THE UNISON CALL

- Newsletter of the North American Crane Working Group -

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Winter/Spring 2021

Cranewreck, by Robert Steelquist. Sandhill Cranes in flight in the Sacramento Delta, California, October 2021. Bob notes the intensity of the grouping, made more compact by the compression of the telephoto lens. He also notes the juveniles tucked in the center of this group — is this typical of flocks in short-distance flight? See more of Bob's photos inside.

President's Report

It's hard to believe it has been two years since our workshop in Texas. Time is such a funny thing these days, isn't it? Anyway, I hope this new year finds you well and I hope that by our next workshop we will be able to see each other again. I always enjoy seeing some of the best crane places, connecting with you all, hearing about all the great work you are doing for the cranes of North America, and I look forward to being able to do that again in 2023.

During the past year, many of you have been busy submitting, revising, and reviewing articles for the Proceedings of our last workshop. Thank you to all who have contributed to this effort, especially our editors Jane Austin, Richard Urbanek, and Megan Brown. Thanks also to Daryl Henderson for his work on copywriting and editing, and to all of the authors and reviewers. The Proceedings of the North American Crane Workshops are a valuable resource and I appreciate everyone's hard work in putting them together! The current volume will include 7 research articles, 7 brief communications, and other abstracts presented during the workshop. The goal is to have the final publication complete by spring 2022.

The next big thing the North American Crane Working Group board will be working on is planning our next workshop, which will take place during fall 2023 in the Baraboo, Wisconsin area. We hope to see congregating Sandhill Cranes getting ready for fall migration along the Wisconsin River, and maybe even a few reintroduced Whooping Cranes. The International Crane Foundation will be celebrating its 50-year anniversary during 2023 and has just undergone major renovations to its visitor center and exhibit areas. We are excited to show you our new site and to celebrate 50 years of crane conservation with fellow crane conservationists!

As always, the Board of Directors welcomes your input on the North American Crane Working Group. If there is something we can do to better connect or serve you, or if there is something you would like to see at our next workshop, please feel free to reach out. Until we meet again, I wish you all a happy, healthy, and crane-tastic year.

Hillary Thompson, International Crane Foundation, Baraboo, Wisconsin

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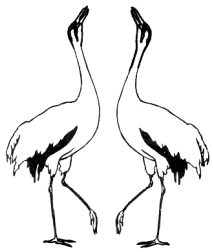


The Unison Call is a forum to share updates, news and opinions. It is published twice yearly by the **North American Crane Working Group**, a 501(c)(3) non-profit organization incorporated in Wisconsin. Electronic (PDF) versions of past issues of the newsletter can be downloaded free of charge from our website (**www.nacwg.org**). **The views expressed in *The Unison Call* are those of the individual authors and do not necessarily represent the positions of NACWG.** Comments and contributions are always welcome; send to Daryl Henderson at nysquirrel1@gmail.com

Cranes in the News

40 Whooping Cranes on the Platte River — Photo © Colleen Childers

Whooping Cranes in Record Numbers on the Platte River in Fall Migration 2021

During fall and spring migrations, Colleen Childers hops aboard a Cessna airplane to look for and count Whooping Cranes along the Platte River in central Nebraska, part of the monitoring work of the Platte River Recovery Implementation Program. On the morning of November 6th, Colleen and fellow crane spotter Mike Pitcher were astounded to see 46 Whooping Cranes in a cornfield just south of the Platte during their survey trip downriver — and the same 46 *in* the river on the return leg. When the crew landed, Colleen hurried to the Hill Top Blind on Crane Trust property to view the cranes and take photographs. She found 40 Whooping Cranes on the river, as seen in her photo above; the other 6 cranes were in a meadow just south of the river, out of frame. Sandhill Cranes are seen foraging beyond.

According to official tallies (noted in Eric Fowler's article, link below), there were 57 Whooping Cranes on the river daily for nearly a week, beginning November 3rd — a single-day record for Nebraska. In total, 88 individual cranes were recorded on the Platte for the entire fall period, itself a new fall record. Such concentrations of wild Whooping Cranes have not been previously recorded anywhere outside staging areas near Saskatoon, Saskatchewan and the wintering area, Aransas National Wildlife Refuge.

For details and more photos, see *A Historic Gathering: Whooping Cranes* by Eric Fowler in Nebraskaland Magazine. http://magazine.outdoornebraska.gov/2022/01/a-historic-gathering-whooping-cranes/

Many thanks to Colleen Childers, Eric Fowler and David Baasch for their contributions to this news story. – DH

Whooping Crane Shooting Deaths in Oklahoma under Investigation

The Oklahoma Department of Wildlife Conservation (ODWC) is working with the U.S. Fish and Wildlife Service to investigate the deaths of 4 Whooping Cranes near Tom Steed Lake in Kiowa County. The birds were killed on November 5, 2021.

One injured Whooping Crane was discovered by hunters who notified game wardens with the ODWC. The Whooping Crane subsequently died while being transported to a veterinarian clinic. Additional evidence was recovered at the scene. The USFWS's Wildlife Forensics Laboratory conducted a necropsy and verified the cause of death as a shotgun wound.

Further investigation of the original crane's location uncovered three additional dead Whooping Cranes (within a mile of the first bird), bringing the total loss to four. One of the cranes was wearing a GPS tracking device.

"This is sickening to see such a wanton waste of wildlife, and our Game Wardens are very eager to visit with the individual or individuals who committed this crime," said Wade Farrar, Assistant Chief of Law Enforcement with the Wildlife Department. "Somebody out there knows something that will help in this investigation, and I trust that they will do the right thing and come forward."

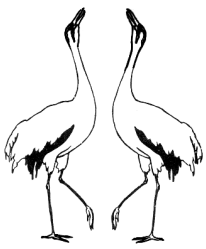
Oklahoma Game Warden Jeremy Brothers approaches the injured Whooping Crane that later died due to its injuries

Whooping Cranes are protected under the Migratory Bird Treaty Act and the Endangered Species Act. A conviction for killing a Whooping Crane can carry up to 1 year in prison and a $100,000 fine per person under the Endangered Species Act, and up to six months in jail and a $15,000 fine under the Migratory Bird Treaty Act.

Operation Game Thief, the Oklahoma Game Warden Association, ODWC's Wildlife Diversity Program and the USFWS are offering cash rewards for information leading to the conviction of the person or persons responsible for the death of these endangered cranes.

Anyone with information is asked to contact the Wildlife Department's Operation Game Thief at (918) 331-5555 or the USFWS' Office of Law Enforcement in Fort Worth, Texas, at (817) 334-5202. Callers with information may remain anonymous.

Edited news bulletin from the ODWC (December 15, 2021), with additional details from the Conservation Coalition of Oklahoma.



Highly Pathogenic Avian Influenza H5N1 Update, 11 February, 2022

Dr. Barry Hartup, Director of Conservation Medicine, International Crane Foundation

Eurasian Cranes at the Hula Valley in Israel's north prior to a devasting outbreak of avian influenza in December 2021. Photo by Jonathan Meirav, Society for the Protection of Nature in Israel, in *The Jerusalem Post*, October 14, 2021.

The unprecedented loss of up to 8000 Eurasian Cranes to an H5N1 highly pathogenic avian influenza virus in Israel's Hula Valley in December 2021 was a tragic example of the potential for this virus to sicken wild birds, and now cranes in particular. It came shortly after the loss of hundreds of Demoiselle Cranes in Rajasthan, India in November and a tumultuous 2021 where outbreaks of the virus in poultry and wild birds were documented in over 40 countries worldwide. The detection of H5N1 in Newfoundland and Labrador Province in Canada in December 2021, Maryland, Virginia, South and North Carolina, and Florida in January and early February 2022 in wild waterfowl (including American Wigeon, Northern Shoveler, and Blue-winged Teal), as well as domestic turkeys in Indiana on February 9th, is serious cause for concern. This pathogen has not been identified in North America since 2016.

Avian influenza's primary impacts have historically been centered in domestic birds. Since the appearance of the high pathogenic H5 type A influenzas in East Asia in 1996, a number of outbreaks in poultry during the 2000s and 2010s have occurred. These led to the culling of millions of domestic chickens, turkeys, and other food-producing animals, and economic losses in the billions of US dollars. Concerns over the health risk to people (and other mammals) has also been an important consideration since avian influenza is considered a potential zoonotic disease, or a disease of animal origin that may affect humans. Thankfully, cases in people have cropped up only sporadically; they have occurred under unique close-contact situations with infected birds, with no evidence of sustained disease transmission.

A growing number of outbreaks and virus stains have since been described in wild birds worldwide, associated with variations, or reassortments, of the virus' genetic material and various new designations. The first significant losses in

wild birds occurred at Qinghai Lake in central China in 2005, involving over 6000 wild birds, including many Bar-headed Geese to an H5N1 strain. A pair of Black-necked Cranes was found among the dead birds, and it seemed the disease was mostly limited to waterfowl, the species that naturally harbor these viruses. Subsequent research, however, showed the new H5N1 variant was more lethal to wild birds, and its transmission was sustained between migratory waterfowl, suggesting the virus could be carried along migratory routes.

For years, the International Crane Foundation has expressed concern over disease risks in areas where cranes are concentrated due to agricultural development, loss or fragmentation of habitat, or direct feeding of cranes for ecotourism development or to prevent crop depredation. Nowhere has this been clearer than on the southern Japanese island of Kyushu, at Izumi, where now 16,000 Hooded Cranes and 3000 White-naped Cranes overwinter, both sizable shares of their global populations. Sure enough, high pathogenic H5 viruses affected poultry stocks in the region and eventually spilled over into the overwintering cranes in 2010 (H5N1), 2014 (H5N8), 2016 (H5N6) and 2020 (H5N8). Fortunately, losses of cranes were limited to fewer than a hundred in each outbreak, though the effects to nearby domestic poultry stocks were significant. The situation at Izumi continues to highlight the importance of preserving or restoring natural wetland habitats and attracting wintering cranes to multiple, scattered sites, and increasing separation of wild birds and domestic poultry to protect them both.

Unfortunately, the situation in the Hula Valley region of Israel seems a mirror image to Izumi. Tens of thousands of Eurasian Cranes overwinter there due to artificial feeding for tourism while also preventing crop depredation by the cranes in nearby agricultural fields that were developed following drainage of large wetlands in the mid- to late 20th century. Many of these cranes no longer migrate further south to Africa.

Highly pathogenic H5N1 virus affected poultry farms in Israel beginning in October and mid-November 2021, a full month before large numbers of cranes became ill at the Agamon Hula site. It seems likely that the virus recirculated between wild and domestic birds and was dispersed around the country by various means, both among wild birds and animal agriculture trade and other activities, reflecting poor biosecurity. The outbreak resulted in the loss of the Eurasian Cranes, but also Great White Pelicans, Eurasian Kestrels, and Common Buzzards. Over 1 million domestic chickens and turkeys were lost or slaughtered to control the outbreak among 20 farms.

As of a mid-January, the Israel Ministry of Agriculture announced control of the outbreak. A committee has been formed by Israel's National Emergency Management Authority to develop recommendations for preparation of future avian influenza outbreaks (which have occurred regularly in the country for years), as well as examine potential changes to management of the Agamon Hula site to decrease risks of disease in cranes and other birds. Current efforts are focused on site clean-up, disinfection and monitoring. This is not unlike what has happened at Izumi, and elsewhere in East Asia in hopes of preventing large losses of cranes and other birds from this disease.

We expect that the NACWG network will be vigilant this spring at sites with concentrations of Sandhill Cranes in the Eastern, Mississippi and Central flyways to monitor for the emergence of a mass mortality event from avian influenza. Learning from the experiences of Japanese and Israeli colleagues will be needed to develop mitigation and preventive management plans at several sites here in North America.

Closer to home, the Conservation Medicine Department together with ICF leadership has developed and implemented a biosecurity policy and set of procedures to keep the captive flock at the ICF site safe since 2005. In fact, we activated our plan and heightened our biosecurity measures in 2015 when H5N1 appeared in Wisconsin within 30 miles of ICF headquarters in Baraboo. We hope we are not put in that position again in 2022, but will keep monitoring the situation closely.

For up-to-date information on the spread of this virus in wild and domestic bird species in North America, see USGS National Wildlife Health Center:
https://www.usgs.gov/centers/nwhc/science/distribution-highly-pathogenic-avian-influenza-north-america-20212022

Coming of Age Crane: A Photo Essay

Robert Steelquist

For migrating Sandhill Cranes, the first six months of life are fraught with danger. Eggs are easy prey; young birds (colts) are also vulnerable to accidents like drowning, as well as mammal and avian predators, despite the ferocity that parents display to defend them. Infanticide and fratricide are also known. And siblings are often mismatched in aggressiveness—a dominant colt can simply hog food, leaving the weaker sibling to grow more slowly or even starve. Overall, their chances of hatching, fledging and reaching breeding age are overwhelmingly small.

Young cranes also face a steep learning curve as they become socialized into crane society. Between hatching and flight they have virtually no contact with cranes other than their parents. After as little as four months, families reunite with older siblings that are non-breeding adults, form into cohorts in staging areas and migrate en-masse in groups of hundreds or thousands a distance that can exceed 3,000 km. Weather systems, smoke from wildfires and the sheer effort needed all make the journey very dangerous.

On winter grounds in California, they spend months moving daily between night roosts in wetlands and spent grain fields or pastures, in crowds. Given the complexity of crane social behaviors, each year's newbies have a lot to learn.

Over the last four years I have followed the three populations of Pacific Flyway Sandhill Cranes, finding them in their winter haunts and following them to their breeding grounds. I've photographed them in all light and weather conditions, recorded crane sounds and observed and made pictures documenting the rhythms of seasons, natural history and behavior.

Over the years I have traveled to the Sacramento Delta and Kenai Peninsula, Alaska, as well as migration stopover sites in Oregon and Washington. As much as I have learned from scientific literature, technical reports and the vast literature on cranes worldwide, what taught me the most were hours, days and weeks spent in the company of cranes—warily tolerated as a harmless, patient and still piece of the landscape they inhabit. Of the many spectacles and marvels they present to us, the most astonishing to me is cranes' first six months of life—how they survive to learn what they must and grow into the magnificent animals they become.

My heartfelt thanks go to Nina Faust of Kachemak Crane Watch and Inspiration Ridge Preserve for her hospitality and guidance and to Dr. Gary Ivey for the contributions of his career of crane research and his patience in answering my many questions.

1 — Within days of hatching crane colts are mobile and take behavioral cues from their parents, often accompanied by soft purring and clucking.

2 — Alarmed by a curious duck, colts take refuge under their mother’s wings.

3 — Colts learn by observation…

4 — … and mimicry.

5 — Introduced to novel food, the colt hesitates.

6 — The parent cuts the prey into manageable bites.

7 — Within forty to sixty days after hatching, the Alaska Lesser Sandhills are nearly adult-size.

8 — By the time they fledge, they have learned to paint their feathers.

9 — As migration time nears, the family group of parents, young of the year and previous years' offspring reunite. Staging of the regional population soon follows.

10 — A fledged colt with what is likely a pecking injury, inflicted by a parent, sibling or rival family member.

11 — As multi-family staging groups form, aggressive colts adopt adult behaviors, including threat gestures.

12 — On staging grounds, spontaneous wing flapping may be "flight restlessness"—signs that birds are ready to migrate.

13 — The 3,000+km migration from coastal Alaska to California traverses some of North America's most inhospitable terrain.

14 — Separation from the migrating flock can mean death, or in this case, adopting another flock. This juvenile spent its first winter on Washington's Olympic Peninsula among Trumpeter Swans.

15 — By the time they have reached the wintering grounds on the Sacramento Delta, young of the year will have beaten cruel odds of survival and learned the ways of the crane.

Robert Steelquist is a Pacific Northwest photographer, writer, naturalist, and environmental educator with a 40-year career introducing learners to the nature of the Northwest. He is author of 13 books, including *The Northwest Coastal Explorer*, Timber Press, 2016. He lives in the foothills of the Olympic Mountains, near Blyn, Washington.

Livestream Sandhill Crane Nest Camera: An Educational and Scientific Tool

By Erin Gelling, Colorado Crane Conservation Coalition

In 2021, Colorado Crane Conservation Coalition set up a livestreaming camera on a known Greater Sandhill Crane nest in northwest Colorado. The goal of this camera was to engage the public with videos of a real crane nest and learn more about Sandhill Cranes during nesting when they are normally secretive. The camera has become a powerful educational and scientific tool for Sandhill Cranes.

The camera was turned on after the cranes arrived on their breeding grounds and were starting to move around the nesting area. Both parents engaged in building the nest, though the female did the majority of the work. On April 15th, the female laid the first egg, followed by the second on April 18th. Throughout incubation, the parents continued to add nesting material to the nest, even up until hatching. The parents took turns incubating, but the female did most of the work, incubating on average 15.4 hours (64.2%) per day while the male incubated on average 8.2 hours (34.2%) per day. The male returned to the nest for the morning incubation exchange after sunrise between 6:29–8:23 MDT and the female returned for the evening exchange before sunset between 14:08–19:56 MDT. The switches during the day were more erratic: some days the female came back for an exchange in the morning and sometimes she did not return until the afternoon.

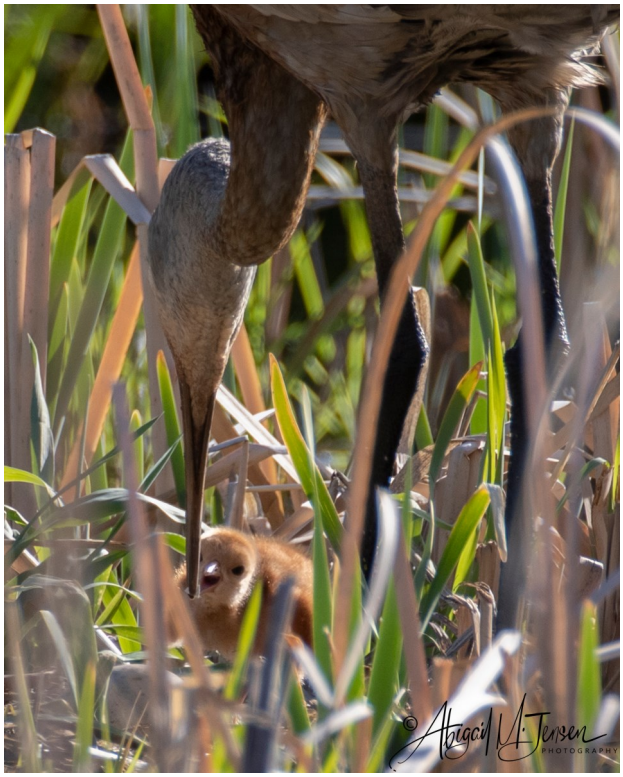
Top — 15 April 2021, the first egg was laid

Bottom — 19 May 2021, showing recently hatched chick

The female always incubated at night when the majority of predators came to the nest. Numerous attempts by several raccoons and two attempts by mink were caught on camera. The female bravely fought off the predators by spreading her wings and using her bill as a spear. Even though the predation attempts occurred at night when the male was roosting away, the female never called for the male but defended the nest and eggs on her own.

One of the male's jobs during nesting is to defend the territory. This was apparent one day in May when the male, who was incubating, stood up from the nest and headed north. Scanning with the camera revealed the male about 50 yards from the nest calling while another crane pair stood just beyond him. It seems the other pair was too close to this male's nesting area. The male eventually walked back to the nest to continue incubating, after having been off the nest for 16 minutes.

Hatching began on May 18th, 33 days after the first egg was laid and 30 days after the second egg was laid. The male was incubating during hatching and stayed at the nest for the several hours it took for the egg to hatch. The other egg never hatched, but the parents stayed at the nest and continued to incubate until May 20th when the male left the nest with the hatched chick to feed nearby in the grass with the female. The male continued to incubate the other egg until the following day when he finally left the nest for good, realizing that the egg was not going to hatch and that time and

Photos by Abby Jensen of Abby Jensen Photography, Steamboat Springs, Colorado

energy should be spent raising the single chick. The egg was, in fact, non-viable. The parents remained near the nest for several days feeding with their chick.

The livestream camera would not have been complete without sound. Throughout the nesting process, the sounds of the surrounding wetland were a welcome distraction from everyday life. One could hear the parents purring after the eggs were laid and before hatching began and the unison call that accompanied most exchanges on the nest.

Throughout the livestream from mid-April to mid-May 2021, we opened the website to comments from the public. We received 174 comments from people across the world about what was happening with the nest. People described exciting moments that they saw on the camera, such as several raccoon attacks. People asked questions about Sandhill Crane nesting biology, for example, why did the other egg never hatch and where do the parents go when away from the nest? Our biologists answered the questions through the comments, allowing for a swift interactive exchange between the public and biologists.

We produced 24 highlight videos that continue to be available on our website (https://coloradocranes.org/nest-camera-highlights/) and YouTube channel (Colorado Cranes). These videos show the highlights from the nest: building the nest, parent exchanges, and hatching of an egg. In just under one year, these videos have gotten over 8600 views. These videos allowed the public to learn and experience crane nesting biology in a way that was never possible previously.

Through this camera, the general public and biologists learned more about Sandhill Cranes during the nesting season. We will continue to host the livestream camera for many years to come, continuing to add to our ability to collect scientific information and teach the public about nesting cranes. This camera has sparked interest and curiosity about cranes and will aid in conservation efforts to protect cranes and the areas they nest in far into the future.

We hope you will tune in to our livestream nest camera in April 2022! Visit our website to learn more: coloradocranes.org

Please join us for the 11th annual Yampa Valley Crane Festival that will be held September 1-4, 2022 in Northwest Colorado. It will feature expert speakers, crane-viewings, bird walks, workshops, crane art, and more.

Regional Reports

Aransas—Wood Buffalo Whooping Crane Population Summary 2016-2021

Breeding season	2016	2017	2018	2019	2021†
No. of nests detected at WBNP (May)	78	98	87	97	102‡
No. of fledged chicks detected (August)	45*	63**	24	37	50 (out of 98 nests)
Average no. of chicks per nest#	0.57	0.64	0.28	0.38	0.51
Estimated no. of birds at Aransas NWR in the primary survey area	489 95% CI 428-555	505 95% CI 439-576	504 95% CI 412-660	506 95% CI 343-678	
Estimated no. of juveniles at Aransas NWR	50 95% CI 36-61	49 95% CI 42-58	13 95% CI 10-19	39 95% CI 26-52	

†No surveys were conducted in 2020 due to COVID-19

‡Most nests ever recorded, breaking the previous record set in 2017. Ninety-eight of 102 detected by aerial survey, 4 more were detected on satellite imagery by volunteers through the crowdsourced Zooniverse project: https://www.zooniverse.org/projects/whcr-cr/whooping-cranes/about/results

*One family with twins; **four families with twins

#20-year average is approx. 0.48 chicks per nest

Wood Buffalo National Park (WBNP) 2016 data are preliminary results from the Canadian Wildlife Service, with thanks to Mark Bidwell; 2017 nest survey data are from Mike Keizer, Parks Canada; 2017 fledgling data are from CBC News, August 16, 2017 (www.cbc.ca/news); 2018 data are from an article posted by Cabin Radio, Yellowknife, NWT, September 7, 2018 (https://cabinradio.ca), citing Rhona Kindopp, Parks Canada; 2019 nest survey and fledgling numbers were reported by Friends of the Wild Whoopers (https://friendsofthewildwhoopers.org/), July 12 and August 8, 2019; 2021 data are from the Zooniverse project site (URL above); Aransas NWR winter data are from 'Whooping Crane Updates' at the ANWR website.

Update on the Eastern Migratory Population of Whooping Cranes

Annika Poitras, Crane Research Intern, International Crane Foundation
Hillary Thompson, North America Program Crane Analyst, International Crane Foundation

Parent-reared chick 85-21 with adult Whooping Cranes at Wheeler National Wildlife Refuge

Photo credit: Scott Murphy

Current Population Size and Status

As of 1 February 2022, the current estimated population size is 78 cranes (37 females, 38 males, 3 unknown). Eighteen of these 78 individuals are wild-hatched and the rest are captive-reared. To the best of our knowledge, there are currently at least 4 Whooping Cranes in Illinois, about 35 in Indiana, at least 6 in Kentucky, 1 in Tennessee, 18 in Alabama, 3 in Georgia, and 1 in Florida. The wintering locations of the remaining birds have not been confirmed in the last month. In the past year there have been 5 confirmed mortalities mostly due to unknown causes. Additionally, in spring 2021, one adult Whooping Crane was captured and placed back in captivity at the International Crane Foundation due to continued use of a military air base.

Summer Distribution

Breeding pairs of Whooping Cranes this year were in Juneau, Adams, Marathon, St. Croix, Green Lake, Marquette, Sauk, and Dodge Counties, in Wisconsin. Most Whooping Cranes spent the summer in Wisconsin, but 2 unpaired cranes were in Michigan, and one spent most of the summer in Illinois.

Nesting Season

In 2021, we recorded a total of 23 nests by 21 breeding pairs of Whooping Cranes, from which 14 chicks hatched. Four of these chicks made it to fledging, and 3 migrated south, and wintered with their parents. This does not include 1 nest of a hybrid Sandhill-Whooping Crane pair in Michigan, and 2 nests of a hybrid pair in Dodge County,

Wisconsin. The numbers reported here are the total we observed but there may have been a few missed nests or chicks who lived only a few days. We recovered 3 eggs from abandoned nests, collected 2 eggs from 2 occupied nests, and conducted forced renesting for one additional nest with 2 eggs. In total we brought 7 eggs into captivity for rearing and release. Additionally, we pulled a fertile egg from one nest and swapped it into a hybrid (Whooping Crane – Sandhill Crane) nest, however it did not hatch. Eleven nests failed due to a variety of known and unknown causes. Additionally, 1 nest was incubated full term, but the pair was confirmed later without chicks.

2021 Wild-hatched Cohort

W2-21 is the oldest surviving wild-hatched Whooping Crane from the 2021 cohort and the first chick to fledge from White River Marsh SWA in Green Lake County, Wisconsin. In November, W2-21 left Wisconsin with its parents, male 4-12 and female 3-14, and stopped in Morgan County, Alabama before settling in southern Georgia. They have not been seen since December, but we expect them to show up again on the breeding grounds very soon.

W10-21 hatched to parents 12-03 and 12-05 in Juneau County, Wisconsin. Although W10-21 reached fledging age, its parents arrived on the wintering grounds without their youngster. It is assumed that the chick died at some point shortly before or during migration.

W11-21 also hatched in Juneau County, Wisconsin. He migrated south with parents 18-03 and 36-09 during November 2021. This family group wintered near Goose Pond Fish and Wildlife Area in Greene County, Indiana.

The youngest surviving wild-hatched chick from 2021 is W14-21. He was hatched to parents 25-09 and 2-04 in Juneau County, Wisconsin. Together, the family migrated down to Hopkins County, Kentucky, where they spent the winter.

Fall Releases of Parent-reared Cranes

During October 2021, a parent-reared juvenile raised at the International Crane Foundation, 83-21, was released in Juneau County, Wisconsin, near a pair of adult Whooping Cranes. He failed to associate with the adult cranes and was found dead later that month. There were not enough remains to submit for necropsy, but he was found in a dry marsh, so we assume that he was predated.

Another parent-reared juvenile raised at the International Crane Foundation, 84-21, was also released in Juneau County, Wisconsin in fall 2021. She also failed to associate with nearby adult Whooping Cranes and spent the majority of October with a flock of Sandhill Cranes. She eventually found Whooping Cranes 37-07 and 6-15 at Necedah National Wildlife Refuge and migrated south to Gibson County, Indiana with them. There she has been associating with a group of 5 other Whooping Cranes. As of 1 February 2022, 84-21 and her associates are still in Indiana, but will likely start migrating north very soon!

The last parent-reared chick from the fall of 2021, 85-21, was released in Green Lake County, Wisconsin. He was soon associating with a group of nearby Whooping Cranes, and was adopted by male 3-17 and female 67-15. This pair has adopted a parent-reared chick in the past, 79-19 in the fall of 2019. Together the trio migrated south to Wheeler National Wildlife Refuge in Alabama where they spent the winter (**see photo on the previous page**). As of 1 February, they are still in Alabama associating with several other Whooping Cranes in the area.

Louisiana Whooping Crane Update

Eva Szyszkoski, Louisiana Department of Wildlife and Fisheries

Female LFW12-19 is released at the White Lake WCA after transfer from Florida on 12 October 2021. Photo: Eva Szyszkoski/LDWF

2021 Reproduction — Nesting season in Louisiana in 2021 was long, with the first nest initiated on 2-7 February and the last nest concluding on 3 July.

Forty-one nests by 23 pairs were confirmed in 7 parishes (Acadia, Allen, Avoyelles, Calcasieu, Cameron, Jefferson Davis, and Vermilion) in central and southwestern Louisiana and two counties (Chambers & Jefferson) in southeast Texas in 2021. Thirteen pairs consisted of individuals who had previous experience nesting together, 2 pairs consisted of 1 individual who had previous experience, and 8 pairs consisted of individuals who were both nesting for the first time. One additional experienced pair attempted to nest but the female became egg bound with her first egg and died.

No fewer than 63 eggs were produced in 2021, 61 confirmed by visual observation or discovery of eggshells and two not directly observed but presumed due to one mated pair sitting on a nest platform full term and another sitting for just over one week. Thirty-four eggs were confirmed fertile, of which 21 died prior to hatch (3 early dead, 9 mid-dead, 9 late dead) and 13 successfully hatched in the wild. Fifteen other intact eggs were collected and were either non-viable or of unknown fertility (many too young to tell) and the remaining 14 eggs disappeared or broke at the nest.

Of the 41 confirmed nests, 14 were incubated to full term or beyond with no hatch, 15 were abandoned or failed prior to full term, 9 successfully hatched 13 chicks, and 3 had captive eggs swapped into them. Nest failures were attributed to a number of reasons this year, including: levee failure resulting in water levels dropping, excess rain resulting in high water levels around the nest (even if the nest floated and did not flood), general severe weather (not necessarily water level related) and likely non-viable, rotten eggs breaking prior to full term.

In total, 15 chicks hatched in the wild in 2021 (13 to their biological parents, and 2 from egg swaps), of which 4 survived to fledge, including a pair of siblings.

Unusual Nesting Behavior — Similar to 2020, Female L5-14 and mate, L12-16, once again exhibited unusual behavior towards the end of the breeding season. They initiated their third nest attempt on 3 June, but this nest failed and the egg was later found underwater. They then laid the second egg of the clutch on a new platform in a different field; abandoning it for unknown reasons several days later. Although these two eggs were from the same clutch, the nests themselves are counted separately in the total number. They initiated a 4th nesting attempt on 13 June which they abandoned four days later.

Cranes transferred from Florida — Both females who were translocated from the failed Florida reintroduction project in 2019 nested in 2021. The older female (LF1-98) had many years of previous experience in Florida, but this was the first ever nesting attempt for the younger female (LFW12-15). Unfortunately, neither pair was successful: LFW12-15 and mate L5-18 incubated past full term on non-viable eggs, and the nest of LF1-98 and L10-18 was flooded by extremely heavy rains just 3 days after initiation.

An additional female (LFW12-19) was transferred from Florida to Louisiana on 12 October 2021 (**see photo above on the previous page)**. She has yet to pair, but has remained in the vicinity of the White Lake WCA, where numerous cranes are located, and has associated with at least a few other cranes.

2021 cohort — Four captive-reared juveniles (all males) were released into the Louisiana population in November 2021. They arrived at the White Lake Wetlands Conservation Area, Gueydan, from the Freeport-McMoRan Audubon Species Survival Center in New Orleans on 10 November, received their permanent bands and transmitters the day of their arrival and were placed in the open portion of the release pen where they were immediately free to come and go as they pleased. One crane (L1-21) was killed less than a week later, one crane (with a VHF only) has not been detected since 16 November, and the remaining two males have stayed together in southwestern Louisiana where they have been observed with older whooping cranes.

Captures — Nineteen free-flying cranes were captured for banding or transmitter replacement on 43 days of attempts from 20 January 2021 – 31 January 2022, including 2 of 4 wild-hatched chicks. One additional crane was captured due to a left wing injury and one was captured primarily for translocation back to Louisiana, however both did receive new transmitters while in hand, for a total of 21 captures on 44 days of attempts.

Mortalities — Mortalities from December 2020 through January 2022 included 5 adult females, 2 adult males and 1 juvenile male in Louisiana, 1 adult male in Texas, and 1 adult female in Arkansas.

Current Population Size — As of 31 January 2022, the Louisiana non-migratory population consisted of a maximum of 72 individuals (40 males, 30 females, 2 unknown). Estimated distribution includes: 66 in Louisiana, 2 in Texas and 4 not recently reported.

Florida Whooping Crane Update

Tim Dellinger, Research Scientist

Florida Fish and Wildlife Conservation Commission

There are seven Whooping Cranes remaining in the Florida non-migratory population, two pairs, and three wild-hatched birds. The paired cranes are all captive-raised and range from 23–29 years old. Neither of the pairs has built a nest this spring (2021) nor nested in the past few years. Two of the three wild-hatched cranes are 6-year-old twins and the remaining crane is 16 years old.

In late September a 21-year-old female was hit and killed by a vehicle. The female had remained on her breeding territory with her 2019 chick since her mate disappeared in 2019. We captured the lone 2019 chick in early October and translocated it to the Louisiana population with our partners at White Oak Conservation and Louisiana DWF. Our goal is still to translocate the remaining wild-hatched cranes to the Louisiana population.

Mississippi Sandhill Crane Update

Scott Hereford, Mississippi Sandhill Crane NWR, Gautier, MS

Nesting 2021. A record 42 pairs nested and had a record high 63 nests; there were 11 renests. There were 5 new nesting pairs and 3 new active territories: Walmart (at a small pond next to a local store), Fox Pen Road, and Bodin Pond. There were 19 nests that hatched eggs, 16 nests that did not, and 27 nests where we did not know. We found 27 nests; 1 was in hydric swamp habitat, 4 were in savannas, and 22 were in ponds. There were 23 nests on the Gautier Unit, 19 nests on the Ocean Springs Unit, 3 on the Fontainebleau Unit, and 18 nests off the Refuge. Two established pairs, 1106 and 541, 982 and 1005, were not confirmed to nest although one of them was likely the pair in the Fox Pen Road area. The East Valentine pair, both unbanded, were believed to have disappeared before the nesting season. The pair heard up in the Haygood territory may have been 165 and unbanded mate. Nine chicks fledged, the second highest total after a momentous 2019, including two sets of twins. However, two disappeared before independence, leaving 7 to be recruited into the wild population. These were only the third and fourth records of deaths between fledging and independence in the last 31 years. Because of the FWS-wide suspension of drone use, we were unable to utilize that tool for nest detection in 2021.

Release. In the 42nd year of population supplementation, we released 11 captive-reared juveniles in two cohorts from top-netted pens; all were parent-reared. There have been 88 cohorts and 568 cranes released to the wild since 1981.We repaired the top-netted pre-release 100’ x 150’ acclimation pen in the Headquarters Savanna from the damage caused by Hurricane Zeta a year earlier in October, in preparation for the 4th year of releases from this site. On November 2, we received 6 juveniles from Audubon Species Survival Center. They were measured, banded with a USGS BBL band, a unique combination of 3 plastic color bands from Fraunhofer, Germany, fitted a with leg mount Ornitrack GSM GPS transmitter from Cellular Tracking technologies, and placed in the Headquarters netted pen for acclimation, and now known as #2101-2106. For the first time in 5 years, we chose to release in the Fontainebleau Unit to increase use on that southern part of the population’s range. We repaired the damage to one side of the 2.5-acre chain link fence open top pen, also from Zeta, then built a 0.15 acre top-netted pen inside the northeast side. We received 5 birds from White Oak Conservation Center on November 3. They were measured, banded with a USGS BBL band, a unique combination of 3 plastic color bands from Fraunhofer, fitted a with leg mount GSM GPS transmitter from Ornitela, and placed in the netted pen for acclimation, and now known as #2017-2021. We conducted a predator response test for each cohort and collected multiple 50-minute time budget sessions to test for alert behavior.

We released the Fontainebleau cohort November 17 and the Headquarters cohort on November 29. All 11 flew well within moments of walking out of their acclimation pens. The Fontainebleau cohort stayed close together near the pen for the first few weeks then moved almost 6 miles northwest to the north Gautier Unit, joining a large group in the North Valentine Pond and foraging nearby and on adjacent private lands. The Headquarters first split into 3 groups but 5 of the 6 quickly joined back together. They moved to join that same group roosting in North Valentine, now over 30 cranes, but return to Headquarters daily. The 6th of that cohort left right after release to join a small group in North Valentine but is currently with 4 others 2.5 miles southeast of headquarters in the Indian Point area of Gautier. All 11 survive.

Population. The year-end population was a record 151 cranes, with 101 banded and 50 unbanded. There were 90 in the Gautier or eastern area, 53 in the Ocean Springs or western area, and 9 in the Fontainebleau or southern area. There were 68 hatched in the wild, 56 from Audubon, and 27 from White Oak. Fifty-eight were males and 66 females.

Personnel. Refuge Biologist Angie Dedrickson left last summer to become wildlife biologist at the Upper Mississippi River National Wildlife and Fish Refuge – Savanna District. For 9 years, Angie was instrumental in all of the biological programs at the MS "Crane Ranch" and made several contributions to crane recovery efforts, especially the crane supplementation and capture/banding work. Many of you got to meet her here or at the LA, TN, and TX North American Crane Workshops. We are grateful for her legacy and wish her well in her new position. We said farewell and thanks to 1-year American Conservation Experience (ACE) Intern Erin Dodd and welcomed new ACE Interns Hefan Zhang and Madison Alsbach.

Lesser Sandhill Cranes, Annual Summary
Homer, Alaska, Summer 2021
By Kachemak Crane Watch

Nina Faust of Kachemak Crane Watch submitted her group's annual summary for 2021. Some highlights are given below; the full document can be found at http://cranewatch.org/?page_id=80 — Editor

Homer's Lesser Sandhill Cranes' arrival brought magnificent crane choruses and accompanying joyful dances celebrating a new season of crane watching and all the wonders of an Alaskan summer. Although the first glimpses of cranes were singletons in flight on April 1st, the first actual on-the-ground crane was not reported until April 17th. By mid-May, many crane pairs were already on their nests.

Kachemak Crane Watch continues to collect information on local nesting crane pairs, adding to the data of the original 2011-2013 Nesting Ecology Study conducted by Michelle Michaud for a graduate studies project under the guidance of Dr. Gary Ivey. This citizen science program is extremely valuable in providing a glimpse of the reproductive health of our local cranes from year to year.

This year, 45 nests were reported, and 79 colts hatched. Other possible nests were not verified. As in other years, several nests failed because predators stole the eggs, and several colts were reported taken by eagles or other predators. Weather did not seem to be a big factor this summer in colt mortality. Fifty-four colts made it to fledging out of 79 hatched, a 68% success rate, slightly higher than last year. Single colts were raised by 16 crane pairs, while 19 crane pairs raised twins.

This year has been quiet in terms of injury reports. Interestingly, a crane with a broken (upper) beak first seen in 2019 at Inspiration Ridge Preserve showed up again at a site on the Homer bench below IRP. The 2019 bird was well adapted to picking up corn by sticking its beak deeper into the dirt, and was seen preening. In 2019 it did not have a mate and was in the flock by itself. This summer a crane that looks like the 2019 crane was seen mating and reportedly uses the same technique to obtain food as the one observed in 2019. Her preening ability is good enough to keep her feathers in order.

This year's fifth annual Sandhill Crane Count Days took place on August 21, 28, and September 4th. Kachemak Crane Watch hosted an evening crane count each Saturday at Beluga Slough, when cranes fly in to roost. Citizen scientists area-wide on these Saturdays call in sightings all day to help Kachemak Crane Watch gather information on crane numbers before the average departure date in mid-September. Numbers for the Saturday evening Beluga Slough fly-in were much lower compared to past years, but the cranes did not fail to delight observers. Many of the cranes were using an alternate roost, where one observer reported 150 cranes.

Most of Homer's Sandhill Cranes departed on September 11, sometime after midday. The day before departure a flock of 500-700 cranes coming from across Cook Inlet flew over the North Fork area on their way to the wintering grounds. Numerous other smaller, high-flying migrational crane flocks were reported after that large group, and sightings continued into the next day, when Homer's cranes heard the clarion call of migration and knew it was their window before another big storm. The flocks were all headed to the Sacramento Valley and surrounding area in central California.

Dr. Roderick C. Drewien

July 30, 1939 – July 28, 2021

"You only live once, but if you do it right, once is enough." — Mae West

I was honored to be asked to write this tribute for Rod. I knew him well, both professionally and personally. We worked closely together for about 12 years and maintained a strong friendship until his death. But, like everything about Rod, summing up his life is big and complex and I feel a bit inadequate for the job. However, I'm sure he would have appreciated the quote that begins this tribute!

Rod grew up in Salinas, Monterrey County, California, the oldest of four boys (hats off to his mother, rest her soul). His grandfather owned a ranch in Sonora, Mexico, where Rod spent many happy summers, acquiring a fluency in Spanish and a deep understanding of the local people that served him well throughout his life. He was blessed with an abundance of energy, enthusiasm and intelligence which, as a youth, greatly exceeded his patience and self-discipline. He rode bulls in rodeos, hunted, fished, and once set his parents' barn on fire (I *believe* that was unintentional). At seventeen he dropped out of high school and entered the US Air Force, where he acquired the discipline needed to complete college, and ultimately, a doctorate in wildlife biology from the University of Idaho. He married and raised three daughters, all of whom have had successful careers of their own.

Rod is best known for his decades of work with sandhill and whooping cranes. Indeed, his 1973 doctoral dissertation remains the seminal study of Rocky Mountain (RMP) sandhill cranes. However, he also had great expertise on many species of waterfowl throughout western North America, and contributed much to the body of knowledge on their ecology and management.

He began his professional career in 1966 as a waterfowl biologist, South Dakota Department of Game, Fish, and Parks. Highlights of this period included his role as the state representative to the Central Flyway Technical Committee, and his leadership of a giant Canada goose restoration project.

His interest in waterfowl never waned. Rod initiated the first baseline nesting habitat studies of snow and Ross's geese on the northern islands of the Canadian Arctic. Later, he conducted annual winter surveys of snow and Ross's geese in the interior highlands of Mexico for over two decades. This work was contracted by the US Fish and Wildlife Service, providing them with critical data for the management of these species. Studying long-lost records at the Smithsonian Institute, Rod became an international expert on the history of nearly a century of winter waterfowl abundance and distribution in Mexico, as well as the changes in winter habitat that impact today's waterfowl. Posthumously, he will be co-author of a monograph on these historical data with several colleagues.

Upon meeting his second wife, Ruth Shea, in the 1980s, he became deeply interested in her work to conserve Rocky Mountain trumpeter swans. His leadership in capturing swans by night-lighting in an icy Idaho river enabled wildlife managers to rebuild the damaged winter distribution of these magnificent birds.

Rod maintained a productive focus on sandhill and whooping cranes throughout his professional life. He led the whooping crane cross-foster experiment in the Rocky Mountains, 1975-94, on contract to the US Fish and Wildlife Service. Although this project did not succeed in establishing a new population of whooping cranes, a great deal of what was learned has informed recovery efforts for this and other crane species. The development of egg collecting techniques, capture and banding, captive rearing, the use of ultralight aircraft and other methods for reintroduction have all benefited from Rod's expertise. He also encouraged European workers to begin capturing and marking cranes and even provided many with the with laminated plastic engraved color-bands for their work.

Rod was an advisor and member of the US Whooping Crane Recovery Team for 18 years, 1976-94. He served as the US representative for 12 years (1977-88) working with the Canadian Wildlife Service to develop and implement a capture, banding and marking program for wild, juvenile whooping cranes in Wood Buffalo National Park, Northwest Territories, Canada. Ultimately, he participated in the capture and banding of over 200 whooping cranes in Canada and the United States.

Rod's studies of sandhill cranes continued for decades. Rod and his colleagues captured and banded over 1,700 RMP cranes in the Rocky Mountains from 1969-1991. Most of these birds were marked for individual identification, and the resighting and recovery of marked birds has yielded critical survival and ecology information from one of the longest and most extensive studies of a migratory bird population in history. Because Rod migrated for many years with his subjects, he gained a deep and unique understanding of their ecology throughout their entire life cycle. Among the many beneficial outgrowths of this work were his development and refinement of annual population and recruitment surveys, which are still used today to inform the management of this population.

Rod published more than 50 scientific papers on migratory birds over the course of his career, including 36 on sandhill and whooping cranes. This body of literature alone will remain a testament to his many contributions to conservation.

Finally, no tribute would be complete without acknowledgement of Rod's impact on so many of his students, colleagues, and friends. Rod was truly a force of nature, and sharing an experience with him — from wildlife management and research, to hunting and horse-packing, to birdwatching and travel — was always a memorable adventure. The stories from those of us who were lucky enough to accompany him on Mexico surveys alone would make an interesting book.

Rod befriended and impressed people through the dynamic force of his personality and his lively interest in others. He influenced many young wildlife biologists in ways that have reverberated around the world to benefit conservation. Just two of many examples: Mary Anne Bishop attributes initiating her Master's thesis on wintering whooping cranes to a thoughtful tip from Rod; and John Taylor's pioneering moist-soil-management practices, which have benefited cranes and waterfowl for decades at Bosque del Apache National Wildlife Refuge, were inspired and informed by his collaboration with Rod.

Perhaps most notable among those who worked with Rod on various projects throughout his life is Kent Clegg. Kent grew up in a local farming family in Idaho. He began helping Rod band cranes as a teenager, and later his youthful long legs proved invaluable in banding many whoopers in the deep marshes of Wood Buffalo National Park. Kent was the primary implementer of the challenging and often dangerous night-lighting capture efforts for cranes and swans. He also maintained whoopers in experimental pair-bonding and ultralight experiments at his farm, even flying the aircraft for training the birds. Kent remained a close friend throughout Rod's life, essentially becoming a family member.

On a personal note, Rod's casual invitation to me in 1982 to "come chase cranes for me sometime" launched my 40-year career in research and endangered species recovery. I am deeply grateful for the years of field work with Rod. I attribute much of my knowledge of the wildlife and habitats throughout the mountain west, from Canada to Mexico, to his influence.

Many people provided anecdotes that helped me in the daunting task of summarizing this life, including D. Benning, M.A. Bishop, D. Collins, S. Derrickson, N. Snyder, and M.G. Taylor. I especially want to acknowledge Rod's wife and conservation partner, Ruth Shea. She provided lots of important details included in this tribute, and she cared for Rod at their farm in Idaho throughout his illness. Ruth was the executive director of the Trumpeter Swan Society for many years. She and Rod were a formidable conservation team throughout their marriage, sharing a love of the outdoors, wild birds, and animals of all kinds.

Wendy M. Brown, February 2022

Many thanks to Wendy Brown, Ruth Shea, and Lorne Scott for their contributions. The photo of Rod drinking coffee was taken by Noel Snyder. — Ed.

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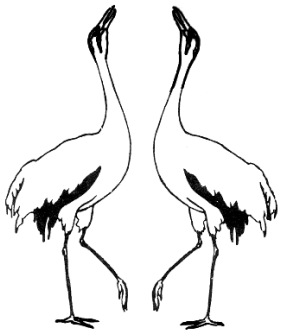

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