvenile Whooping Cranes released 10 November 2021 at the White Lake Wetlands Conservation Area. Photo courtesy of Louisiana Department of Wildlife and Fisheries

LDWF and Audubon Nature Institute have been longtime leaders in Whooping Crane conservation in Louisiana and are continuing to expand their partnership with the goal of developing a self-sustaining population of Whooping Cranes in Louisiana. With the release of the new arrivals into the wild the current Louisiana population is 73 cranes.

LDWF and Audubon are committed to the long-term growth and stability of the Whooping Crane population. That commitment is supported by the U.S. Fish and Wildlife Service, Chevron, Conoco Phillips, Cameron LNG, Coypu Foundation and the Louisiana Wildlife and Fisheries Foundation. As part of the Whooping Crane Recovery Team, Audubon works collaboratively with the USFWS, International Recovery Team, the Association of Zoos and Aquariums' Whooping Crane Species Survival Plan, Louisiana Department of Wildlife and Fisheries, International Crane Foundation, White Oak Conservation Foundation, Smithsonian Conservation Biology Institute, Dallas Zoo, San Antonio Zoo, Calgary Zoo, and Wisconsin Department of Natural Resources to achieve a self-sustaining population of wild Whooping Cranes through reintroduction programs.

Recent posts by Louisiana Department of Wildlife and Fisheries - Whooping Cranes

(22 October 2021)
Louisiana Department of Wildlife and Fisheries - Whooping Cranes
Last week LDWF welcomed a new member to the Louisiana population, another Florida transfer, welcome to LFW12-19! A huge thanks to our partners at the MyFWC Florida Fish and Wildlife!!

The back story:
Back in mid-April 2019, a surprise Whooping Crane chick hatched in Florida, from a pair that had never previously hatched a chick. Unfortunately, less than 2 months later, in early June, the dad of the new crane family went missing and was presumed to be dead. The dedicated female continued rearing the chick by herself and was ultimately successful! However, without a mate and with no other Whooping Cranes to associate with, the mom and her offspring remained together.

Then at the end of September (2021), the mom of the now 2.5 year old Whooping Crane was found dead,* leaving the young bird without any other Whooping Cranes with which to associate.

** The Florida folks would know better than us, but our understanding is the dad disappeared and no remains were recovered so not sure though predation would be a possible cause. And the mom was unfortunately hit by a vehicle which is sadly a source of mortality for cranes in Florida since they tend to live and spend time in more urban areas.*

… in early 2019, before this bird hatched, 2 older female Whooping Cranes from the small, remaining Florida population, were caught and transferred to Louisiana to join our population. Both females have since paired and in fact they both nested this year.

Juvenile LFW12-19 with mother in Florida. Photo courtesy of Florida FWC/Louisiana Department of Wildlife and Fisheries

Given that previous success and the fact that this young bird would not be able to find a mate in Florida, our partners at the MyFWC Florida Fish and Wildlife acted quickly to try and catch this bird and transfer it to us before it changed its patterns and moved elsewhere. And then we released her on White Lake property where a group of 6 young males and a couple of pairs have been spending time.

(18 October 2021)

Louisiana Department of Wildlife and Fisheries - Whooping Cranes

Flashback to when we received two Whooping Cranes from the remnant Florida reintroduced population in 2019. Now, LF1-98 is 23-years-old and LFW12-15 is 6-years-old! They both are paired and had one nest attempt each last spring. We are excited that the transfer of these females worked out well and that they have fully integrated into the Louisiana flock!

Pictured (*below)* is FL 898, now known as LF1-98. She is legendary in the Florida population. She nested 23 times, hatched 13 chicks, and fledged 9 of them! In 2002, she and her first mate were the first Whooping Cranes to fledge a chick in the wild in the United States since 1939. Her first mate was killed in 2006, but within a few months she found another mate and fledged her fourth chick in 2007. She fledged 6 chicks with her second mate, including twins in 2016. Unfortunately, the second mate was killed in August 2016 and there are no remaining males in Florida with which she could pair.

After capture, the birds were held for two weeks at White Oak Conservation to ensure they were healthy prior to transfer and release in Louisiana. On 6 February, staff from White Oak drove the birds over to us.

Female FL 898, now known as LF1-98, strides along in Florida before her transfer to Louisiana in 2019. Photo courtesy of Florida FWC/Louisiana Department of Wildlife and Fisheries.

Upon arrival, each bird was given new bands and transmitters so they can be monitored. The birds were released on the White Lake Wetlands Conservation Area property which provides lots of great crane habitat.

Additionally, a number of other Whooping Cranes are currently using nearby areas so the hope is that these two will soon meet up with other cranes.

Help LDWF by reporting all Whooping Crane sightings and violations

If you are lucky enough to see a Whooping Crane, please do not approach it, even in a vehicle, to avoid habituating the birds to human activity. If you share the sighting on social media, bird listservs, or other public sites, please do not share location information more specific than county or parish level.
https://www.wlf.louisiana.gov/page/report-a-whooping-crane-sighting-or-violation

If you see a Whooping Crane elsewhere in the eastern United States (besides Louisiana), please report it here*: https://www.savingcranes.org/report-whooping-crane/*

If you see a Whooping Crane in the western United States, please report it here*:*
https://whoopingcrane.com/report-a-sighting/
Note: Whooping Cranes in the Louisiana population have been known to travel into surrounding states.

Anyone witnessing suspicious activity involving Whooping Cranes is advised to call the LDWF's Enforcement Division at 1-800-442-2511 or use the tip411 program, which may offer a cash reward for information leading to arrests or convictions. To use the tip411 program, citizens can text LADWF and their tip to 847411 or download the "LADWF Tips" iPhone app from the Apple iTunes store free of charge. Citizen Observer, the tip411 provider, uses technology that removes all identifying information before LDWF receives the text so that LDWF cannot identify the sender.

For LDWF updates on the Louisiana non-migratory population of Whooping Cranes, go here:
https://www.facebook.com/lawhoopingcranes/

For more general information about the cranes, go here:
https://www.wlf.louisiana.gov/subhome/whooping-crane

.....

Michigan:

Currently in Michigan, the Eastern Population of Greater Sandhill Cranes' future is a point of debate among conservation and environmental groups. In mid-October the Michigan Natural Resources Commission heard supporters and critics of a proposal to create a Sandhill Crane hunting season. "A decision is not imminent," Commission chair Carol Rose said after the meeting. "We can't do this by decree. We have to have deliberation, scientific data, stakeholder data before we can make a decision this significant."

The "stress" Sandhill Cranes cause farmers was one reason Sen. Ed McBroom, R-Vulcan, cited when he introduced a resolution early this year pushing the commission to put the Eastern Population Sandhill Crane on the state's list of game species and push the U.S. Fish & Wildlife Service to establish a hunting season. The Natural Resources Commission and Legislature have the power to determine game species in Michigan.

.....

Wisconsin:

Proposed Sandhill Crane hunt – SB-620 versus WSO

The Wisconsin Society for Ornithology (WSO) was organized in 1939 to encourage the study of Wisconsin birds. The goals of the Society have since expanded to emphasize all of the many enjoyable aspects of birding, and to support the research and habitat protection necessary to preserve Wisconsin

birdlife. WSO strives to alert members and the public to situations and practices that threaten Wisconsin's bird populations. WSO provides the following information in the interest of educating its members as well as the general public regarding the possibility of a Sandhill Crane hunting season in Wisconsin. The Society recognizes that a major partner in our mission is the hunting community of Wisconsin – in fact, many of our members are hunters. The sales of hunting and fishing licenses, stamps, permits, and other hunting-related taxes have provided an essential funding source for wildlife conservation projects. While WSO acknowledges and supports the cultural heritage of hunting in our state, it recognizes that the harvest of some wildlife species may be biologically or socially unacceptable.

In October 2021, the Wisconsin State Senate introduced a new bill, SB-620, that would require the DNR to authorize the hunting of Sandhill Cranes. On 17 October 2021, the WSO Conservation Committee and Board of Directors voted unanimously to oppose SB-620 and the hunting of Sandhill Cranes in Wisconsin. The WSO publicly registered that opposition at a hearing held by the Wisconsin Senate Committee on Sporting Heritage, Small Business, and Rural Issues on 19 October 2021. The WSO was joined in its opposition by the International Crane Foundation (ICF), Madison Audubon Society, and Green-Rock Audubon Society.

To read more, go here: https://wsobirds.org/sandhill-crane-hunt
Or here: https://www.sierraclub.org/sierra/wisconsin-republicans-introduce-bill-authorizing-sandhill-crane-hunt

One conservation group's view of proposed Sandhill Crane hunt

In late October 2021, the Wisconsin State Legislature's Senate Committee on Sporting Heritage, Small Business, and Rural Issues heard testimony on the proposed Sandhill Crane hunt. Wisconsin's Green Fire is one group that testified. The nonprofit advocates for science-based natural resource management and is made up of many retired Wisconsin DNR scientists and specialists.

Wisconsin's Green Fire executive director Fred Clark shared the nonprofit's perspective on the state's proposed Sandhill Crane hunt.
Wisconsin's Green Fire laid out other factors they hope state legislators will consider, including:

- There is no sustainable level of fall hunting that will significantly reduce spring damage to crops from Sandhill Cranes. Crop damage from cranes occurs primarily in the spring when the cranes feed on the germinating corn seeds after planting, however just as with all other waterfowl, recreational crane hunting is limited to late summer or fall.
- If a Wisconsin hunt is approved, the quotas, timing, and other elements of a hunt structure must be coordinated through the Mississippi Flyway Council in conjunction with our neighboring states in accordance with the Migratory Bird Treaty Act.
- Setting conservative, science-based quotas is essential. Population modeling and experience in other states suggests strongly that harvest rates greater than 4% are high enough to create risks of long-term population declines.

Conservation groups not consulted on SB-620

A Senate committee hearing in late October 2021 where introduced bills proposed the creation of a hunting season on Sandhill Cranes in Wisconsin, drew opposition from a wide range of conservation groups that said they were never consulted before the package of bills was introduced. SB-620 is one of 13 hunting-related measures introduced by Republicans and supported by an outside pro-hunting group Hunter Nation that are working their way through the Legislature. Hunting Sandhill Cranes in Wisconsin was last proposed in 2011 but the measure never made it out of committee.

Rich Beilfuss, the president and CEO of the International Crane Foundation, highlighted how the U.S. almost hunted the birds to extinction in the 1800s, requiring the birds to be protected since the early 1900s. "Hunting is not a solution for crop damage," he said. "But there are solutions. Crop damage is absolutely a problem, not only in Wisconsin, but worldwide, and we're trying to find non-lethal solutions."

Other hunting and conservation groups such as the Wisconsin Conservation Congress, the Wisconsin Wildlife Federation, Trout Unlimited and the National Wild Turkey Federation complained that they were

not consulted about the package of bills. Already facing lack of funding for existing Wisconsin DNR programs these bills would not only raise costs and require new infrastructure but would further stretch management plans and divert monies away from other species.

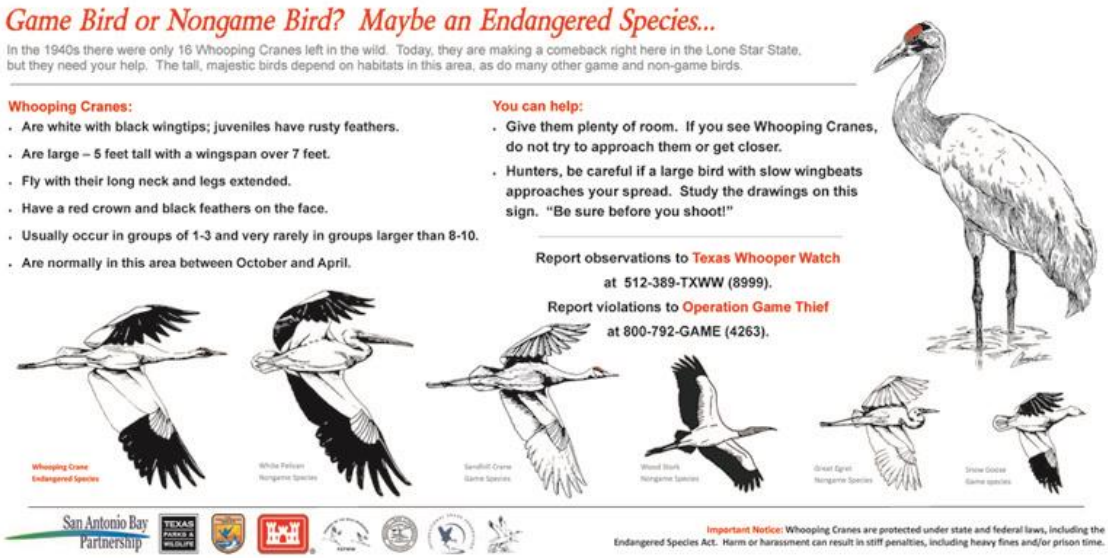
.....

Texas:

Be sure before you shoot – distinguishing Whooping Cranes from geese and Sandhill Cranes

Identification quizzes

During migration and on the wintering grounds, endangered Whooping Cranes share the same habitat as geese and Sandhill Cranes. Texas Parks and Wildlife (TPWD) has provided a video guide to help hunters identify birds in flight to prevent accidental shootings of the wrong species, a felony charge with stiff fines. https://www.youtube.com/watch?v=VvkAYGZnJ4Q



Aside from the hunting considerations, there are several ways landowners along the migration route can assist cranes during their bi-annual migrations. One of which is providing freshwater on their properties. U.S. Fish and Wildlife Service encourages landowners to consider doing this for Whooping Cranes on their stopovers to forage and rest, citing la Niña weather patterns as the cause of a potentially drier winter across the region.

Individuals can also help track cranes during migration by reporting any Whooping Crane sightings to the TPWD's "Whooper Watch." This is a citizen-science based reporting system to track Whooping Crane migration and wintering locations throughout Texas.

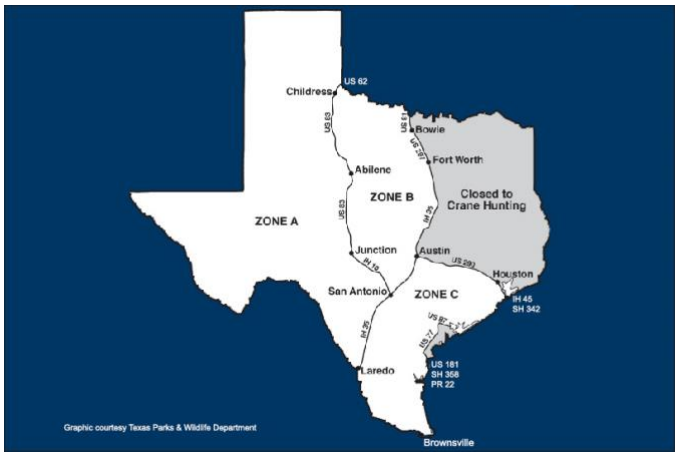
For more information about Whooping Cranes in Texas, go here: http://www.tpwd.state.tx.us/huntwild/...

Hunting Sandhill Cranes in a state that hosts an endangered species

In an effort to protect the federally endangered Whooping Cranes while migrating through the state on their way to the Aransas National Wildlife Refuge along the Texas coast, there is no season for Sandhill Crane hunting for most of East Texas. In the areas where Sandhill Crane hunting is allowed (*see map)* hunters must have a special permit in addition to a hunting license, the federal duck stamp and migratory game bird endorsement.

"You need to get a federal Sandhill Crane Hunting Permit, which is free, but you have to get it either through the Parks and Wildlife website online, by calling the Parks and Wildlife headquarters or by going

to your local Parks and Wildlife office," according to Owen Fitzsimmons, Texas Parks and Wildlife's Webless Migratory Game Bird Program leader.



Harvest Information Program (HIP) certification is also required.

The regular hunting season for Sandhill Cranes in Zone A opened Saturday, 30 October 2021 and runs through 30 January 2022.

The Sandhill Crane hunting season in Zone B is 26 November 2021 through 30 January 2022.

Hunting in Zone C opens 18 December 2021 through 23 January 2022.

Habitat Matters!

Canada:

Canada's peatlands buffer from wildfires and floods

So why are we still destroying them for oil and gas projects and mega-dams?

Ed Struzik Yesterday | *The Conversation*
Edward Struzik is a fellow at the Queen's Institute for Energy and Environmental Policy at the School of Policy Studies at Queen's University in Ontario. This story was originally published in the Conversation.

Peat is partially decomposed plant material that builds up over centuries in cool, swampy, waterlogged conditions such as bogs and fens and, to a lesser extent, swamps and marshes. Representing just three per cent of the Earth's landscape, peatlands like those in the Hudson Bay Lowlands can store five times more carbon than the Amazon rainforest. Collectively, they store twice as much as carbon than all of the world's forests.

They also play an outsized role in filtering water and mitigating floods, drought and wildfires.

Coastal Reindeer Lichen and Sphagnum on Calvert Island, Canada
Photo by Shanna Baker

Canada, endowed with more pristine peatland than any other country, has a unique opportunity to preserve and in some cases restore these ecosystems found on the tundra, in temperate and boreal forests, and in the Rockies and the Great Lakes region such as Georgian Bay.

Not only do they play an oversized role in managing climate change, regulating water and protecting critically endangered species such as Caribou and Whooping Cranes, they offer denning sites for Polar bears, turtles and Massasauga rattlesnakes. They also nurture many of the 546 plants that Indigenous people use for medicine.

Cool temperatures and a steady rainfall make B.C.'s coastal regions — extending from Burns Bog in North Delta to Drizzle Lake on Haida Gwaii — the region's peatland hotspots. Often covered in a blanket of sphagnum mosses, some of the province's peat deposits are more than four metres deep.
Unlike other parts of the country, B.C.'s peatlands house species like cedar and hemlock in addition to the more classic bog stalwarts like Labrador tea and bog cranberry.

As part of a global restoration effort, in the United States, the Fish and Wildlife Service is rewetting badly degraded peatlands in the Great Dismal Swamp, a protected peatland on the border of North Carolina and Virginia, and Pocosin Lakes National Wildlife Refuge in North Carolina, to mitigate wildfires and floods and to keep carbon in the ground.

To learn more and see beautiful photographs of bogs, bog forests, hydrophytes, Sphagnum mosses and other bog reliant plants, read Hakai Magazine's "The Secret World of Bog: Photos of a lesser-known ecosytem, from British Columbia's outer coast." *Photos and story by Shanna Baker, September 19, 2016. This story was winner of the gold award for Best Photojournalism from the 2017 Canadian Online Publishing Awards.*
https://hakaimagazine.com/videos-visuals/secret-world-bog/

To learn more and read the article, go here:
https://thetyee.ca/Analysis/2021/10/20/Canada-Peatlands-Save-Us-From-Wildfires-Floods/

.....

Indiana:

Sandhills are arriving at Jasper-Pulaski FWA

Large flocks of Sandhill Cranes can be seen at Jasper-Pulaski Fish & Wildlife Area (Medaryville) from mid-October through mid-December. Crane numbers peak in late November or early December. On 20 October 2021 there were more than 3,540 cranes reported in the wildlife area.
The crane spectacle is best seen from the observation platform at the Sandhill Crane Observation Area. View a property map. During the day, cranes can be spotted feeding and dancing in nearby harvested farm fields. Roosting marshes in the Waterfowl Resting Area are closed to the public so that migrating birds can rest without human disturbance. While there are some spotting scopes available on the platform, binoculars and scopes are recommended to best see the cranes.

.....

Michigan:

Best viewing of Michigan's spectacular Sandhill Crane migration

In Michigan, Sandhill Crane migration peaks between mid-October and late November. Large numbers of cranes usually "stage" in prairies, open fields, and marshes across the Lower Peninsula, as well as the following key spots, beckoning birders, photographers, and nature enthusiasts to come witness this seasonal spectacle.

According to Michigan Audubon, the best times to see Sandhill Cranes is prior to 10:00 a.m. and after 2:00 p.m., when they are likely to be seen foraging for food in fields near wetlands, agricultural areas, and along roadsides. Late in the day before dusk, they start to come in to roost together in big marshy areas continuing to gather through sunset.

Key stopover spots for Sandhill Cranes in southern Michigan:
Haehnle Sanctuary: The 1,000-acre Phyllis Haehnle Memorial Audubon Sanctuary near Waterloo Recreation Area in Jackson County is the largest Michigan roosting area for Sandhill Cranes, making it a fall hotspot for birding enthusiasts. *For more information, go here:* haehnlesanctuary.org

Waterloo Recreation Area: The hiking and nature trails at this massive park are worth the trip alone, but the 3,000 acres of protected wetlands, which provide vital nesting habitat for Sandhill Cranes, are a bonus for birders this time of year. *For more information, go here*: Park information here

Kensington Metropark: Kensington Metropark offers 4,481 acres of wooded, hilly terrain surrounding beautiful Kent Lake and is home to an abundance of wildlife and waterfowl. It is also a prime area for crane viewing. *For more information, go here:* https://www.metroparks.com/kensington-metropark/

Bernard W. Baker Sanctuary: This 980-acre sanctuary near Belleview was North America's first bird sanctuary dedicated specifically to the conservation of Sandhill Cranes. The preserve offers amazing views of the birds as large groups fly overhead to roost at Big Marsh Lake and is also home to the annual Crane Fest every October. *For more information, go here:* https://www.michiganaudubon.org/our-conservation-impact/bird-sanctuaries/

Learn more about Michigan's Sandhill Cranes, including more about crane viewing and conservation, here at Michigan Audubon *and the* Michigan DNR's sandhill crane migration page.

.....

Minnesota:

Sandhill Cranes staging at Sherburne National Wildlife Refuge

In late September, migrating flocks of the largest of 6 subspecies of Sandhill Crane – the Greater Sandhill Crane (*Grus canadensis tabida*) – begin to arrive at the Sherburne NWR from their northern breeding area. Numbers peak mid-October to early November with thousands of cranes roosting overnight in the refuge wetlands. During the day they can be seen foraging in surrounding harvested corn or soybean fields or in pastures or wet meadows. The peak number of cranes observed in one day typically exceeds 10,000 individuals.

For a Sandhill Crane viewing brochure with a map and information about the best crane viewing areas, go here: https://fws.gov/uploadedFiles/Sandhill_Crane_Viewing_Brochure.pdf

.....

Nebraska:

Record number of endangered Whooping Cranes stopover in central Nebraska

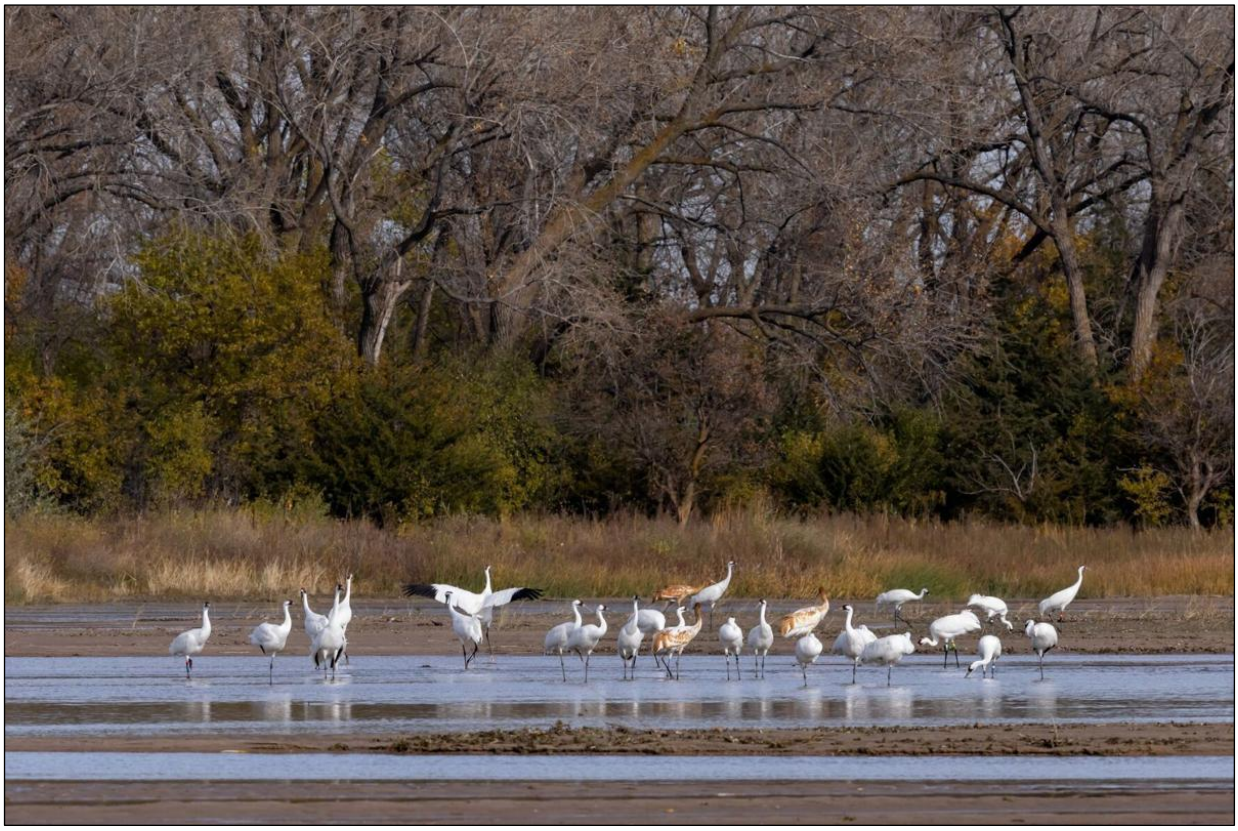
As the sun came up on a recent Saturday morning, Dave Baasch couldn't believe what he was seeing at the Crane Trust near Alda, Nebraska. Ahead of him in a field were 46 Whooping Cranes, one of the most endangered bird species in the world. While large flocks of Whooping Cranes have been documented staging in Saskatchewan, this was the largest group ever documented in the United States outside of their wintering grounds at Aransas National Wildlife Refuge in Texas. The 46 cranes were part of an even larger group of 95 Whooping Cranes that stopped during their migration south, more than ever before seen at one time in the area around the Platte River in central Nebraska. Usually, about 12 to 16 Whooping Cranes are spotted moving through central Nebraska from mid-October to early November, on their way to the Gulf coast from their breeding grounds in Wood Buffalo National Park, Canada.

"This job is the love of my life…," said Baasch, the threatened and endangered species specialist for the Crane Trust. "That's a huge moment I will never forget."

Rowe Sanctuary Director Bill Taddicken wasn't sure why there are so many more birds this fall. Several variables may have factored into the amazing gathering, as well as the cranes' reluctance to fly into a strong south wind. Taddicken expected them to head out quickly as colder weather moved in from the north later the same week.

It must be gratifying for all those at the Crane Trust, now 43 years old, when an event such as this happens to not only showcase but highlight the years of labor, science, research, and ongoing land management that has attracted these endangered birds. Kudos to The Crane Trust!
You can help conservation efforts by reporting crane sightings – call the Crane Trust at 308-224-9653.

For short videos of the Whooping Cranes, go here: https://youtu.be/uOL3-rFF2Bg
https://youtu.be/Xg9shDcYX9c



Nature photographer Rick Rasmussen observed this group west of Alda on the Platte River Saturday 6 November 2021, and another group of 32 the following Monday. Photo by Rick Rasmussen

Chuck Cooper leaves the Crane Trust in good shape

The Crane Trust, a non-profit organization, was formed in 1978 as part of a court-approved settlement of a controversy over the construction of Grayrocks Dam on a tributary of the Platte River in Wyoming. The state of Nebraska and the National Wildlife Federation objected to the project, claiming it would jeopardize irrigation and wildlife downstream in Nebraska. The settlement satisfied requirements of the Endangered Species Act and allowed the Missouri Basin Power Project, owners of Grayrocks, to complete construction.

The settlement created the nonprofit, which was tasked with managing the habitat in south-central Nebraska along the Platte for the federally endangered Whooping Cranes.

The organization went through different stages. For decades people weren't allowed on the land – during the crane season or any other time of the year. "It was almost entirely a research center," Chuck Cooper, recently retired Crane Trust President and CEO said. According to Cooper when he became President in September 2010, "I opened it up to the public and encouraged people to come out." In working at the Crane Trust, "I wanted people to see it and I wanted people to appreciate what Nebraska was" when a French trader came up the river hundreds of years ago. "I wanted people to see what Nebraska looked like at that time." In its pristine state, the land is a gem.

The work by the Crane Trust ensures that Sandhill and Whooping Cranes will continue to stop in big numbers. "We really don't touch the cranes," he said. The trust restores habitat. If they aren't met with good habitat the cranes may not come.

The trust manages more than 10,000 acres of habitat in the central Platte River Valley. A key step in the organization's development was the 2012 acquisition of the Nebraska Nature and Visitor Center, which had been a private, nonprofit operation.

While engaging in leading-edge research on bird migration, sustainable habitat management practices for restored lowland tallgrass prairies, and Platte River Basin ecology the Trust also continues to execute its vision to develop the seven-mile stretch of the Platte River from the Alda Road to Highway 281, as one of the premiere migratory bird habitats in the world, and to protect the landscape for future generations. The trust introduced bison back to the Platte Valley in 2013 and now manages a herd of more than 150 bison.

.....

ENVIRONMENTAL impact issues:

Protecting endangered wildlife from massive sport hunting, fishing expansion on National Wildlife Refuges

In an effort to ensure that the nation's wildlife refuges actually provide refuge to endangered wildlife the Center for Biological Diversity sued the U.S. Fish and Wildlife Service 29 November 2021 for failing to protect endangered wildlife harmed by expanded hunting and fishing on national wildlife refuges across the country. The lawsuit challenges the Trump administration's decision in 2020 to expand hunting and fishing on 2.3 million acres, across 147 wildlife refuges and national fish hatcheries.

The Blue Goose Logo above, designed by J.N. "Ding" Darling and first used in 1936, has become an enduring symbol of the Refuge System.

The suit explains that rare animals — including grizzly bears, jaguars, ocelots and Whooping Cranes — are harmed by use of toxic lead ammunition and tackle, increased traffic and noise and other risks associated with the massive expansion of sport hunting and fishing.

In 2016 the U.S. Fish and Wildlife Service issued an order to phase out the use of lead on all national wildlife refuges across the country by 2023, but the order was rescinded by the Trump administration. The severe toxicity of lead to humans and wildlife has been known for centuries.

Though Whooping Cranes rely on the Kirwin National Wildlife Refuge in Kansas, Patoka National Wildlife Refuge in Indiana and Lacreek National Wildlife Refuge in South Dakota, the Service has expanded use of lead ammunition or lead tackle in each refuge while failing to consider the risk of lead toxicity to the rare birds that can be poisoned by ingesting lead ammunition and tackle.

To read the Center for Biological Diversity press release, go here:
https://biologicaldiversity.org/w/news/press-releases/lawsuit-aims-to-protect-endangered-wildlife-from-massive-sport-hunting-fishing-expansion-on-national-wildlife-refuges-2021-11-29/

.....

Wildlife repellent trialed at U.S. airports

To reduce bird strikes and human-wildlife conflicts in airport environments, USDA's Wildlife Services' operational programs, in collaboration with Wildlife Service's National Wildlife Research Center (NWRC), coordinated trials of a wildlife repellent at cooperating airports. In 2021, trials took place in Washington, Oregon, South Dakota, Oklahoma, Wisconsin, Michigan, Virginia, North Carolina, and South Carolina. By deterring wildlife use of airfields and keeping airspaces free of wildlife, wildlife repellents are a viable, nonlethal approach to reducing the potential for wildlife collisions with aircraft.

In November 2020, the Environmental Protection Agency registered the repellent "Flight Control Max" for use at U.S. airports. Manufactured by Arkion Life Sciences LLC, the repellent uses anthraquinone, a

naturally occurring compound found in many plants, as its active ingredient. Arkion® develops, manufactures, and supplies patented and highly effective bird repellent products. The active ingredient is the naturally occurring compound Anthraquinone. When eaten, it causes nonlethal, digestive upset meant to deter subsequent feeding behavior. Avipel® protect agricultural seeds including corn and rice as well as developing products for seedling and foliar application. (*See "*Science News" *section below for research on crane depredation and crops.*)

After trials were completed at four airports, biologists observed repellency in Canada Geese (Branta canadensis), Sandhill Cranes (Antigone canadensis) and several small birds. Wildlife Services will continue trials in the remaining airports through the winter of 2021-2022. Based upon promising results of the 2021 trials, National Wildlife Research Center researchers are planning supplemental research regarding the effectiveness of "Flight Control Max" at cooperating airports in 2022 and 2023.

"Going Away, Coming Home" 2006 window project by Hung Liu, at the Oakland International Airport. Better that cranes are depicted in art rather than on runways.

.....

Louisiana marshlands

Nearly half of U.S. Coastal marshes are vulnerable to sea level rise, new study finds

Editor: *The following are excerpts from an EcoWatch article by Olivia Rosane, 8 September 2021*
https://www.ecowatch.com/coastal-marshes-sea-level-rise-us-2654933366.html

> Tidal wetlands are vitally important ecosystems that provide food, host fishery stocks, store carbon and protect coasts from storm surges. They are also extremely vulnerable to sea level rise. In fact, a study published in Earth's Future recently found that 43 to 48 percent of the

tidal wetlands along the coastal U.S. were vulnerable to inundation by 2100. Further, that vulnerability is heavily influenced by where they are located.

Vertical and Lateral Vulnerability
To assess how vulnerable tidal marshes were to sea level rise, the researchers looked at two metrics of vulnerability: vertical and lateral. Vertical vulnerability refers to a wetland's ability to raise its elevation by accreting, or building up, sediment. A wetland is more vulnerable if the projected rate of sea level rise in its area outpaces its ability to raise itself up. Lateral vulnerability, on the other hand, refers to a wetland's ability to move inland, which is limited if the adjacent ground is too steep or already in use for farming or development. The researchers calculated lateral vulnerability by looking at the "sliver of land" between where wetlands currently end and where they would need to expand to in order to offset future sea level rise. They then determined whether and how much of that land was available.

…The study also found regional variations. Wetlands in the South tended to face more vertical vulnerability, while wetlands in the North and along the Pacific Coast faced more lateral vulnerability, in many cases because of development.

Arsum Pathak, holds a Ph.D. in climate science and serves as the adaptation and coastal resilience specialist for the National Wildlife Federation (NWF)'s south-central region and told EcoWatch that she agreed with the paper's finding that "the vulnerability is higher in the Gulf and especially around Texas and Louisiana."

This is because, in addition to sea level rise, the land beneath the Gulf is sinking, largely due to human activities including groundwater and oil and gas extraction. The one-two punch of sea level rise and subsidence means it's fair to say the region is doubly victimized by the fossil fuel industry.

Texas Coastal Wetlands poster image. Texas Parks and Wildlife

Pathak focuses on how this vulnerability plays out along the Texas Mid-Coast specifically. An assessment she co-wrote for NWF found that as much as 21 percent of the coast could be converted to open water by 2100, including saltwater wetlands in the Guadalupe Delta, the barrier islands of the Aransas National Wildlife Refuge (NWR) and Boggy NWR. Together, these changes could destroy valuable habitat for Whooping Cranes, migratory waterfowl, ducks and geese.

To read or download a full text PDF of the assessment, go here:
Vulnerability and adaptation to climate change: An Assessment for the Texas Mid-Coast
Pathak, A., & **Fuller**, A. (2021). *Vulnerability and Adaptation to Climate Change: An Assessment for the Texas Mid-Coast*. Austin, TX: National Wildlife Federation.
http://texaslivingwaters.org/wp-content/uploads/2021/05/Mid-Coast-Assessment.pdf

And, to read the full-text study from Advancing Earth and space Science (AGU), go here:
Localized Scenarios and Latitudinal Patterns of Vertical and Lateral Resilience of Tidal Marshes to Sea-Level Rise in the Contiguous United States
James R. **Holmquist**, Lauren N. **Brown**, Glen M. **MacDonald**
Earth's Future, Volume 9, Issue 6
First published: 18 May 2021
https://doi.org/10.1029/2020EF001804
https://agupubs.onlinelibrary.wiley.com/doi/10.1029/2020EF001804

California:

Starting in 2016 the California Ricelands Waterbird Foundation began working in close partnership with The Nature Conservancy (TNC) to help provide funding for their innovative shoulder season habitat program called BirdReturns. This extremely flexible system allowed TNC to work with rice growers to create habitat exactly when and where it was needed most.

Balancing birds, water, and farms in California's agricultural heartland

The following is from Audubon California on climate change and its impact on wetlands and migration.

"This year though, those cranes, geese and the millions of waterbirds that have followed the same pathway for thousands of years, are finding a stark landscape in the Central Valley, which stretches nearly 450 miles up California's middle and hosts some of the nation's richest farmland. With the vast majority of the state in "extreme" or "exceptional" drought, the habitat that these birds rely on in the Central Valley – our last remaining wetlands and the surrogate habitat created in agricultural fields like rice and alfalfa – have seen major cutbacks in water. For example, Central Valley public refuge wetlands are receiving 60 percent of the water they need to fully manage for habitat. Surrounding winter-flooded rice fields, effectively surrogate wetlands where many waterbirds find roughly half of their food, are also reduced by more than two-thirds. What this means is fewer places for waterbirds to stop, rest, and refuel. This in turn can cause overcrowding leading to avian disease outbreaks and reduced breeding success when the birds return north in spring. Some critical migration stopovers like the Klamath basin, on the Oregon border, have so little habitat that we are tracking to see if some birds choose to bypass these locations altogether, flying further southwards or to coastal estuaries, stretching their limited time and resources to try and reach healthy habitat.

"The good news is that we are not unprepared for this drought: We learned from our last California megadrought which ended in 2017. Audubon participates in partnerships, including the Central Valley Joint Venture (CVJV) and the Migratory Bird Conservation Partnership (MBCP), that have created new science to help guide when and where we release water to have the largest benefit for birds (see the recently released 2020 CVJV Implementation Plan and Point Blue Conservation Science's Water Tracker). We have also worked together to build new ways to collaborate with landowners to create habitat on the ground for birds. Efforts like The California Ricelands Waterbird Foundation's "Bid4Birds" program and BirdReturns program, launched by The Nature Conservancy and now growing to scale through MBCP, both provide an opportunity for conservation efforts on private lands. We also have better policies now to protect our limited water resources, including the Sustainable Groundwater Management Act, which passed in 2014 in California."

To read more, go here:
https://www.audubon.org/news/balancing-birds-water-and-farms-californias-agricultural-heartland

Flocks of Dunlin in flooded rice fields in Colusa, California. Photo by Drew Kelly /BirdReturns

Science News:

Editor: *The following are papers referenced in this issue of the bulletin.*

Population responses to harvest depend on harvest intensity, demographics, and mate replacement in sandhill cranes

Michael E. **Wheeler** [a,*], Jeb A. **Barzen** [b,1], Shawn M. **Crimmins** [c,2], Timothy R. Van **Deelen** [d]
[a] *Nelson Institute for Environmental Studies, University of Wisconsin-Madison, 122 Science Hall, 550 North Park Street, Madison, WI 53706, USA*
[b] *International Crane Foundation, E-11376 Shady Lane Road, Baraboo, WI 53913, USA*
[c] *College of Natural Resources, University of Wisconsin-Stevens Point, 800 Reserve Street, Stevens Point, WI 54481, USA*
[d] *Department of Forest and Wildlife Ecology, University of Wisconsin-Madison, 1630 Linden Drive, Madison, WI 53706, USA*

DOI:10.1016/j.gecco.2021.e01778

Abstract: Recent examinations of hunting's impact on populations of long-lived species illustrate the rarity of strong compensatory responses. The extent to which sandhill crane populations exhibit compensatory, partially compensatory, or additive responses to harvest mortality is poorly known. To examine how sandhill crane harvests might impact resident, breeding crane populations, we simulated harvests of a well-studied population of individually marked birds at varying harvest intensities and degrees of selectivity within the social structure of territorial and non-territorial cranes. Simulations occurred in a demographically-explicit stochastic population model developed from a previous long-term (2000–2014) study of a sandhill crane population at carrying capacity in southcentral Wisconsin, USA. Non-selective harvest models that did not account for reproductive lags after territorial birds replaced lost mates produced additive responses and resulted in declining populations when ≥ 7% of the population was harvested annually. When models of non-selective harvest incorporated reproductive lags, this threshold was reduced to ≥ 5%. Harvesting at or above 5% harvest intensities continuously decreased population size over a 100-year period. In all models of selective harvests, when only non- territorial birds were harvested, all populations returned to equilibrium. Population responses to harvest are sensitive to the number of territorial birds harvested, and this sensitivity increases when accounting for lags in reproduction stemming from mortality-induced mate replacement. If possible, limiting harvest of territorial birds from any one specific population would help maintain stability of populations when implementing a hunt. This study provides evidence for harvest impacts at a localized scale, and it represents an important first step toward better understanding the potential impacts of hunting on population responses at a regional scale, especially where resident, territorial birds might be harvested.

To read the full-text article or to download a full-text pdf, go here:
https://www.researchgate.net/publication/354106651_Population_responses_to_harvest_depend_on_harvest_intensity_demographics_and_mate_replacement_in_sandhill_cranes

Effects of territorial status and life history on Sandhill Crane (*Antigone canadensis*) population dynamics in south-central Wisconsin, USA

Authors: Michael E. **Wheeler**, Jeb A. **Barzen,** Shawn M. **Crimmins**, and Timothy R. Van **Deelen**
Publication: Canadian Journal of Zoology • 11 September 2018
Canadian Journal of ZoologyVolume 97, Number 2, February 2019
https://doi.org/10.1139/cjz-2018-0135

Abstract: Population growth rate in long-lived bird species is often most sensitive to changes in adult survival. Sandhill Cranes (Antigone canadensis (Linnaeus, 1758)) have long life spans, small broods, and delayed first reproduction. Only territorial adult Sandhill Cranes participate in breeding, and territory acquisition reflects the interplay between the availability of suitable territories and the variation in mortality of adult birds occupying those territories. We estimated vital rates of a population at equilibrium using long-term resightings data (2000–2014; n = 451 marked individuals) in a multistate mark–resight model and used a stage-structured projection matrix to assess how strongly territorial adult survival affects

population growth rate. Elasticity analysis indicated territorial birds surviving and retaining territories had a 2.58 times greater impact on population growth compared with the next most important transition rate (survival of nonterritorial adults remaining nonterritorial). Knowing how changes in vital rates of various stage classes will differentially impact population growth rate allows for targeted management actions including encouraging growth in recovering populations, assessing opportunity for recreational harvest, or maintaining populations at a desired level. This study also highlights the value of collecting demographic data for all population segments, from which one can derive reproductive output or growth rate.

Ecological Implications of Habitat Use by Reintroduced and Remnant Whooping Crane Populations

September 2018
DOI:10.1016/B978-0-12-803555-9.00015-3
In book: WHOOPING CRANES: BIOLOGY AND CONSERVATION BIODIVERSITY OF THE WORLD; CONSERVATION FROM GENES TO LANDSCAPES (pp.327-352)
Publisher: Elsevier/Academic Press
Private Lands Conservation LLC

Abstract: Though Whooping Cranes historically nested in varied biomes they also needed specific habitat components located within each biome. The goal here is to compare current Whooping Crane habitat use to historical records and inform predictions related to recovery and management in today's changing world. Among 4 populations (Aransas Wood Buffalo, AWBP; Eastern Migratory, EMP; Florida Non-migratory; and Louisiana Non-migratory, LNMP) Whooping Cranes used open wetlands dominated by emergent vegetation and open water for foraging and roosting throughout the year but the amount of wetland use varied among populations and seasons. Summer territories in the AWBP and EMP averaged 4 km2 while home ranges of non-territorial cranes were 10 – 100 times larger, making habitat availability between the two groups substantially different. Average natal dispersal distance was < 28 km, making only habitats close to natal areas available for territory establishment. Though not an annual occurrence, cranes used wetlands 92% of the time during the flightless molt and home range was the smallest home range measured, suggesting this period may be the most sensitive of the annual cycle. In winter cranes in the AWBP used mostly natural salt marshes, both day and night, in a narrow band of the Texas Coast whereas the EMP was distributed throughout the eastern US and utilized agricultural areas. Cranes in the LNMP used man-made wetlands all year. The breadth of habitats used by other populations during winter suggests that the AWBP could utilize alternative habitats if needed. Strong territorial behavior in winter by the AWBP may reduce the rate at which dispersal outside of the Texas Coast can occur. In fall migration, AWBP cranes staged before moving rapidly to winter areas but no staging occurred in the EMP during either migration. If energetic or nutritional needs are unmet on winter or summer areas, spring and fall staging areas could serve as alternate habitats. Future research should address the role of territoriality in cranes and the degree to which use of agricultural fields may be beneficial.

To read the full-text article or to download a full-text pdf, go here:
https://www.researchgate.net/publication/327872052_Ecological_Implications_of_Habitat_Use_by_Reintroduced_and_Remnant_Whooping_Crane_Populations

Changes in the number and distribution of Greater Sandhill Cranes in the Eastern Population

Anne E. **Lacy**,[1] Jeb A. **Barzen**, Dorn M. **Moore**, and Kristin E. **Norris**
International Crane Foundation, P. O. Box 447, E-11376 Shady Lane Rd., Baraboo, Wisconsin 53913, USA

J. Field Ornithol. 00(0):1–9, 2015 DOI: 10.1111/jofo.12124

Abstract: Once nearly extirpated, the Eastern Population (EP) of Greater Sandhill Cranes (*Grus canadensis tabida*) has increased in number and expanded its range in breeding and wintering areas. Data from Christmas Bird Counts (CBCs) and Breeding Bird Surveys (BBSs) were used to delineate changes in the wintering and breeding area distributions during the period from 1966 to 2013. Crane densities were plotted to the centroid of CBC circles or BBS routes, and the Geographic Mean Centers (GMCs) for wintering and breeding populations were calculated. The number of Greater Sandhill Cranes detected during the breeding season has steadily increased since 1966, with just six birds observed in

1966 and 1046 observed in 2013. The GMC of the Sandhill Crane breeding population has remained in Wisconsin during the 47-yr time frame. The total number of Sandhill Cranes counted in the eastern United States during CBCs grew from 423 in 1965–1966 to 46,194 in 2012–2013, with a peak number of 55,826 in 2011–2012. The GMC of wintering Greater Sandhill Cranes was located in Florida during the periods from 1966 to 1977 and 1978 to 1989, but shifted north-northwest by nearly 4° of latitude (into Georgia) by 1990–2001. By 2002–2013, the GMC had shifted an additional degree north as well as almost a degree west in longitude. Greater Sandhill Cranes in the EP may continue to winter further north and remain in more northerly areas later in the fall before migrating further south. Factors such as annual weather, long-term climate change, and changes in land use may influence future population trends and changes in both the breeding and wintering ranges of the EP of Sandhill Cranes.

To read the full-text article or to download a full-text pdf, go here:
https://www.researchgate.net/publication/284663849_Changes_in_the_number_and_distribution_of_Greater_Sandhill_Cranes_in_the_Eastern_Population

Species Review: Sandhill Crane (*Grus canadensis*)

November 2019
In book: *Crane Conservation Strategy* (pp.425-450)
Publisher: International Crane Foundation, Minuteman Press, Baraboo, Wisconsin, USA

Krapu, Gary L., *United States Geological Survey*
Ivey, Gary, *International Crane Foundation*
Barzen, Jeb Anthony, *Private Lands Conservation LLC*

This Chapter is a summary of the distribution, abundance, and ecology of Sandhill Cranes in relation to conservation issues.

Understanding the Impact of Hunting (p 22-23/440-441)
"…Hunting of Sandhill Cranes has been controversial in some regions, particularly when occurring on or near breeding grounds. Sandhill Cranes became extirpated from most of the historical breeding range of the putative Prairie Population in the northern plains (including Prairie Pothole Region) by 1900 and have failed to re-occupy most of this region despite suitable breeding habitat being widely available. Their absence likely is linked to overharvest resulting in an insufficient number of breeders surviving to re-occupy most of this region (Krapu and Brandt 2010, Krapu et al. 2011). Studies utilizing satellite telemetry have shown a remnant population of Greater Sandhill Cranes from the East-central Canada-Minnesota breeding affiliation are now located mostly along the northern edge of their historic breeding range. These birds congregate on fall staging areas in mid-August to early September that are often located near breeding areas. Primarily local birds gather several weeks before subarctic and arctic breeders arrive, coinciding with the early to mid-September opening of hunting seasons on Sandhill Cranes in the northern plains. An early arrival along with a later departure, as compared to more northern-nesting cranes results in the East-central Canada-Minnesota breeding affiliation being exposed to much higher levels of hunting activity than northern breeders (Krapu and Brandt 2010, Krapu et al. 2011)."

To read the full-text article or to download a full-text pdf, go here:
https://www.researchgate.net/publication/337063895_Species_Review_Sandhill_Crane_Grus_canadensis

Effective And Sustainable Prevention of Avian Damage to Planted Seeds Through Seed Treatment

December 2018

JEB A. **BARZEN**,[1] *International Crane Foundation, E-11376 Shady Lane Road, Baraboo, WI 53913-0447, USA*
KENNETH E. **BALLINGER**, Jr., *Arkion Life Sciences, LLC, 551 Mews Dr. J, New Castle, DE 19720, USA*

Abstract: Several species of cranes and other wildlife have recovered from low populations because, in part, they have adapted to resources found in agricultural environments. If future conservation strategies

are to succeed in areas dominated by agricultural use, we must develop sustainable models that solve crop damage problems that are caused by expanding wildlife populations. Using crane damage to planted seed as an example, we propose 1 such model of sustainable crop damage prevention. The deterrent, 9,10-anthraquinone (AQ), is a natural product produced by plants, in part to control bird frugivory, and induces gastro-intestinal distress (temporarily sickens an individual) in sandhill cranes (*Grus canadensis*) as well as other bird species. AQ is an effective deterrent because it induces a physiological response at first and is then accompanied by a conditioned avoidance. Yet, AQ is not toxic to birds nor are birds likely to habituate to the deterrent. Seed repellents cause birds to avoid treated foods among several possible items found within the same field. Other, more traditional, crop damage repellents (e.g., propane cannons) operate by moving birds among fields within home ranges. Excluding preferred habitats such as cornfields increases the risk that birds will habituate to deployed damage solutions. AQ products have adapted to a diverse farm environment and cost less than 3% of total planting costs. They were applied to prevent crane damage on planted corn for more than 67,000 ha in the Midwest during 2018 and can be deployed at whatever spatial scale that damage severity warrants. Our model using AQ as a seed treatment to prevent crane damage to germinating corn has been applied to pheasants (*Phasianus colchicus*) and blackbirds (Icteridae) as well as in rice and sunflower crops. As such, this model presents a sustainable approach that arises from solutions that allow agriculture and wildlife to co-exist.

PROCEEDINGS OF THE NORTH AMERICAN CRANE WORKSHOP 14:89-100

To read the full-text article or to download a full-text pdf, go here:
https://www.researchgate.net/publication/329686474_EFFECTIVE_AND_SUSTAINABLE_PREVENTION_OF_AVIAN_DAMAGE_TO_PLANTED_SEEDS_THROUGH_SEED_TREATMENT

Sandhill Crane Foraging Behavior and Damage Estimates in Cornfields During Spring

December 2018

JEB A. **BARZEN**,[1] *International Crane Foundation, E-11376 Shady Lane Road, Baraboo, WI 53913, USA*
ANDREW P. **GOSSENS**, *International Crane Foundation, E-11376 Shady Lane Road, Baraboo, WI 53913, USA*
ANNE E. **LACY**, *International Crane Foundation, E-11376 Shady Lane Road, Baraboo, WI 53913, USA*

Abstract: Damage to corn in the spring caused by greater sandhill cranes (Grus canadensis tabida) has increased concurrent with growth of the Eastern Population of cranes. Our study was designed to: 1) describe foraging rates and food acquisition behavior where damage was likely and 2) estimate damage in cornfields treated and untreated with a taste deterrent: 9,10-anthraquinone (AQ; Avipel®). Our 6,251.6-ha study area was located near Briggsville, Wisconsin, and we sampled 415 ± 13.2 individuals/ survey (x ± SE), of which 36 ± 1.7% used cornfields. During 10-30 May 2009, 121 observation bouts of 33 marked cranes that foraged in 20 cornfields were collected. Observation bouts averaged 21 ± 1.32 minutes of which 10.2 ± 0.75 minutes consisted of active foraging by cranes. Individuals swallowed an average of 6.08 ± 0.68 items/active minute. Only 10.4% of 6,445 items consumed were identified and 9.7% of items were corn kernels (93% of identified items). Ingestion rates for all foods in fields treated with AQ (6.44 items/min) and non-treated fields (6.21 items/min) did not differ ($t = -0.15$, $P = 0.88$), but corn kernels consumed in non-treated fields were ingested at more than 3 times the rate measured from treated fields ($F = 3.84$, $P = 0.05$). Jab/probe ratios did not differ between treated and untreated fields ($F = 0.12$, $P = 0.72$), so foraging behaviors were similar even though different foods were consumed. We estimated that all sandhill cranes in this study area consumed 71,245 kernels/ day (478 kernels/crane/day) and, over the period that planted corn was potentially vulnerable, consumed a maximum of >2.9 million kernels or 41.0 ha of planted corn (3.8% of all corn planted in the study area). Crane damage could be widely scattered, and thus insignificant, or it could be locally severe as non-territorial individuals congregate in 1 field and concentrate damage, making the distribution of severe damage unpredictable. Though effective at alleviating crane damage, treating planted corn must either be applied uniformly or applied based on previous experience with crane foraging patterns and planting phenology in relationship to other fields.

PROCEEDINGS OF THE NORTH AMERICAN CRANE WORKSHOP 14:67-80

To read the full-text article or to download a full-text pdf, go here:
https://www.researchgate.net/publication/329686548_SANDHILL_CRANE_FORAGING_BEHAVIOR_AND_DAMAGE_ESTIMATES_IN_CORNFIELDS_DURING_SPRING

Sandhill and Whooping Cranes

U.S. Department of Agriculture/Animal & Plant Health Inspection Service Wildlife Services
Wildlife Damage Management Technical Series, January 2017

Jeb **Barzen**, *Founder Private Lands Conservation, LLC Spring Green, Wisconsin*
(Former) Director of Field Ecology International Crane Foundation Baraboo, Wisconsin
Ken **Ballinger,** Vice President of Development Arkion Life Sciences, LLC, New Castle, Delaware

Human Wildlife Conflicts

As Sandhill Crane populations continue to grow in the United States, so too does crop damage, property damage to homeowners, and the risk of crane collisions with aircraft. Whooping Crane populations also continue to grow, but with a global population of about 500 individuals (as of 2017), damage is rare, and problems often require different solutions due to the species' endangered status.

The behavioral characteristics and habitat needs of Sandhill and Whooping Cranes set the stage for conflict between these birds and people. Recognizing behavioral differences between territorial and non-territorial cranes greatly improves the effectiveness of any management effort.

To read the article or to download a full-text PDF, go here:
https://www.aphis.usda.gov/wildlife_damage/reports/Wildlife%20Damage%20Management%20Technical%20Series/Cranes-WDM-Technical-Series.pdf

Distribution and Migration Chronology of Eastern Population Sandhill Cranes

DAVID L. **FRONCZAK**,[1] United States Fish and Wildlife Service, 5600 American Boulevard West, Suite 960, Bloomington, MN 55437, USA
DAVID E. **ANDERSEN**, United States Geological Survey, Minnesota Cooperative Fish and Wildlife Research Unit, 200 Hodson Hall, 1980 Folwell Avenue, St. Paul, MN 55108, USA
EVERETT E. **HANNA**, Department of Biology, Western University, 1151 Richmond Street, London, ON N6A 3K7, Canada
THOMAS R. **COOPER**, United States Fish and Wildlife Service, 5600 American Boulevard West, Suite 960, Bloomington, MN 55437, USA
The Journal of Wildlife Management; DOI: 10.1002/jwmg.21272

ABSTRACT The Eastern Population (EP) of greater sandhill cranes (*Antigone canadensis tabida*; cranes) is expanding in size and geographic range. Little information exists regarding the geographic extent of breeding, migration, and wintering ranges, migration chronology, or use of staging areas for cranes in the EP. To obtain these data, we attached solar global positioning system (GPS) platform transmitting terminals (PTTs) to 42 sandhill cranes and monitored daily locations from December 2009 through August 2014. On average, tagged cranes settled in summer areas during late-March in Minnesota (7%), Wisconsin (29%), Michigan, USA (21%), and Ontario, Canada (38%) and arrived at their winter terminus beginning mid- December in Indiana (15%), Kentucky (3%), Tennessee (45%), Georgia (5%), and Florida (32%). Cranes initiated spring migration beginning mid-February to their respective summer areas on routes similar to those used during fall migration. Twenty-five marked cranes returned to the same summer area after a second spring migration, of which 19 (76%) settled <3 km from the estimated mean center of the summer area of the previous year. During the 2010–2012 United States Fish and Wildlife Service (USFWS) Cooperative Fall Abundance Survey for cranes in the EP, we estimated that approximately 29–31% of cranes that summered in both Wisconsin and the Lower Peninsula of Michigan were not in areas included in the survey. The information we collected on crane movements provides insight into distribution and migration chronology that will aid in assessment of the current USFWS fall survey. In addition, information on specific use sites can assist state and federal managers to identify and protect key staging and winter areas particularly during current and future recreational harvest seasons. ©2017 The Wildlife Society.

To read the article or to download a full-text PDF, go here:
https://usgs-cru-individual-data.s3.amazonaws.com/dea/intellcont/Fronczak%20et%20al.%20-%20JWM%20-%202017-1.pdf

KUDOS:

Special thanks

Thanks to Jeb A. Barzen, Ecologist at Private Lands Conservation LLC, for his expertise and guidance about cranes over the last decade. His input is always appreciated, and his continuing research adds immeasurably to the *Eastern Crane Bulletin*. *– Editor*
To see his publications, go here: https://www.researchgate.net/profile/Jeb_Barzen/publications

Chuck Cooper's leadership makes Crane Trust a jewel in crane migration

In a statement, Crane Trust Board Chair Brad Korell said, "Chuck's leadership has been instrumental in creating one of the most incredible migration viewing experiences found anywhere in the world and has become one of Nebraska's largest tourist attractions. We are grateful for the contributions Chuck has made to help preserve the great crane migration for generations to come."

Cooper joined the Crane Trust on 1 September 2010 and oversaw the management of more than 10,000 acres of habitat in the central Platte River Valley until his retirement on 1 September 2021. During his tenure he took the Trust from a largely research center to a destination where each March visitors from across the nation and around the world – come to witness the spectacular migration of hundreds of thousands of cranes as they migrate north. *[See story above in Habitat/Nebraska.]*

International Crane Foundation's volunteer trackers

Are you interested in volunteering with the International Crane Foundation? Click here to fill out our Volunteer Application. Our staff will review your application and contact you to discuss which opportunities best fit your experience and interests.

VOLUNTEER STORIES – TRACKING WHOOPING CRANES IN INDIANA (Dan Kaiser)
https://savingcranes.org/volunteer-stories-tracking-whooping-cranes-in-indiana/
Dan Kaiser is from Columbus, Indiana and his love for wildlife photography began his volunteering career with the International Crane Foundation. In February 2006, he posted a photo of a Whooping Crane and was then contacted by Dr. Richard Urbanek, who was the International Crane Foundation/Fish and Wildlife Service project biologist at the time, to gather more information on the bands, location and time of the Whooping Crane observation. In November of the same year, Dan observed two juvenile Whooping Cranes in the same area. He contacted the International Crane Foundation regarding the observation and has been volunteering to track the Whooping Cranes in Indiana ever since.

VOLUNTEER STORIES – TRACKING WHOOPING CRANES IN WISCONSIN (Doug Pellerin)
https://savingcranes.org/volunteer-stories-tracking-whooping-cranes-in-wisconsin/
Whooping Crane Tracking Volunteer Doug Pellerin of Fond du Lac, Wisconsin, is now in his seventh year of tracking Whooping Cranes for the International Crane Foundation. Prior to tracking Whooping Cranes, Doug volunteered as a Whooping Crane handler during the preparations for the ultralight-led migration flights. Doug's experience and interest lead Whooping Crane Tracking Field Manager Eva Szyszkowski to approach him about tracking Whooping Cranes in Wisconsin. Doug also had the wonderful opportunity to witness one of the Whooping Crane pairs he helped handle raise a chick of their own!

VOLUNTEER STORIES – TRACKING WHOOPING CRANES IN ALABAMA (Leginia Jenkins)
https://savingcranes.org/volunteer-stories-tracking-whooping-cranes-in-alabama/
This winter marks Leginia Jenkins' fourth year as a Whooping Crane tracking volunteer in Decatur, Alabama. She first saw and became interested in Whooping Cranes while biking through the nearby Wheeler National Wildlife Refuge. Leginia gives credit to fellow volunteer and mentor Carol Thompson for teaching her everything she knows about Whooping Cranes. Leginia loves spending time outdoors and tracking the cranes on the weekends, especially her favorite pair, Latka and Beau. Last summer Leginia traveled to Wisconsin to see the Whooping Cranes she missed so much.

Neighbors and volunteers rescue Sandhill from death by plastic

Volunteers with the Chicago Bird Collision Monitors (CBCM) captured a Sandhill Crane in Evanston, Illinois on 19 November 2021 to remove a plastic ring from its beak. The distressed crane was first seen on Thanksgiving, but it was the next day before volunteers were able to capture it. Afterwards the crane was taken to the Willowbrook Wildlife Hospital for treatment for emaciation and beak wounds.

A juvenile Sandhill Crane with a plastic ring restricting its beak was rescued by volunteers in Evanston, IL on 19 November 2021. Photo by Scott Judd

Annette Prince, the director of CBCM, said the group fields over 10,000 calls a year. This story is an example of what can be done when volunteers and residents work together to rescue birds, Prince said. “By building this network of people, we have the means to bring help to these birds so they can continue to be amazing parts of our world that we enjoy and love so much,” Prince said.

People in the Chicagoland area who witness a bird in distress or find a bird that has died can call the CBCM hotline at 773-988-1867.

The Art of Cranes:

Denver artist receives Husker advice to capture Sandhill Crane’s spirit

Detail, from below, of Tiimo Mäng’s Sandhill Crane sculpture.

When Denver-based metal sculptor Tiimo Mäng starts work on a piece, he begins by researching it – both from a historical and philosophical standpoint. So early in his research process on Sandhill Cranes, Mäng found himself immersed in “On Ancient Wings: The Sandhill Cranes of North America” by photographer and Platte Basin Timelapse project co-founder Michael Forsberg. Mäng contacted him and Forsberg suggested he visit the International Crane Foundation in Baraboo, Wisconsin, to meet with its co-founder, and crane expert George Archibald. The meeting with Archibald led to several major modifications of the sculpture. Produced through a series of hand and machine cuts, the steel crane has now been through three metamorphoses.

Throughout the creative process Mäng sought input from biologists, photographers, and others. On 30 August, Tiimo Mäng set up a Sandhill Crane sculpture outside Nebraska’s School of Natural Resources and asked faculty, staff and students for their informed opinions on the piece. “Anything that’s creative, it’s always good to come out and ask somebody else what they think,” Forsberg said. “And it could be somebody who knows as much as you or it could be somebody who knows nothing. Both are valuable.”

Upcoming Events:

Editor: *While more of the nation's population is fully vaccinated along swith booster against the COVID-19 pandemic, there are still cancellations or postponement of many scheduled events due to uncertainties from the highly contagious Delta and newest Omicron variant of the virus. Some festivals have chosen to modify formats and have a "virtual" platform in response to the odd times we are in. On a positive note, and while not the same as taking part in person, more people will be able to participate in the virtual festival(s) from afar – so check them out and have fun! Remember to check with coordinators as festival information changes.*

Quivira National Wildlife Refuge
https://www.gbtribune.com/news/local-news/celebration-offers-chance-see-migrating-cranes-quivira-refuge/
Audubon of Kansas (AOK) will host its 4th annual Celebration of Cranes event from November 5-7 at Hudson, and Quivira National Wildlife Refuge (QNWR).

Woodbridge Ecological Reserve
Join us as we watch the amazing spectacle of thousands of Sandhill Cranes as they return each evening to the Woodbridge Ecological Reserve.
For additional information visit: https://www.wildlife.ca.gov/Regions/3/Crane-Tour

Date and time: Saturday, December 4, 2021
3:45 p.m. – 5:15 p.m. PST
Location: Woodbridge Ecological Reserve / 11154 W Woodbridge / Lodi, CA 95242
**PLEASE NOTE: As of November 13, 2017, a CDFW Lands Pass or a current fishing or hunting license in possession is required of each tour participant, age 16+. Tour docents will be checking for land pass or valid license at time of tour participation. Full tour access is not allowed without presentation of document.*

Holiday with the Cranes on Galveston Island
Dates: December 11-12, 2021
Location: Galveston Island, TX

Holiday with the Cranes is presented by the Galveston Island Nature Tourism Council, a nonprofit volunteer organization that helps connect people with nature experiences and outdoor adventures and promotes the value of natural habitats and resources in the Galveston Island area.
Closer to the festival date, check here for more festival information including the festival itinerary, and to register for fieldtrips please go here: https://www.galvestonnaturetourism.org/holiday-with-the-cranes/

San Joaquin County Sandhill Crane Wetland Tours
Dates: December 4, 2021 – December 19, 2021
Location: Woodbridge Ecological Reserve (a.k.a. Isenberg Crane Reserve)
Sacramento-San Joaquin Delta, just west of Lodi in San Joaquin County, CA

Registration is now open for the California Department of Fish and Wildlife (CDFW) Sandhill Crane Wetland Tour, which offers guided tours of Sandhill Cranes in their fall-winter habitat.

You are invited on a tour, in Lodi, during the "Season of the Sandhill Crane." The season begins with the arrival of the Sandhill Cranes into the Delta and Central Valley in about late September, where they will spend the fall and winter months. Tours consist of viewing Sandhill Cranes and other unique wintering waterfowl, hearing a presentation on the cranes and their Reserve habitat, and viewing the cranes' impressive, nightly behaviors at a location that is only open to the public during these special tours.

NOTE: It is required that you pre-register for your tour as tour size is limited.
ALSO NOTE: Effective November 13, 2017, for individuals 16+ years of age, a CDFW Lands Pass or a current fishing or hunting license in possession is required to access whenever visiting either unit of the reserve and to access each tour.

Sandhill Crane tours are set for the 2021/22 season and registration is now open.

For more information and to register for a tour, go here:
https://www.eventbrite.com/o/cdfw-bay-delta-region-4633804151

Due to Covid, tour sizes are reduced and there are several safety protocols in place.

- Each tour is limited to 4 "pods"
- Each "pod" may consist of up to 4 individuals
- Masks must be worn the entire time you are on the tour
- Visitors will maintain 6 feet of distance between "pods"
- If you have questions or need more information, please email: cranetours@wildlife.ca.gov

Save Our Sandhill Cranes
Sacramento Audubon Society
The Cranes are back, but not the free tours.
After more than a decade of leading free public crane viewing tours, we are saddened to have to discontinue the scheduled group tours because of the pandemic.

Meanwhile we hope you can enjoy watching the cranes on your own. Following are two of the many places you can see the cranes.
For directions either contact Mike at yogoombah@yahoo.com *or go here for directions:*
http://soscranes.org/visit-the-cranes/free-tours/

Contact Us: http://soscranes.org/contact-us/
Address: SOS Cranes / 5930 S. Land Park Dr. / P.O. Box 22192 / Sacramento, CA 95822

Ian Nicolson Audubon Center at Rowe Sanctuary – 2022 Crane Season
Registration for all crane-viewing tours will open on January 5, 2022 at 9:00 a.m. Central Time.
Capacities for all crane season tours and events will be assessed in accordance with CDC guidelines.

For more information on Guided Crane Tours, go here:
https://rowe.audubon.org/visit/guided-crane-viewing-experience

For more information on Overnight Photography Experience, go here:
https://rowe.audubon.org/crane-viewing/overnight-photography-experience
To learn more, go here: https://rowe.audubon.org/crane-viewing

Sandhill Crane Sunset Kayak Tour
Date: Saturday January 8, 2022
2:30 p.m. – 5:30 p.m. EST
Location: Cherokee Removal Memorial Park
6800 Blythe Ferry Lane; PO Box 10, Birchwood, TN 37308
Hiwassee National Wildlife Refuge, TN
Hosted by Georgia Audubon

The Hiwassee Refuge is located at the confluence of the Tennessee and Hiwassee Rivers, about one hour north of Chattanooga. The area attracts a variety of birds and during the winter, as many as 15,000 to 20,000 cranes have been known to overwinter on Hiwassee Island. This site has the largest winter flock of Sandhill Cranes in the southeast United States outside of Florida. The shallow warm waters of the Tennessee River provide excellent roosting and surrounding fields provide forage areas for the wintering cranes. Bring your binoculars and enjoy the sights and sounds of the Sandhill Cranes on this eco kayak tour.

Cost: $90; All kayaking equipment will be provided, and no kayaking experience is necessary.
Register here: https://tinyurl.com/4pmermb6
If cost is a burden, please apply for a Georgia Audubon Scholarship here:
https://www.georgiaaudubon.org/scholarships.html

Festival of the Cranes / Wheeler NWR
Dates: January 15 - January 16, 2022

Saturday 6:30 a.m. - 5:00 p.m.
Sunday 8:00 a.m. - 5:00 p.m.
Location: Wheeler National Wildlife Refuge / 3121 Visitors Center Road / Decatur, AL 35603

For more information on the Festival of the Cranes, and for the latest updates, go here: www.facebook.com/FOCatWheeler
For complete information visit: www.friendsofwheelernwr.org

Wings Over Willcox Birding and Nature Festival
Dates: Thursday January 13 – Sunday January 16, 2022
Location: Willcox, Arizona

The Nature Expo will return with many educational exhibits, live animals, and nature-themed items for sale. Self-drive tours will be offered to a variety of habitats and free seminars will share experts' knowledge on cranes, sparrows, and other local species. Registration will begin in November so plan on joining us for this fun annual event!
For more information and to register, go here: (520) 384-2272, and www.wingsoverwillcox.com

29th Tennessee Sandhill Crane Festival / Hiwassee Wildlife Refuge
Dates: January 15-16, 2022
8:00 a.m. to 4:00 p.m. daily
Location: Hiwassee Wildlife Refuge and the Birchwood Community Center
Birchwood, Tennessee

Due to Covid19 indoor festival events have been minimized to better public safety. We encourage you to practice social distancing and enjoy your time at the festival.

Along with the star of the weekend, the Sandhill Crane, many types of waterfowl, Bald Eagles, a possible Golden Eagle, White Pelicans and even Whooping Cranes may be spotted. Shuttle service buses run the short distance from the Birchwood Community Center to the Hiwassee Refuge and Cherokee Removal Memorial. Both the memorial and refuge provide great birding opportunities, with views of the Hiwassee. Volunteers from the Chattanooga Chapter of the Tennessee Ornithological Society join TWRA each year, setting up scopes for visitors to see close-up views of not only Sandhill Cranes, but also endangered Whooping Cranes, Bald Eagles and many kinds of duck. Volunteers help provide visitors with a unique educational experience by sharing information and viewing scopes.

For more information, and schedule of events, go here:
https://www.tn.gov/content/dam/tn/twra/documents/events/TWRA-Sandhill-Crane-Festival-event-schedule.pdf

2022 Winter Wings Festival
Dates: February 17-20, 2022
Location: Klamath Falls, Oregon
The festival is held annually over Presidents Day weekend in February. The Winter Wings Festival is produced by the Klamath Basin Audubon Society volunteers.
Our entire program is now online on this site. We are planning to have at least 45 in-person sessions for vaccinated attendees. You can see the keynotes, field trips, workshops, presentations and receptions being offered by clicking on the Program tab above and selecting one of the sub-tabs for details. Don't hesitate to email info@WinterWingsFest.org or call 877-541-BIRD if you have questions. Watch for details in this space for the date that registration will be available online. Please check back for any updates as scheduling changes may still occur prior to registration.

For more information, visit: https://winterwingsfest.org.

25th Annual Whooping Crane Festival - 2022 / Port Aransas
Dates: February 24 – February 27, 2022
Location: Port Aransas and Mustang Island, TX

Every year since 1996 the Whooping Crane Festival celebrates the annual return of the cranes to their wintering habitat at the Aransas National Wildlife Refuge. The Texas Coastal Bend is the only place where you can see the world's last wild population of Whooping Cranes.

For more information and to register, go here: https://www.portaransas.org/whooping-crane-festival/the-2022-festival/=
https://www.portaransas.org/whooping-crane-festival/
https://www.portaransas.org/whooping-crane-festival/the-2022-festival/schedule/
https://port-aransas-tourism-welcome-center.myshopify.com/collections/port-aransas-whopping-crane-fest

For a Wings of Winter Port Aransas Winter Birding Guide PDF, go here:
https://assets.simpleviewinc.com/simpleview/image/upload/v1/clients/portaransastx/Wings_of_Winter_Updated_2022_a6fada87-1f82-467a-898b-314727bb740b.pdf

2022 Marsh Madness Sandhill Crane Festival
Dates: February Friday 25–Saturday 26, 2022
Location: Goose Pond Fish and Wildlife Area
Greene Co. Indiana, near Linton

Planning is currently underway for the 2022 Festival.
Join Friends of Goose Pond for its annual Sandhill Crane Festival. *For the festival agenda, go here:* http://www.friendsofgoosepond.org/wp-content/uploads/2017/01/2017-Progrtam-Schedule.pdf

For a map of Goose Pond FWA, go here: https://www.in.gov/dnr/fishwild/files/fw-gpfwa_waterfowl_draw_map.pdf

Learn more about the conservation, restoration and education work by Friends of Goose Pond group here: http://www.friendsofgoosepond.org/

2022 Annual Monte Vista Crane Festival – Where the Cranes meet the mountains
Dates: March 11-13, 2022
Location: San Luis Valley
Monte Vista, Colorado
The annual Monte Vista Crane Festival celebrates the spring arrival of some 25,000 Sandhill Cranes to the San Luis Valley.
For more information, go here: mvcranefest.org

2020 Othello Sandhill Crane Festival
Dates: Friday March 25- Sunday March 27, 2022
Location: Columbia National Wildlife Refuge, Othello, Washington

Come back in January 2022 for the updates on the Festival. Currently we will be holding a **VIRTUAL** Festival for 2022. However, if the state allows for in-person events and the Othello School District allows the Festival to hold its event at their facilities, we will plan for that accordingly. Check out our Facebook page for updates, arts & crafts, photo contest, virtual auction, T-shirt sales, and soon to be virtual or in-person Festival with guests speakers.

Founded in 1998, the festival highlights the spring return of Sandhill Cranes to the greater Othello area and Columbia National Wildlife Refuge.
https://www.othellosandhillcranefestival.org/online-registration

.....

The Eastern Crane Bulletin is issued quarterly (March, June, September, and December).
To receive this E-bulletin contact:

Mary W. Yandell, *Editor*
Kentucky Coalition for Sandhill Cranes

kyc4sandhillcranes.com
kycoalition4sandhillcranes@gmail.com
mtwyandell@gmail.com

Or

Cynthia Routledge
Southeastern Avian Research
Specializing in Winter Hummingbird banding
www.southeasternavianresearch.org
The Tennessee Ornithological Society
www.tnbirds.org
routledges@bellsouth.net

For archived issues of the *Eastern Crane Bulletin* click here:
http://kyc4sandhillcranes.com/eastern-crane-bulletin/

We never lend or sell our E-bulletin recipient list.

Best wishes to all for a healthy new year!
May sedges of cranes continue to cause wonder and delight.

Thanks for reading the Eastern Crane Bulletin.

Sedge, Sege of Cranes
A collection of rush-like marsh plants, hence, a group of sea or marsh birds that use it as a nesting place. Also, siege. Examples: sedge of bitterns; of cranes; of herons
– Book of St. Albans, 1486

The Book of St Albans is an important example of an early printed book in English. The first edition was printed in 1486 in St. Albans, on what may have been the third printing press in England. It gathers a collection of advice on hawking, hunting and heraldry with a chapter on fishing added in 1496. Since then, it has been through many editions.

The book is often credited to Dame Juliana Berners of Sopwell. It is likely that she wrote a verse on hunting in the original version. As time progressed, she became associated with the whole book.