EMP FIELD TEAM ANNUAL REPORT 2024

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During 2024, there were 68-75 Whooping Cranes in the Eastern Migratory Population. The majority spent the summer in Wisconsin, except for 2 birds that traveled to South Dakota and 1 bird that spent the summer in Minnesota (Fig. 1). Highlights related to monitoring and management of the EMP from 2024 include:

- We recorded a total of 22 nests by 17 different pairs breeding in Wisconsin. This does not include 2 nests of a hybrid pair in Dodge County, Wisconsin. We collected 8 eggs from 4 first nests for forced renesting, to encourage the pair to renest after black flies were no longer on the landscape. Additionally, we recovered 2 eggs from an abandoned nest and collected 6 additional eggs from 5 first nests and 1 renest with 2 egg clutches. In total we brought 18 eggs into captivity for rearing and release. Seven chicks hatched from 4 first nests and 1 re-nest (Table 2). One wild-hatched chick fledged and survived to migration (Table 3).

- 12 adults were captured for transmitter replacement and 1 wild-hatched chick was captured for initial banding. One young Whooping Crane was captured due to inappropriate use of habitat in suburban Chicago and translocated to Horicon NWR.

- We released 5 captive-reared Whooping cranes into the wild. One was parent-reared (from ICF) and 4 were costume-reared (from ICF). All 5 juveniles survived migration and are on the wintering grounds. The parent-reared crane is with adult Whooping Cranes and the 4 costume-reared juveniles are in separate locations throughout the flyway.

- There were 3 confirmed adult mortalities (plus 1 wild-hatched pre-fledged chick) during 2024, due to various causes. Additionally, 8 cranes were classified as long-term missing during 2024.

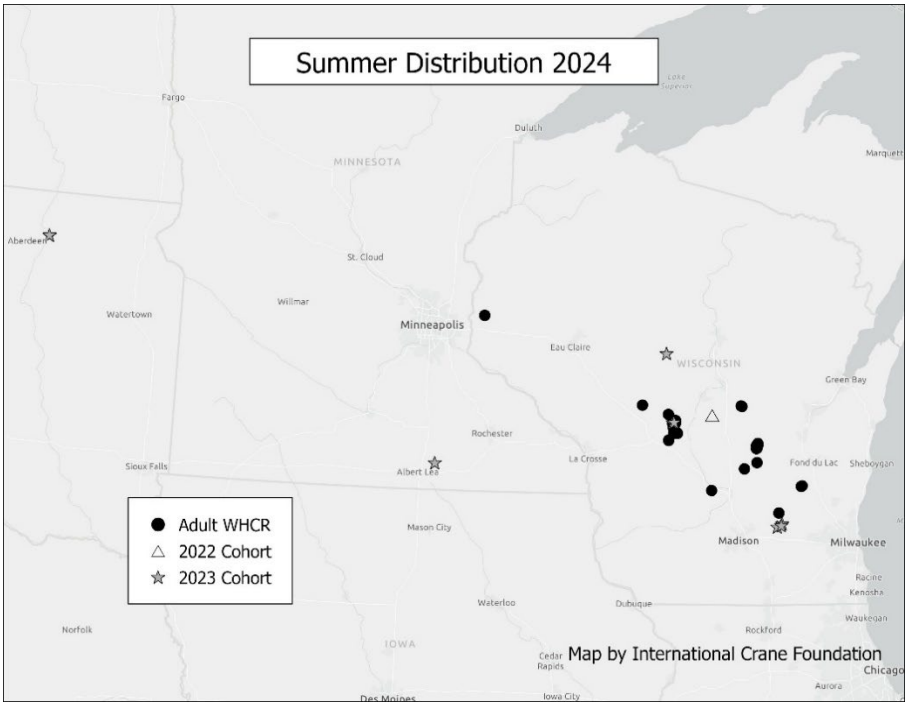

Figure 1. Summer distribution of the Eastern Migratory Population of Whooping Cranes during 2024. At least 61 cranes spent the summer in Wisconsin, 1 was in Minnesota, and 2 were in South Dakota.

Winter 2023-24

The estimated population size as of 1 January 2024 was 75 (42 F, 31 M, 2 U). The final wintering locations of Whooping Cranes in the EMP during winter 2023-24 were as follows (Fig. 2): 2 in Georgia, 6 in Illinois, 29 in Indiana, 8 in Kentucky, and 18 in Alabama. There were 12 in unknown locations, including 1 family group and 1 pair who wintered in unknown areas, and 7 birds who were later classified as long-term missing.

Winter distribution as of 10 January 2025

The maximum population size as of 10 January 2025 was 70 (36 F, 31 M, 3 U). The distribution of these birds is as follows (Fig. 3): 19 birds in Alabama, 2 in Tennessee, 7 in Kentucky, 3 in Illinois, 23 in Indiana, 2 in Georgia, and 2 in Florida. There were 12 in unknown locations, 2 of which have not been seen south of the breeding grounds.

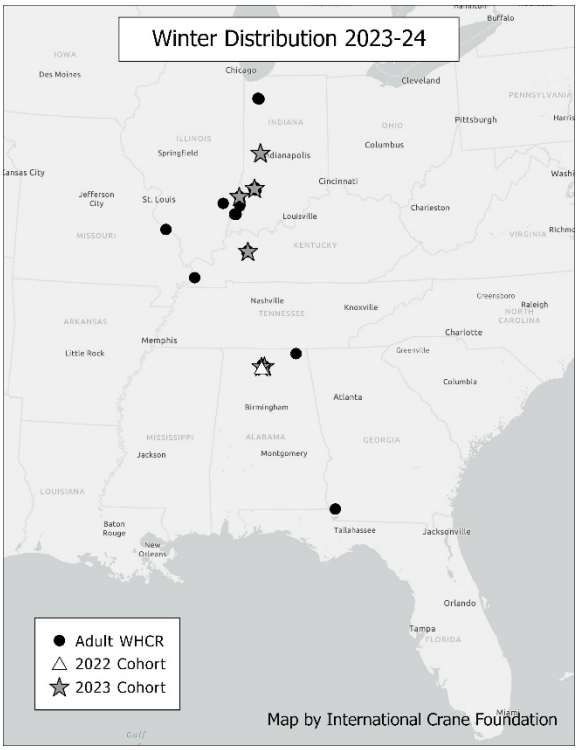

Figure 2. Distribution of wintering Whooping Cranes in the EMP 2023-24

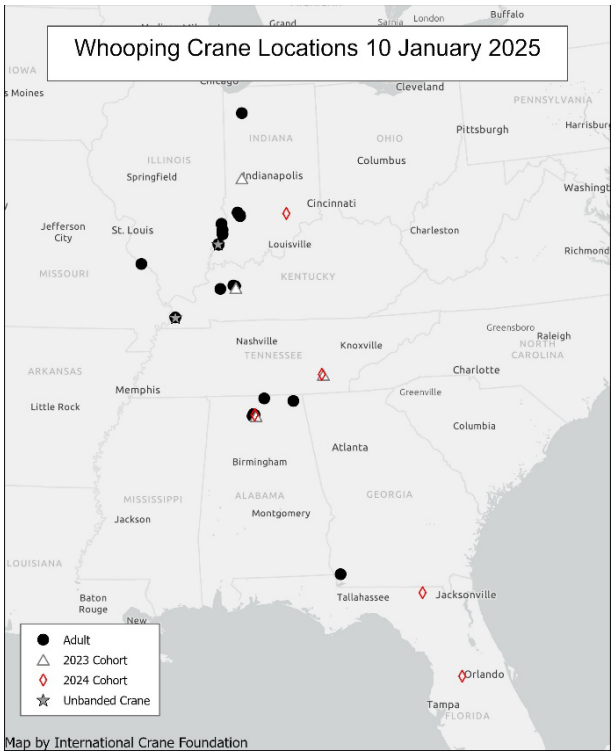

Figure 2. Distribution of wintering Whooping Cranes in the EMP as of 10 Jan 2025.

Captures and Banding in 2024

- Captures for transmitter replacement:
  - 2-04, Juneau County, Wisconsin, 10 April
  - 16-23, Cook County, Illinois, 23 April
    - Captured due to inappropriate use of habitat in suburban Chicago. Tagged with GPS transmitter, then translocated to Horicon NWR.
  - 1-11, St. Croix County, Wisconsin, 4 September
  - 4-17, Sauk County, Wisconsin, 9 September
  - 15-11, Juneau County, Wisconsin, 8 October
  - 6-15, Juneau County, Wisconsin, 8 October
  - 4-12, Green Lake County, Wisconsin, 9 October
  - 37-07, Juneau County, Wisconsin, 11 October
  - 79-19, Dodge County, Wisconsin, 11 October
  - 4-14, Lee County, Illinois, 14 October
  - 12-03, Juneau County, Wisconsin, 7 November
  - 4-13, Putnam County, Illinois, 18 November
- Captures of pre-fledged wild-hatched chick (transmitter and bands):
  - W3-24, Juneau County, Wisconsin, 10 July
- Banding prior to release for captive-reared birds:
  - 24-24, 25-24, 26-24, 27-24, 28-24, ICF, 10 September
  - 29-24, ICF, 13 September

Releases of captive-reared cranes

Five captive-reared juvenile cranes were released in Wisconsin into the Eastern Migratory Population during 2024. One of these was parent-reared (29-24) and four were costume-reared (24-24, 25-24, 27-24, 28-24) at the International Crane Foundation. The costume-reared cranes were transferred to a pen on September 18th at Horicon National Wildlife Refuge, where they were then released at the end of October 2024.

- 29-24 (M) was parent-reared at the International Crane Foundation then released at White River Marsh State Wildlife Area on 9 October 2024 near an established pair (67-15 and 3-17). 29-24 associated quickly with a single adult in the area (38-17) as well as two adult pairs (W3-17/W2-21 and 3-14/4-12). 29-24 migrated with W3-17 and W2-21 to Wheeler National Wildlife Refuge in Morgan County, Alabama, where he wintered with the pair.
- 24-24 (F), along with 25-24 (F) and 27-24 (M), quickly moved south to Lake Geneva. In November 24-24 and 25-24 were seen together and 27-24 was seen alone at Jasper-Pulaski Fish and Wildlife Area in Jasper County, Indiana. In December 24-24 migrated to Hiwassee Wildlife Refuge in Meigs County, Tennessee, and occasionally associated with 16-23. Meanwhile, 25-24 and 27-24 headed south together to Hamilton County, Florida. Soon after, 27-24 parted ways from 25-24 and continued south to Lake County, Florida.
- 28-24 (M) remained at Horicon through mid-November and was seen briefly associating with two adults in the area (16-11 and 79-19) before migrating south with them to Jasper-Pulaski Fish and Wildlife Area in late November. 28-24 later split from the two adults at the end of November, but has remained in Indiana, moving among various counties including Jasper, Jackson, Washington, and La Porte.

Survival

- The total number of birds (both captive releases and wild-hatched chicks) coming into this population since 2001 is 354 cranes (Fig. 4), of which 70 (20%) may be alive as of 1 January 2025 (Fig. 5). There have been 316 captive raised Whooping Cranes released since the beginning of the reintroduction in 2001. This number does not include the 17 HY2006 ultralight-led juveniles that died during confinement in a storm and one HY2007 ultralight-led juvenile that was removed from the project prior to release. There have been 38 wild-hatched chicks that survived to fledging (see Reproduction section below).
- There were 3 confirmed mortalities of post-fledged cranes recorded in 2024 (pre-fledge wild-hatched chicks born in 2024 – see below, Table 1, Fig. 6):
    - 18-23 (F) - remains collected on 10 January 2024 in Putnam County, IN, suspected powerline or fence collision
    - 63-15 (M) confirmed dead on 16 February 2024 in Randolph County, IL, suspected predation based on GSM data
    - 15-23 (F) confirmed dead on 5 July 2024 in Brown County, SD, suspected powerline collision based on PTT data
- There were 1 confirmed mortalities of pre-fledged cranes recorded in 2024:
    - W3-24 (F) remains collected 23 July 2024 in Juneau County, WI, suspected predation based on GSM data

- There were 8 cranes classified as long-term missing during 2024.
    - 5-10 (F) was last seen August 2023 in Portage County, WI.
    - 24-17 (F) was last seen July 2024 in Sauk County, WI. Later her mate was seen alone and then re-paired and migrated without her.
    - 68-15 (F) was last seen November 2023 in Barry County, MI.
    - W1-18 (F) was last seen July 2023 in Juneau County, WI.
    - 77-18 (M) was last seen March 2023 in Green Lake County, WI.
    - 9-05(M) and 13-03 (F) were last seen March 2023 in Greene County, IN. GSP data showed 13-03 coming back to WI, but she was never visually confirmed.
    - 2-17 (F) was last seen August 2023 in Juneau County, WI.

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

Cause of Death	**Number of cases cumulatively 2001-2022**	**Number of cases 2024**
Predation – confirmed or suspected	42	1
Impact Trauma – confirmed or suspected power line collision	12	2
Impact Trauma – other (vehicle or aircraft collision, unknown source of trauma)	12	0
Gunshot	14	0
Disease (including lead poisoning)	8	0
Other	15	0
Unknown	78	0
Total confirmed mortalities	181	3

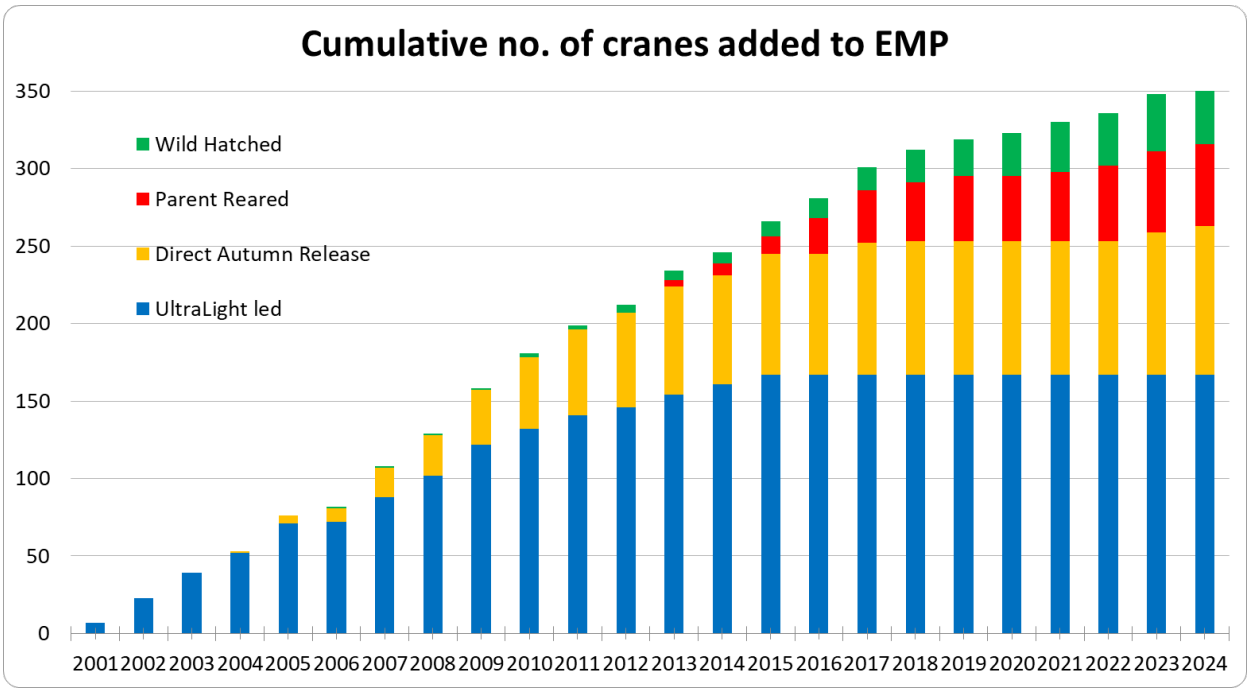

Figure 3. Cumulative number of cranes added to the Eastern Migratory Population by rearing method since 2001. As of 2024, there have been 167 UltraLight led, 96 Direct Autumn Release, 53 Parent Reared, and 38 Wild Hatched Whooping Cranes added to the EMP.

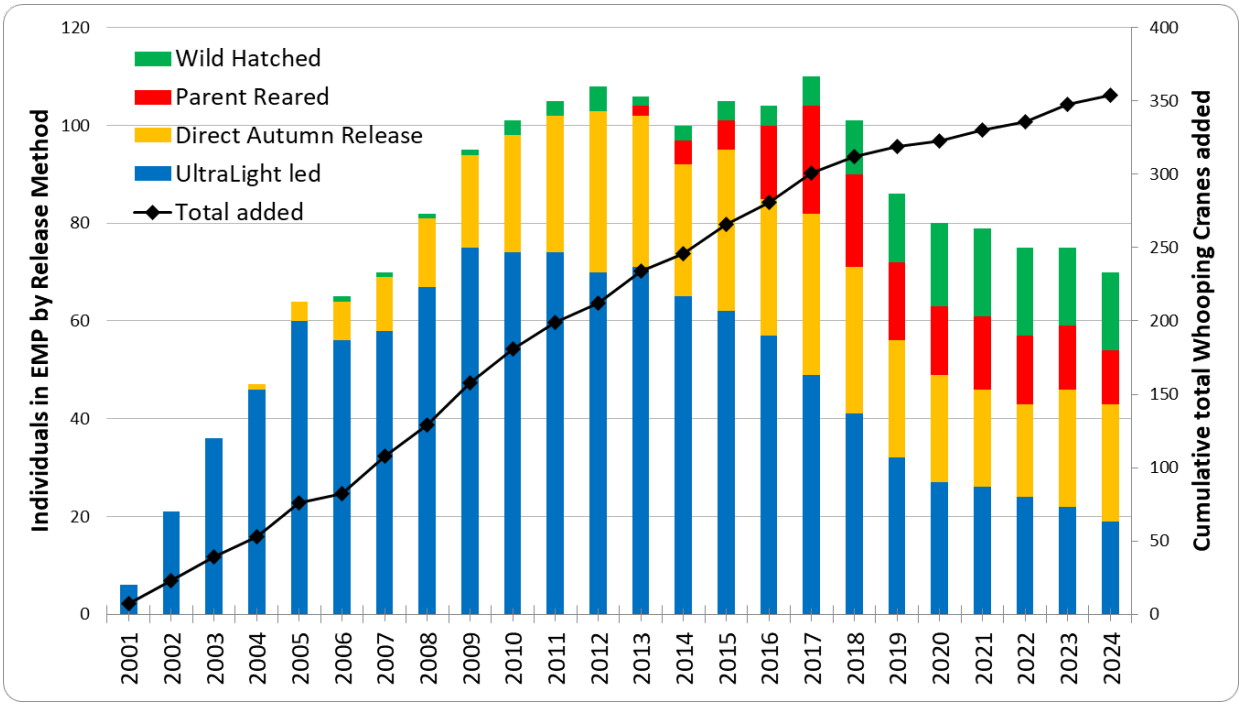

Figure 4. Population size of EMP by rearing method. As of 1 January 2025, there were 70 birds recorded in the EMP (left axis; 31 M, 36 F, 3 U). Black line indicates the total birds released (or wild-fledged) into the population cumulatively (right axis).

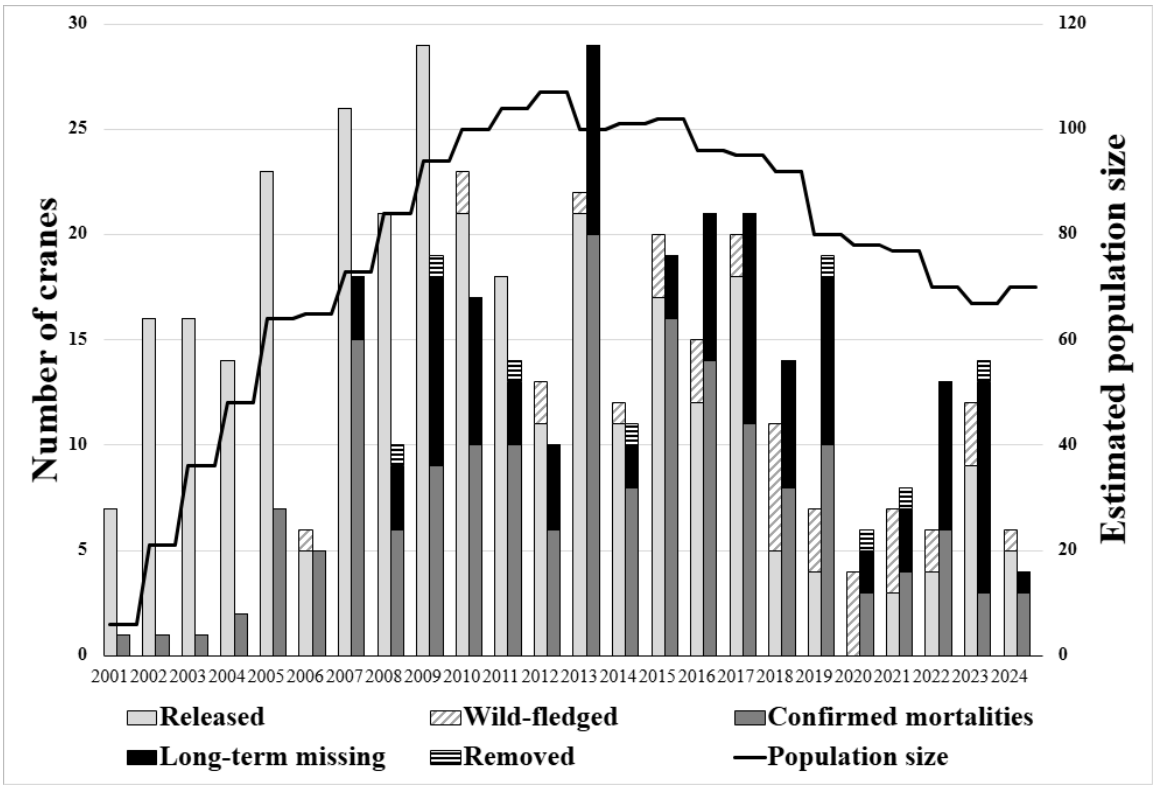

Figure 5. Estimated population size of the Eastern Migratory Population of Whooping Cranes from 2001-24 (right axis). The number of cranes added into the population each year are shown in a stacked bar on the left, those subtracted on the right bar (left axis).

Reproduction

- This year we recorded a total of 22 nests by 17 different Whooping Crane pairs breeding in Wisconsin. The numbers reported here are the total we observed but there may have been a few missed nests or young chicks.
- We collected 8 eggs from 4 first nests for forced renesting, to encourage pairs to renest after black flies were gone. We recovered 2 eggs from an abandoned nest and collected 6 eggs from 5 first nests and 1 renest with 2 egg clutches. In total we brought 18 eggs into captivity for rearing and release.
- Ten nests failed due to a variety of known and unknown causes (predation by raccoon, abandonment, an unknown, Table 2). Additionally, 3 nests were incubated full term. One nest's egg was a late dead embryo and for two nests we could not confirm if the eggs hatched but those pairs were confirmed later without chicks.
- There was 1 hybrid Sandhill-Whooping Crane pair in Dodge County, Wisconsin, that nested twice, and the eggs from both nests were destroyed (Table 2).
- 7 chicks hatched from 4 first nests and 1 re-nest (Table 2). One wild-hatched chick fledged and survived to migration (Table 3).
- At the end of 2024, there have been a total of 455 nests (357 first nests, and 98 re-nests). 202 chicks hatched in the wild, of which 38 have fledged. As of 1 January 2025, 16 of those survive in the wild (Tables 3 and 4, Fig. 7).

Table 2. Nesting summary for 2024. Asterisks indicate a re-nest. Active nest management was implemented to reduce the impact of black fly disturbance. Some nests with two-egg clutches had one egg removed as a part of Partial Clutch Collection (PCC) to increase the number of eggs and chicks raised in captivity for release into reintroduced populations.

Female	Male	Nest Outcome	Date Completed	County	Chicks	Notes
6_17	16_04	Failed - abandoned	10 Apr	Juneau		Black flies. 2 eggs collected
6_17	16_04	Failed* - unknown	8 May	Juneau		
36_09	W5_18	Active nest management	10 Apr	Juneau		2 eggs collected
36_09	W5_18	Unknown* – full term	14 Jun	Juneau		
12_03	12_05	Active nest management	14 Apr	Juneau		2 eggs collected
12_03	12_05	Hatched*	27 May	Juneau	W6	PCC
15_11	W6_18	Active nest management	14 Apr	Juneau		2 eggs collected
15_11	W6_18	Failed* - unknown	22 May	Juneau		Male last seen 30 May
W3_17	W2_21	Failed – unknown	21 Apr	Green Lake		Possibly black flies
3_14	4_12	Active nest management	25 Apr	Green Lake		2 eggs collected
12_11	5_11	Hatched	30 Apr	Juneau	W1, W2	W1 fledged
10_15	4_13	Failed – predated	30 Apr	Green Lake		PCC, 1 egg predated
7_11	85_21	Hatched	6 May	Juneau	W3, W4	
W1_19	1_17	Failed – abandoned	7 May	Portage		PCC
42_09	37_07	Failed – unknown	30 Apr	Juneau		
24_08	13_02	Failed – predated	11 May	Juneau		1 egg collected, swapped with 1 12_03/12_05 egg
W14_19	2_04	Failed – unknown	15 May	Juneau		
67_15	3_17	Unknown – full term	23 May	Green Lake		PCC
24_17	4_17	Hatched	21 May	Sauk	W5	PCC
W3_10	7_07	Hatched	26 May	Juneau	W7	PCC
73_18	3_04	Unknown – full term	11 June	Juneau		2 eggs collected, swapped with 1 13_02/24_08 egg
SACR	16-11	Failed - management	24 Apr	Dodge		Replaced hybrid eggs with dummy eggs but birds abandoned.
SACR	16-11	Failed* - management	11 June	Dodge		Removed hybrid eggs from the nest.

Table 3. Nest initiation dates, number of nests, number of chicks hatched, and number of chicks fledged 2005-2024. This does not include hybrid nests or chicks, nor does it include same-sex pairs. There was one same-sex female pair that nested in 2020, was given fertile eggs, and hatched a chick that did not fledge. This chick is included in the number of chicks hatched, but the nest is not included in nest totals.

Year	First Nest Initiation	# First Nests	# Re-nests	Total Nests	# Hatched	# Fledged
2005	16 Apr	2	0	2	0	0
2006	5-6 Apr	5	1	6	2	1
2007	3 Apr	4	1	5	0	0
2008	7 Apr	11	0	11	0	0
2009	2 Apr	12	5	17	2	0
2010	<1 Apr	12	5	17	7	2
2011	3-4 Apr	20	2	22	4	0
2012	<26 Mar	22	7	29	9	2
2013	15 Apr	21	2	23	3	1
2014	7 Apr	25	3	28	13	1
2015	1-3 Apr	27	9	36	24	3
2016	29-31 Mar	25	16	41	24	3*
2017	30 Mar	25	10	35	18	2
2018	8 Apr	17	6	23	10	6*
2019	30 Mar	25	11	36	19	3
2020	25 Mar	20	3	23	18	4
2021	<31 Mar	21	2	23	14	4
2022	30 Mar - 2 Apr	24	7	31	14	2
2023	30 Mar	22	3	25	14	3
2024	31 Mar	17	5	22	7	1
Total		357	98	455	202	38

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

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

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

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

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

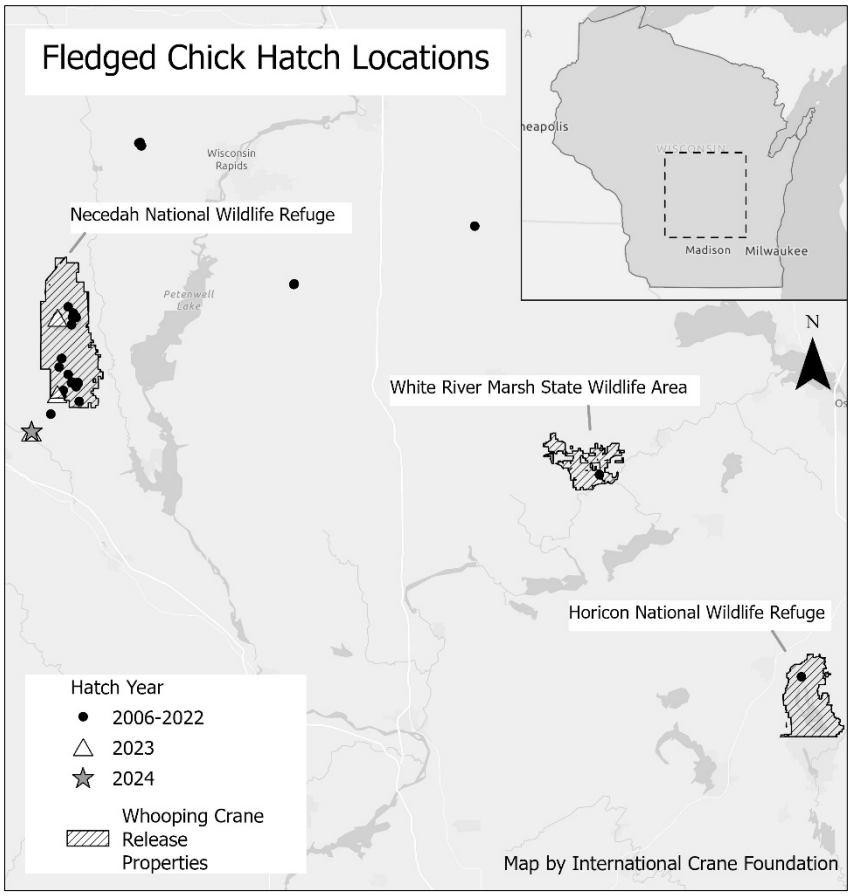

Figure 6. Map of hatch locations of wild fledged Whooping Crane chicks from 2006-2024 in the Eastern Migratory Population with an inset map of Wisconsin highlighting the focal area.

Research

During 2024, members of the Field Team had research papers in the review process and accepted for publication, and one completed MS thesis. Below are research products (done by Field Team members or partners) that were published during 2024, or were previously unreported in an annual report, that focus on the Eastern Migratory Population.

Caven, A. J., H. L. Thompson, D. M. Baasch, B. K. Hartup, A. Hegg, S. M. Schmidt, I. Louque, C. Allen, C. Crouch, C. Davis, J. Jorgensen, J. E. Austin, B. Ostrom, R. Beilfuss, G. Archibald, and A. E. Lacy. 2023. Biological Case Against Downlisting the Whooping Crane and for Improving Implementation under the Endangered Species Act. School of Natural Resources: Faculty Publications. 1655. https://digitalcommons.unl.edu/natrespapers/1655

Gordon, N. M. 2024. Predator Occupancy on the Breeding Grounds of the Eastern Migratory Population of Whooping Cranes (*Grus americana*). Thesis, University of Wisconsin, Madison, USA.

Jaworski, J. A., B. N. Strobel, S. A. Dubay. 2023. Short-term effects of camera trap installation on incubation constancy in cranes. Canadian Journal of Zoology 101:896-903.

Mendgen, P., S. J. Converse, A. T. Pearse, C. S. Teitelbaum, and T. Mueller. 2023. Differential shortstopping behaviour in whooping cranes: habitat or social learning? Global Ecology and Conservation 41:e02365.

Sime, M. J., H. L. Thompson, S. E. Zimorski, E. K. Szyszkoski, T. A. Dellinger, and S. M. Schmidt. 2024. Power line collisions of reintroduced whooping cranes. Southeastern Naturalist 23(2):194-211.