



27th Trumpeter Swan Society Conference



PROGRAM

Hosted by

The Trumpeter Swan Society

HoChunk Gaming Wisconsin Dells, Baraboo, Wisconsin

7 – 9 July 2026

27th SWAN CONFERENCE

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27th Trumpeter Swan Society Conference, July 7-9, 2026			Version:6 June 2026
Time	Monday (July 6)		
		<i>Arrivals</i>	Location
5:00-7:00 p.m.		<i>Check -in with conference organizers to pick up name tags and information folder</i>	<i>Upper Dells B</i>
Speaker	Tuesday (July 7)		Comments
		<i>Breakfast on your own</i>	
8:45-9:00	Jeff Nelson	Welcome & Conference Overview	
Session 1: Regional Updates: Interior Population			<i>Upper Dells B</i>
9:00-10:00	Sumner Matteson and Taylor Finger	Wisconsin Restoration Program 1987-2026	
10:00-10:30		Coffee and Snack Break	
10:30-11:00	Laura Kearns (Timothy Maron)	Population Status and Recovery of Ohio's Trumpeter Swans	
11:00-11:30	Ken Abraham	Status and population characteristics of restored Trumpeter Swans in south-central Ontario	
11:30-12:00	David Hoffman	Iowa's Trumpeter Swan Restoration: Engaging, Connecting and Empowering the Public	
12:00-1:00 Lunch (provided)			
1:00-1:30	Tristan Murphy	Winter Feeding Movements of Trumpeter Swans in Nebraska	
Session 2: Regional Updates: Pacific and Rocky Mountain Populations			<i>Upper Dells B</i>
1:30-2:00	Steven Olson	Rocky Mountain Population Trumpeter Swan Status, Pacific Flyway Perspectives	
2:00-2:30	Michael Swaim	Bridging the Gap: Monitoring Alaska's Trumpeter Swan Population After Protocol Changes	
2:30-3:00	Gary Ivey (for Brandon Reishus)	Status of Oregon's Trumpeter Swan Restoration Program	
3:00-3:30		Coffee and Snack Break	
3:30-4:00	Gary Ivey	Movements and breeding ground distribution of Trumpeter Swans wintering in Southcentral Oregon	
4:00-4:30	Tiffany Mayo	Getting ready for the wild: The logistics of running a soft release site for Trumpeter Swan restoration initiatives at Zoo Idaho	
4:30-5:00	Steve Devon	The making of the film "Return of the Trumpeter"	
5:00-6:00	Steve Devon	Screening of the film "Return of the Trumpeter"	"Movie snacks" provided!
POSTERS will be on display throughout the conference. Presenters will be present at times to be announced.			<i>Upper Dells B</i>
	Hadley Stokes	Are they structured? Genomic connectivity of Trumpeter Swans across the Sandhills of Nebraska	
	Tim Maron	Integrating Aerial Survey and eBird Data to Improve Trumpeter Swan Population Estimates in Ohio	
Evening		<i>Dinner on your own</i>	
7:00-8:30		TTSS Board of Directors Meeting (closed)	<i>Upper Dells B</i>
Wednesday (July 8)			
		<i>Breakfast on your own</i>	
ALL DAY	8:45 am- 5:30 pm	Field Trip - Lunch provided	
Meet in Hochunk lobby in front of the waterfall (by the escalators)			
		<i>Dinner on your own</i>	
Central Time	Thursday (July 9)		
		<i>Breakfast on your own</i>	
Session 3: Research and Education			<i>Upper Dells B</i>
8:00-8:30	Nellissa Stalenhoef	Evaluation of bone lead biomarkers in trumpeter swans in Ontario. A One Health <i>Pb</i> -roblem	
8:30-9:00	Jayden Jech	Nutrient treatment wetlands support Trumpeter Swan recovery across Iowa's agricultural landscape	
9:00-9:30	Brad Bortner	The National Wildlife Refuge System matters to Trumpeter Swans	
9:30-10:00	Margaret Smith	Public education and engagement: Telling the North American Trumpeter Swan story through webinars	
10:00-10:30		Coffee and Snack Break	
10:30-11:00	Tiffany Mayo	Sound the trumpets! Expanding Ohio's trumpeter swan and wetland education initiative	
11:00-11:30	Margaret Smith	Citizen Science: Trumpeter Watch swan sighting reporting	
11:30-12:00	David Wolfson (Tom Cooper)	High variability of migration strategies in reestablished Interior Population Trumpeter Swans	

	12:00-1:00		<i>Lunch provided</i>	
	Session 4: Management and Future Directions			<i>Upper Dells B</i>
	1:00-1:30	Michael Wells	Estimating sustainable conflict take of TRUS in Interior Population	
	1:30-2:00	Kevin Barnes	Landscape suitability and projected range expansion to guide regional- and local-scale conservation of the Interior Population of Trumpeter Swans	
	2:00-2:30	Taylor Finger	Revised Management Plan for the Interior Population of Trumpeter Swans: Development Partnership, Goals, Objectives and Outcomes	
	2:30-3:00	Mike Anderson & Greg Soulliere	Trumpeter Swans and NAWMP Joint Ventures: Partners in Conservation	
	3:00-3:30		<i>Coffee and Snack Break</i>	
	3:30-4:00	Jeff Nelson	Perspectives on the Future of Trumpeter Swans	
	6:00-9:00 pm		<i>Closing Banquet and Silent Auction</i>	<i>Upper Dells B</i>
			<i>Banquet Speaker: Dr. Jeb Barzen - Using Birds to Conserve Landscapes</i>	
			<i>Banquet, Keynote Speaker; Silent Auction</i>	
	Friday (July 10)			
			<i>Departures</i>	

Thank you!

The Scientific Committee for the 27th Trumpeter Swan Society Conference:

Kenneth Abraham (Chair)

Michael Anderson

Brad Bortner

Dan Casey

Jim Dubovsky

Gary Ivey

Mark Lindberg

Jeff Nelson

Mark Vrtiska

Planning Committee:

Margaret Smith, Gary Ivey, Lisa LaFranco Scheuch, Kenneth Abraham, Jeff Nelson

In addition to the sponsors listed at the front, we would like to thank our field trip leader George Archibald of the International Crane Foundation.



27th Swan Conference

PRESENTATION ABSTRACTS

(in program presentation order)

THE TRUMPETER SWAN SOCIETY

**HoChunk Gaming Wisconsin Dells
Baraboo, Wisconsin
July 7-9, 2026**

27th Trumpeter Swan Society Conference, July 7-9. 2026, Baraboo, Wisconsin

Abstracts: Oral Presentations

Tuesday, July 7

Wisconsin's Trumpeter Swan recovery and monitoring Program, 1987-2026: An exceptional collaboration

Sumner Matteson and Taylor Finger, Wisconsin Department of Natural Resources, Sumner.Matteson@wisconsin.gov

We begin by presenting a 25-minute Wisconsin DNR Trumpeter Swan Recovery Program video covering the early and middle years, 1987-2008, which features special partner collaborative efforts and includes interviews with foundational program individuals no longer alive. We briefly summarize the last statewide survey of nests in 2014, then shift and present an overview of the change in monitoring techniques from ground surveys to aerial surveys during 2015-2026 that arrive at the present breeding population estimate.

Population Status and Recovery of Ohio's Trumpeter Swans

Laura Kearns, Ohio Division of Wildlife, laura.kearns@dnr.ohio.gov

Tim Maron, The Ohio State University School of Environment and Natural Resources, 210 Kottman Hall, 2021 Coffey Road, Columbus, OH 43210

After over 300 years of extirpation from the state, trumpeter swans were reintroduced into Ohio in 1996 and removed from the state threatened and endangered species list in 2024. Recent movement ecology research revealed that the population is largely non-migratory (Kearns et al. 2024, Wolfson et al. 2025). The Ohio Division of Wildlife has conducted an aerial summer census of the population from 1997-2025. In the first breeding season after the reintroduction, 2 pairs of swans nested and produced 2 cygnets. The reintroduction was completed in 2003 when it met the goal of establishing 15 breeding pairs. By 2025, 187 breeding pairs and 374 cygnets were counted across the state. The population of breeding pairs grew at an average annual rate of 11.2% between 2016-2025. An average of 2.1 cygnets was produced per nest over that same period. In addition, Ohio's total trumpeter swan population, including a few hundred non-breeding adults, rose to 1077 individuals, and trumpeter swans were successfully breeding in 20 counties (approximately 1/4 of the state). While the population has continued to increase, mortality to swans continues to occur from powerline and vehicle collisions, diseases such as the recent emergence of highly pathogenic avian influenza, lead poisoning, and occasional illegal harvest. Success of the trumpeter swan reintroduction and population increase is attributed to the restoration of wetland habitats, control of invasive mute swan populations, and protection under state laws and the Migratory Bird Treaty Act.

Status and population characteristics of restored Trumpeter Swans in south-central Ontario

Kenneth F. Abraham, Trumpeter Swan Conservation Ontario kenabra@sympatico.ca
Rod Brook, Ontario Ministry of Natural Resources, Peterborough, Ontario
Gary Lane, Trumpeter Swan Conservation Ontario
Joy Poyntz, Trumpeter Swan Conservation Ontario
Kyna Intini, Trumpeter Swan Conservation Ontario

The effort to restore Trumpeter Swans to Ontario began in 1982, led by Harry G. Lumsden and volunteers of the Ontario Trumpeter Swan Restoration Group (OTSRG). Between 1988 and 2006, 835 swans were released at 56 sites in south-central Ontario and the program established a wild, self-sustaining breeding population by 2007 with a minimum estimate of 134 breeding pairs. Nesting range expanded throughout eastern Ontario and some parts of northern Ontario through 2025. The OTSRG transitioned into the Trumpeter Swan Conservation Ontario (TSCO) which now leads trumpeter swan monitoring through a banding-tagging program in combination with a citizen science observation reporting network which tracks daily sightings of both tagged and untagged swans. The group has tagged 2,636 swans and has received 435,700 reported observations of tagged and untagged swans as of May 2026. Most swans in the restored population spend the entire year in south-central Ontario and are more concentrated in winter than summer. A relatively few, but unknown, number of Ontario-origin swans winter in the eastern U.S. to the south and southeast of Ontario. Population size has been monitored by periodic surveys, mostly winter surveys, with the data contributed to the North American Trumpeter Swan Survey (NATSS) through 2015. Post-NATSS surveys were conducted in Ontario in 2020 and 2025. On 1 February 2025, a total of 3,303 swans were counted at 193 sites (2,537 adult/white swans and 766 immature/grey swans) in a coordinated survey. Most occupied wintering sites in 2025 were areas with naturally occurring open water and food. An Integrated Population Model was developed using all available data from TCSO programs. Mean adult survival was 84% (83%-86% credible interval) and mean juvenile survival was 80% (75%-85% CI). Mean estimated population growth rate for the period 2006-2019 was 15% annually (95% credible limit: 12% to 18%) with no trend. Modelled estimates of adult female abundance forecast an 11-fold increase from 2019-2030 assuming continued no density dependent effects on juvenile survival.

Iowa's Trumpeter Swan restoration: Engaging, connecting and empowering the public

Hoffman, David D. Waterfowl Research Technician, Iowa Dept. of Natural Resources, 1203 North Shore Drive, Clear Lake, IA 50428. David.Hoffman@dnr.iowa.gov

In 1993, the Iowa Department of Natural Resources (IDNR) developed a plan to restore a self-sustaining, migratory population of trumpeter swans. Working with public and private partners, swans from 132 sources and 26 different states were used for reintroduction in Iowa; the program released 1,237 cygnets between 1995 and 2021. In 1998, IDNR documented the first nesting attempt by free-flying swans since 1883; since that time, a total of 1500+ nest attempts have been recorded. In 2025, 158 nest attempts were documented in 43 counties, a 17.0% increase from 2022. Additional nesting attempts by Iowa swans in MN, WI, IL, MO, Manitoba, and Ontario have been

documented, with marked swans from Iowa reported in 17 states and three Canadian provinces. Iowa also hosts wintering swans, with 7,348 trumpeters tallied during the mid-winter waterfowl survey of January 2026. Sustainable numbers of trumpeter swans are now found in counties throughout the state. But the restoration program was a success for more than swans; in a remarkable way, it seized the collective imagination of ordinary Iowans. Public support was higher than anticipated; donations exceeded \$500,000 with over 1,000+ volunteer hours tallied. The IDNR leveraged this outpouring of interest by using swans as “ambassadors” to “trumpet” the positive value of wetlands. Focusing on water quality, flood reduction, and groundwater recharge—in addition to the promotion of wildlife habitat—members of the IDNR and county conservation staff conducted over 450 swan releases and 40 winter swan viewing events with school children, media, legislators and other members of the public in attendance. Since 1995, an estimated 5,000-15,000 students and adults have been impacted annually. Cultivating public awareness and participation has translated into donations and support for the restoration of additional wetland habitat acres, improved water quality and enriching the quality of life. This is purposeful: the swan program has demonstrated how important it is for the public to engage with, learn about, and feel empowered by a sense of ownership for our natural resources. People value what they experience—and, as the swan program has shown, commit to protecting what they value.

Winter feeding movements of Trumpeter Swans in Nebraska

Tristan Murphy, School of Natural Resources, University of Nebraska-Lincoln, Lincoln, NE 68583, tmurphy10@huskers.unl.edu

Mark P. Vrtiska, School of Natural Resources, University of Nebraska-Lincoln, Lincoln, NE 68583

Dessalegn Ejigu, Department of Biology, College of Science, Bahir Dar University, Ethiopia

Larkin A. Powell, School of Natural Resources, University of Nebraska-Lincoln, Lincoln, NE 68583

Trumpeter swans (*Cygnus buccinator*) are large, herbivorous waterfowl that feed primarily on submerged macrophytes. Other species of waterfowl use agricultural waste grains as a food source and can modify their movement behavior to use agricultural fields depending on distance to wetlands and energetic needs. Trumpeter swans may also exploit agricultural waste grain when available, but few data exist documenting this phenomenon. We examined which weather conditions affected field feeding (wetland to agricultural fields) and wetland to wetland movements. Location data were gathered from 38 swans captured in the Nebraska Sandhills during remige molt from 2014-2020. Selected individuals were fitted with collars that included solar-powered GPS transmitters. The transmitters were programmed to obtain five locations each day from 1 November to 31 March, and some swans had multiple years of observations. DAYMET weather data and NLCD cover classes for each GPS location were combined using R statistical software. A generalized linear model was used to determine what environmental factors affected swan field and wetland feeding. We found for wetland to agricultural movement that temperature and snow weight equivalent had a positive effect while wind speed had a negative effect. For wetland-to-wetland movements, we found that only snow weight equivalent had a negative effect. We also found that swans flew, on average, approximately 8 km (one-way) on events where they travelled to agricultural fields from a wetland versus 2 km on days that they travelled to another wetland. Swans consuming agricultural waste grains or wetland macrophytes during winter must

balance energetics with weather conditions. Future research should examine more specific feeding patterns and behaviors to elucidate energetic costs and benefits of foraging during winter for trumpeter swans.

Rocky Mountain Population Trumpeter Swan Status, Pacific Flyway Perspectives

Steven M. Olson, Division of Migratory Bird Management, US Fish and Wildlife Service, Spokane Valley, WA, Steven_olson@fws.gov

Todd A. Sanders, Division of Migratory Bird Management, US Fish and Wildlife Service, Grand Junction, CO

This presentation provides an overview of recent developments and ongoing challenges in the management of the Rocky Mountain Population of Trumpeter Swans. Key updates include the release of a new data book, and identification of new survey points of contact and the publication of a revised report. We will discuss changes in population status as measured by the Waterfowl Breeding Population and Habitat Survey (WBPHS) and the redesigned fall survey, along with the latest harvest updates, including quota adjustments and origin of harvested Trumpeter Swans analysis. The presentation will evaluate progress toward Pacific Flyway Council management objectives, specifically addressing population goals and restoration efforts to date. The session will conclude with a forward-looking discussion on the impending management plan update and whether it is time to reconsider strategies, weighing the pros and cons of continuing relocations, translocations, and captive releases.

Bridging the Gap: Monitoring Alaska's Trumpeter Swan Population After Protocol Changes

Michael Swaim, Wildlife Biologist/Pilot, USFWS, Migratory Bird Management
1011 E. Tudor Rd., Anchorage, Alaska michael_swaim@fws.gov

In 1968, the U.S. Fish and Wildlife Service (USFWS) initiated the North American Trumpeter Swan Survey (NATSS) to monitor trumpeter swans in the United States and Canada. This quinquennial survey documented a steady increase in the Pacific Coast population of trumpeter swans, and the management objective of >25,000 birds was achieved in 2005. Given the species' rapid and sustained growth, the USFWS and its partners subsequently discontinued the NATSS after the 2015 survey, and the Pacific Flyway Council adopted population indices from the USFWS Waterfowl Breeding Population and Habitat Survey (WBPHS) as a monitoring alternative. Swan indices from the WBPHS are derived from a smaller area in Alaska, do not incorporate northern Canada, and include only adults as compared to the NATSS. Data from the WBPHS indicate that trumpeter swan numbers have remained relatively stable in core breeding habitats of Alaska since ~2005, with an average annual index of ~17,000 adult birds.

Status of Oregon's Trumpeter Swan Restoration Program

Brandon Reishus, Oregon Department of Fish and Wildlife

Gary Ivey, The Trumpeter Swan Society

Jason Journey, Oregon Department of Fish and Wildlife

Scott Nelson, Oregon Department of Fish and Wildlife

Martin St. Louis, Oregon Department of Fish and Wildlife (retired)

Trumpeter Swans (*Cygnus buccinator*) were moved from Red Rock Lakes National Wildlife Refuge, Montana to Malheur NWR (MNWR), Oregon beginning in 1939, resulting in an established breeding flock at MNWR by the late 1950s. The flock grew until its numbers peaked in the early 1980s at 19 breeding pairs and a total of 77 individuals using the refuge. Because introduced carp (*Cyprinus carpio*) invaded the MNWR flock's wintering grounds during extreme flooding in the early 1980s and other factors, the flock has precipitously declined. Only 3 adult females remained at MNWR in 2025. In order to build a sustainable Oregon breeding flock, efforts were initiated to increase Trumpeter Swan numbers and expand their breeding and wintering distribution in Oregon. These efforts included moving some Trumpeter Swans from MNWR to Summer Lake Wildlife Area (SLWA), moving swans from RRLNWR to MNWR and SLWA and moving swans from Harriman State Park, Idaho, to SLWA during the years 1991-1996. However, the project was interrupted after 1996 and releases to build a larger breeding flock resumed in 2009 and are continuing. A total of 198 swans have been released there through 2025. The SLWA flock has become more productive. As of 2025, SLWA and adjacent wetlands supported 5 breeding pairs which fledged 18 cygnets and a total of 63 Trumpeter Swans.

Movements and breeding ground distribution of Trumpeter Swans wintering in Southcentral Oregon

Gary Ivey, The Trumpeter Swan Society, gary.l.ivey@gmail.com

Brandon Reishus, Oregon Department of Fish and Wildlife

Jason Journey, Oregon Department of Fish and Wildlife

Scott Nelson, Oregon Department of Fish and Wildlife

Alexa Martinez, U.S. Fish and Wildlife Service

Martin St. Louis, Oregon Department of Fish and Wildlife (retired)

The number of wintering Trumpeter Swans in southeast Oregon, that did not originate from local breeding flock restoration efforts, has increased in recent decades from near zero to a minimum of 400 at Summer Lake Wildlife Area, alone. In the 1990's, wintering Trumpeter Swans from eastern Idaho were translocated to Summer Lake to attempt to redistribute wintering Rocky Mountain Population Trumpeter Swans. By 2010, Trumpeter Swans were regularly observed during the winter months at Summer Lake, and reports from other wetlands in the region were also increasing. However, managers did not know if the increasing wintering numbers were due to the winter translocations or natural reoccupation of historic range. To determine the population affiliation of these wintering swans, from 2019 to 2026 the Oregon Department of Fish and Wildlife and The Trumpeter Swan Society marked 21 wintering swans with GPS-GSM transmitters at Summer Lake (14) and Malheur National Wildlife Refuge (7). All marked swans that provided location information through their first spring migration summered in the range of the Canadian breeding

segment of the Rocky Mountain Population. Spring migration was generally in a northeast direction to the Rocky Mountain front in southern Alberta and then northly, though some birds migrated north through the various mountain valleys in the Canadian Rocky's of British Columbia before emerging onto the prairies in Alberta. Fall migration was more southerly oriented, with most swans migrating down the Rocky Mountain front through western Montana and across central or southern Idaho. For swans tracked over multiple years, no swans moved summering locations by more than a few kilometers, while three swans moved to new winter locations after spending at least one subsequent winter at the capture location. New wintering sites used were Sprague River, OR, Malheur Lake, OR and Lower Klamath NWR, CA.

Getting ready for the wild: The logistics of running a soft release site for Trumpeter Swan restoration initiatives at Zoo Idaho

Tiffany Mayo, Cleveland Metroparks Zoo, trm1@clevelandmetroparks.com

Trumpeter swan restoration programs have been in place for many decades helping bolster wild populations of swans across North America. A critical component of these programs is making sure captive born cygnets are able to acclimate to wild conditions prior to release. In order to accomplish this, a soft release site needs to be identified to help the cygnets prepare for release and increase their chances of survival. The sites are often natural areas where contact with people is minimal, the cygnets are safe from predators, and it mimics a more wild setting. For the Oregon Restoration Program, Zoo Idaho was chosen as the soft release area. Due to the Zoo's dedication to the conservation of local wildlife, there was a strong interest in assisting with trumpeter swan restoration initiatives. A large remote wetland exhibit was built and finished in 2022 with the initial goal of breeding Rocky Mountain Population swans. The plan for the space pivoted when the Oregon Program needs were more immediate. The wetland area is over three fenced in acres with a large pond and natural vegetation that can hold just over 20 swans. Cygnets for the program come from captive pairs in Oregon and other zoos. The cygnets arrive at Zoo Idaho usually in November of their hatch year and are released the following June. Running the site requires extensive staff expertise and time, site upkeep, funding, and coordination with other zoos and the Oregon Department of Fish and Wildlife. Zoo Idaho is also responsible for obtaining the correct permits and ensuring the appropriate testing is completed before release. Even though managing the site is a large commitment, being able to see the swans released into the wild knowing they have the best chance possible and being part of their conservation story is extremely rewarding.

Return of the Trumpeters / Making the film

Steve Devon, Filmmaker, steveldevon@gmail.com

"Return of the Trumpeters" documents one of North America's most significant conservation victories: the resurgence of the majestic trumpeter swan from the brink of extinction. I will present the following about the film: 1) Stories experienced in the field while filming trumpeter swans; 2) Challenges (who/where to include in the film, editing into a 1-hour format, equipment, filming

conditions); 3) Personal insights about the people involved in the restoration; 4) PBS and presenting the story to a national audience. My goal for the film was to move beyond just documenting the species; I wanted to capture the "human connection"—the stories of the dedicated biologists, agencies and volunteers whose tireless restoration efforts (spanning decades) made this comeback possible.

Thursday, July 9

Evaluation of bone lead biomarkers in Trumpeter Swans (*Cygnus buccinator*) in Ontario, Canada: A One Health *Pb*-roblem

Dr. Nellissa Stalenhoef (Presenter), University of Guelph, Guelph, Ontario ,
stalennh@uoguelph.ca

Dr. Sherri Cox, University of Guelph, Guelph, Ontario

Dr. Shoshanah Jacobs, University of Guelph, Guelph, Ontario

Widespread environmental lead contaminants from anthropogenic activities in North America have been recognized as a problem affecting free ranging birds for over a century. In Ontario, trumpeter swans are commonly admitted to wildlife rehabilitation centres or found deceased from lead toxicosis. Although most lead is stored in bone long term, the clinical and biologic significance of bone lead is poorly understood. Portable x-ray fluorescence spectrometry (pXRF) is a novel technology with potential for measuring bone lead levels *in vivo*. This research evaluates the feasibility of pXRF for *in vivo* use and describes lead deposition within and across bones from archived samples. An ongoing field study is being performed to measure bone lead levels and evaluate associations with various clinical health parameters in free ranging trumpeter swans in the field, as well as sick or injured trumpeter swans presented to wildlife rehabilitation centres. This research program will be presented through a One Health lens to review the role of policy in mitigating lead contaminants and applications of citizen science as a valuable approach for researchers.

Nutrient treatment wetlands support Trumpeter Swan recovery across Iowa's agricultural landscape

Jayden L. Jech and Adam K. Janke

Department of Natural Resource Ecology and Management, Iowa State University, 339 Science Hall II, 2310 Pammel Drive, Ames, Iowa 5001, USA. jjech@iastate.edu

Land use change has contributed to the loss of wetlands across Iowa. In addition, intensive agricultural practices have contributed to surface water impairments. Several state and federal agricultural conservation programs began supporting the implementation of targeted nutrient treatment wetlands with the primary goal of improving water quality on private lands. Our research is focused on understanding how Trumpeter Swans use these novel wetland systems and what characteristics best support their use. We are monitoring ~80 nutrient treatment wetlands to

determine Trumpeter Swan presence and productivity using unmanned aircraft systems (UAS). During 2025, 21 (~25%) of the wetlands supported Trumpeter Swan broods. Of the 113 cygnets that hatched on nutrient treatment wetlands, 106 (~93%) survived to fledging (~100 days since hatch). We also conducted nest site and wetland vegetation surveys at all wetland sites to characterize wetland features of sites both occupied and unoccupied by Trumpeter Swans. By evaluating Trumpeter Swan use of existing nutrient treatment wetlands in Iowa, we hope to identify design and management characteristics that support both needs of improving water quality and enhancing wetlands for Trumpeter Swans on private lands. By informing managers with information about what wetland features best support Trumpeter Swans, we aim to intentionally maximize the benefit of these nature-inspired edge-of-field practices through a multiple-benefit conservation framework. Layering water quality conservation with wildlife conservation has tremendous potential to support Trumpeter Swan population recovery and compliment public lands conservation across Iowa and other agricultural landscapes.

The National Wildlife Refuge System matters to Trumpeter Swans

Brad Bortner, Trumpeter Swan Society Board Vice President

From its earliest days to today, the Refuge System has protected wildlife, especially migratory birds. There are 573 national wildlife refuges; 38 wetland management districts; 5 marine national monuments; ~95 million acres of land + 760 million acres of marine areas. The System sits at the center of one of North American conservation's most dramatic recoveries, Trumpeter Swans. The popular account centers on a small remnant flock found in the 1930's at Red Rock Lakes National Wildlife Refuge in Montana. While Red Rock Lakes played a genuine role in protecting the remnant swans in the lower 48 states, the larger story runs through Alaska. The breeding population in Alaska was much larger but quietly thriving, undetected, for decades. It was one of TTSS earliest member's, Jim King, who first revealed its scale, counting 2,847 Trumpeter Swans across Alaska's boreal wetlands in the first comprehensive statewide survey in 1968. Through management efforts, more than 75 national wildlife refuges now support the species across all three recognized populations, from Alaska's vast breeding grounds to Tennessee, where Trumpeter Swans are returning after an absence of nearly 200 years. Lead poisoning, power line mortality, the Rocky Mountain Population's persistent genetic bottleneck, and funding pressures facing ongoing habitat protection remain the open questions. The same federal framework that bought time for the birds Jim King was counting is the one that will determine how the next chapter goes.

Citizen Science: Trumpeter Watch swan sighting reporting

Margaret Smith, Executive Director, The Trumpeter Swan Society, margs7154@gmail.com

The Trumpeter Swan Society initiated Trumpeter Watch in 2009, a citizen science swan sighting reporting program. Submission was via paper form downloaded from the Society's website or

emails. Seven years later, in 2016, at the 24th Swan Conference in Duncan, B.C., Jim Dubovsky, in partnership with John Cornely, gave an update about the program. In his abstract, Jim Dubovsky stated, “Over the years, people have reported swan sightings using these forms, but also simply by contacting members of the Society through email messages. The response to this citizen-science effort was substantial, and hundreds of sightings have been reported. However, data were not compiled into a readily searchable database, and most remained in paper form. As such, the utility of the information collected was limited.” This was largely remedied in late 2018. The Society’s new website included an online Trumpeter Watch reporting form with the capacity to upload photos and videos. In the seven years since late 2018, more than 4,800 online Trumpeter Watch reports have been submitted. Each year, reports come from, on average, 32 states and 5 provinces. The online form captures essential contact information, the state or province of the sighting, the date (s) of sighting, the location (preferably with GPS coordinates), the number of swans, any marked swans, and information the reporter wants to include about the sighting. The reports are reviewed by the Society and shared with the state or provincial person who tracks the state/province marked swans. Most reports include photos which document the swans and any collar/tags. The state/provincial representative can see the condition of the swan, collar, habitat at the location, family size, etc. The forms can be downloaded by TTSS in excel spreadsheets. Trumpeter Watch has been valuable capturing sightings and photos of GPS/GSM swans in projects, marked swans from across the continent, and unmarked swans in areas the reporters note are new. Photos and videos from reports are also used for TTSS education and outreach through Facebook, Instagram, and YouTube, with permission given by the TW reporter.

Sound the trumpets! Expanding Ohio’s Trumpeter Swan and wetland education initiative

Tiffany Mayo, Cleveland Metroparks Zoo, trm1@clevelandmetroparks.com

Once near extinction due to habitat loss and over-hunting, trumpeter swans have made a remarkable recovery thanks to extensive conservation efforts in North America, including Ohio. Despite this success, the species continues to face challenges throughout their range, including a lack of public awareness about the threats to swans and their wetland habitats. To support public awareness of trumpeter swans and foster positive stewardship of wetlands, Trumpeter Swan Conservation Education Kits were designed, produced and distributed by Cleveland Metroparks Zoo. The first phase of kits was distributed in 2025 and used as part of target public outreach and education programs at Cleveland Metroparks Zoo, Cleveland Metroparks Nature Centers, and Lake Erie Nature & Science Center. Each facility was able to keep their kits indefinitely to support continued outreach. The components of the kits were designed to educate guests about trumpeter swans and the threats they face, develop a personal connection to this local native species, and inspire a desire to protect swans and their wetland habitats. Initial feedback on the kits was overwhelmingly positive with over 1,000 visitors reached during the pilot season. Three more kits were sent out in 2026 to additional Ohio locations making a total of seven kits in circulation with the goal of doubling visitor engagement from the pilot season.

Public education and engagement: Telling the North American Trumpeter Swan story through webinars

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The Trumpeter Swan Society recognizes that the trumpeter swan is a charismatic species and an excellent ambassador for wetland conservation given its high visibility on wetlands and the positive public response to swan sightings as swans return through restoration efforts. However, the general public knows little about the trumpeter swans, its absence for nearly a century and its recent and expanding return. Biological knowledge, restoration techniques, updates about trumpeter swan restoration, management and issues have been shared over the past 58 years at Trumpeter Swan Society conferences. The conferences have been attended primarily by biologists, agencies and scientists. The Society recognized the North American trumpeter swan story is not well known by the general public. In addition, the experiences and knowledge of many of the people directly involved restoring trumpeter swans to the Midwest and west were being lost as people retired or passed. In order to capture the rich variety of stories and places about trumpeter swans across North America, TTSS began regular hour-long webinars in October 2023, geared for general public understanding. Webinars are recorded, uploaded to the Society's YouTube Channel, posted in appropriate places on its website, and links are shared in a variety of uses. Recordings on YouTube are globally accessible, remain unaltered and are easily viewed by the public, educators, biologists, etc., creating a resource-rich video library. Webinars include a variety and range of topics, including specific places such as states/ provinces and refuges, swan health issues, and other related topics (e.g., wetlands, NAWMP, waterfowl ID, etc.) Between October 2023 and March 2026, TTSS hosted 24 webinars, with 4,210 people registering, 1,747 attending live, 6,235 views on YouTube, and 408 questions asked through the webinars. The webinars strengthen TTSS relationships with agencies, non-profits, refuge staff and others.

High variability of migration strategies in reestablished Interior Population Trumpeter Swans

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The Interior Population (IP) of Trumpeter Swans, formerly extirpated by market hunting, was reestablished in eastern North America by reintroductions from both migratory and non-migratory populations. Their current annual movements are largely unknown. We deployed 113 Global Positioning System–Global System for Mobile Communications transmitters on IP swans in 6 U.S. states and 1 Canadian province across the current IP breeding range. Using data from 252 “swan-years,” we estimated migration phenology using piecewise regression models fit to each yearly time series of displacement from the breeding site. We fit a latent-state model to characterize population-level associations between breeding latitude and maximum extent of migration, and linear mixed models to quantify associations between individual characteristics (e.g., breeding status and sex) and migration phenology. At the individual level, 59% of swans moved to distant nonbreeding period areas (long-distance migration, defined as moving >100 km from the breeding site), 16% exhibited regional migration (25–100 km from breeding site), 19% exhibited nonmigratory but local movements (<25 km from breeding site), and 6% exhibited multiple migration strategies. Swans breeding at more-northern latitudes departed their territories earlier in autumn, returned later in the spring, and migrated farther from their breeding territories than those breeding at more southern latitudes. Although the population-level association between migration extent and breeding latitude was positive, some individuals remained close to the location of their breeding site during the non-breeding period. Breeding swans departed later in the autumn than non-breeders, but breeding status did not have a strong association with arrival in the spring. IP swans are partial migrants, with a continuum of strategies that vary with latitude, from local movements to long-distance migration. Much of the variability in movement patterns is related to factors tied to natural history demands (e.g., breeding status) and response to environmental conditions (e.g., through associations with breeding latitude).

Estimating sustainable conflict take for the Interior Population of Trumpeter Swans

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The Interior Population of Trumpeter Swans (*Cygnus buccinator*) has grown and expanded rapidly in the upper Midwest since reintroduction efforts started 30 years ago. The rapid recovery and range expansion in Trumpeter swans has resulted in increasing human-wildlife conflict primarily with naturally growing and farmed wild rice (*Zizania palustris*) as well as concerns over accidental take from tundra swan (*Cygnus columbianus*) hunters. To provide a biological foundation for responsible population management, centering on addressing crop depredation and incidental take while facilitating continued recovery for the population, the management community has undertaken an assessment of take for the population. We used a prescribed take approach which uses population, demographic and management parameter estimates to determine the allowable take. We constructed a reasonable minimum population estimate based on state surveys and used multiple methods to determine the maximum population growth rate to account for uncertainties in the data around growth rate for the population. We assessed a maximum growth rate for the population ranging from 0.126 to 0.250, depending on the model and data source, and determined a conservative population estimate of 70,949 birds. We used two management objectives as benchmarks, one benchmark consistent with a threatened or endangered species, and another consistent with a non-game species with a healthy population. Depending on the model and the

management objective, a median take of 4,229 to 16,611 birds could be sustainably taken from this population, which is well above current take levels of 15-20 birds per year. Additional work improving the measures of demographic variables and better coordination among states to consistently measure population size would be useful.

Landscape suitability and projected range expansion to guide regional- and local-scale conservation of the Interior Population of Trumpeter Swans

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The Interior Population of trumpeter swans (*Cygnus buccinator*) has expanded markedly since reintroduction efforts began in the 1980s, with continued growth expected across the western Great Lakes and into adjacent regions. To support conservation planning at both regional and local scales, we developed a breeding-season landscape suitability model and a decadal (2023–2033) range expansion model to help jurisdictions anticipate future swan distribution. We quantified landscape suitability using a use-available design based on GPS-collared swans (2019–2023) and related occurrences to landscape-scale wetland and upland conditions using a logistic mixed-effects model. We then integrated these suitability estimates into a range-expansion framework that used time-series citizen science data (2004–2023) to model the probability of 50 km grid cells becoming newly occupied by 2033 as a function of landscape suitability, survey effort, year, and distance to previously occupied cells. Landscape suitability increased with greater wetland perimeter and foraging habitat, while range expansion was positively associated with suitability and survey intensity and negatively associated with year and distance to occupied cells. We estimated a 4.4% annual expansion rate (95% CI = 2.0–6.9%) from 2023 to 2033, with the highest likelihood of expansion into the Prairie Pothole Region of the Dakotas and the Boreal Shield and James Bay Lowlands of Canada. Together, these models provide a scalable decision-support framework: at regional scales, they identify broad areas where swans are most likely to establish new breeding territories; at local scales, they highlight specific wetland complexes and landscapes where habitat management, easement acquisition, or outreach efforts may be most impactful. This is particularly relevant in North Dakota and South Dakota, where tundra swan (*Cygnus columbianus*) hunting is permitted but trumpeter swan hunting is not, emphasizing the need for targeted hunter education to reduce misidentification and support the establishment of persistent trumpeter swan populations.

Revised Management Plan for the Interior Population of Trumpeter Swans: Development partnership, goals, objectives and outcomes

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Over the past three decades, coordinated restoration efforts across the Upper Midwest and Canada have transformed the future of the Interior Population (IP) of Trumpeter Swans (*Cygnus buccinator*). Once nearly extirpated from their historical range due to overharvest and habitat loss, the IP has experienced a remarkable recovery. The 2026 Management Plan for the Interior Population of Trumpeter Swans update provides a science-based framework to guide conservation, monitoring, and management actions. It emphasizes maintaining high quality habitat across breeding, migration, and wintering ranges, while balancing ecological needs with human-wildlife interactions and tribal rights. It also recognizes the need to adapt to changing environmental conditions, including the impacts of landscape and climate change on the distribution and behavior of swans. This plan constitutes a collaborative effort between three flyways (Mississippi, Central and Atlantic), United States Fish and Wildlife Service, Canadian Wildlife Service, University of Minnesota, Trumpeter Swan Society, Trumpeter Swan Conservation Ontario, Ontario Ministry of Natural Resources and Manitoba Wildlife.

Trumpeter Swans and NAWMP Joint Ventures: Partners in Conservation

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A growing challenge for the North American Waterfowl Management Plan's habitat joint ventures is expanding their support base beyond the core partnerships of hunters and wildlife agencies that carried the Plan through its first successful 40 years. The 2024 Plan Update concluded that without broader engagement by other people, organizations and landowners, the long-term security of waterfowl populations was in doubt. The authors thus chose "Expanding the Partnership" as the Update theme. At the same time, Trumpeter Swans have been expanding their annual range, especially in the mid-continent region, creating a great opportunity for more collaboration with NAWMP. Expanding swan populations mean that their needs for adequate and secure habitats are increasing, but also, more people have the opportunity to become acquainted with these magnificent birds. The Trumpeter Swan Society believes that swans have the potential to become effective ambassadors for wetland habitat conservation with the potential to enlist more supporters, urban and rural, to the cause of wetland habitat conservation. I have recently contacted all the Joint Ventures within the current breeding and wintering ranges of the swans for an assessment of the related work already underway by the JVs. I will share those results at the conference and offer suggestions for other opportunities that seem evident for the mutual benefit of Trumpeters and the NAWMP partners.

We used MS Copilot to assess whether Trumpeter Swans (TRUS) could strengthen Upper Mississippi/Great Lakes Joint Venture (UM/GL JV) outreach and conservation communications. The analysis suggests TRUS are well suited as a public-facing flagship because they are recognizable, charismatic, tied to wetland recovery, and aligned with JV waterfowl habitat goals. Potential uses include website and social media visuals, education materials, interpretive signage, donor and grant narratives, legislative briefings, and restoration storytelling. AI also identified ways The Trumpeter Swan Society and Flyway Trumpeter Swan Committees could support JV partners through habitat guidance, outreach materials, monitoring data, and more. Overall, TRUS can serve as a compelling bridge that makes the JV's science-based wetland mission more visible, relatable, and actionable.

ABSTRACTS: POSTER PRESENTATIONS

Integrating Aerial Survey and eBird Data to Improve Trumpeter Swan Population Estimates in Ohio

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Accurate population estimates are fundamental to effective wildlife management and conservation planning. Traditional wetland bird monitoring, including ground counts, banding, and aerial surveys, can produce reliable long-term data but are costly, resource-intensive, and often spatially limited. Integrating structured aerial survey data with citizen science platforms like eBird is a novel approach that leverages the broad spatiotemporal coverage of citizen science alongside the statistical rigor of professional surveys, offering a more precise and cost-efficient path to robust abundance estimates for wetland bird species. The Ohio Division of Wildlife conducted spring aerial surveys for trumpeter swans concurrently with Canada goose surveys during 2014 – 2016, providing a unique opportunity to evaluate integration of the aerial and eBird trumpeter swan datasets. We compiled aerial survey data from 398 flown plots and 120,266 eBird checklists aggregated within 6x3 mile grid cells for this period across Ohio. Using Bayesian modeling techniques, we integrated eBird checklists with aerial survey data to generate preliminary statewide spring abundance estimates for trumpeter swans during 2014–2016. This work builds on an effort to integrate eBird and aerial survey data for Canada geese in Ohio (2010–2025) and is an important step toward developing a broader spring multispecies monitoring framework including sandhill cranes, mallards, trumpeter swans, and Canada geese in Ohio. This framework has direct application for state wildlife agencies seeking to generate reliable population estimates for species of management interest under increasing fiscal and staffing limitations.

Are they structured? Genomic connectivity of Trumpeter Swans across the Sandhills of Nebraska

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Trumpeter swans experienced significant harvest pressure and were near extinction in the early 20th century. Reintroduction efforts occurred in the 1960s and now over 700 birds reside in the Sandhills of Nebraska. Although the species is currently at low conservation risk, trumpeter swans still face many threats, such as habitat disturbance and loss and reduction in wetland quality. Ability to move is a key behavioral response to alterations to habitat, but there is limited information on dispersal patterns throughout the Sandhills. Further, swans are typified by low genetic diversity, even in natural populations. In the Sandhills, trumpeter swans may have even lower genetic diversity due to founder effects, as only 57 cygnets from a single area in Montana established the High Plains Flock (HPF) that now resides in South Dakota and Nebraska. Small reintroduction flocks are susceptible to loss of genetic diversity through the stochastic process of genetic drift. Genetic diversity could be further eroded should gene flow be restricted across the region due to philopatry or other barriers. Dispersal among wetlands, however, can dampen the influence of genetic drift, thereby enabling the retention of genetic diversity, introduction of genetic variation through immigration, and ultimately increase the adaptive capacity of trumpeter swans in the Sandhills. This study will examine genetic diversity and connectivity of trumpeter swans occupying the Sandhills region in Nebraska using double digest reduced representation (ddRAD) sequence data. Genomic connectivity is an indirect measure of dispersal and can inform conservation managers on trumpeter swan movements in response to disturbance and other threats. Information about the genetic variability of trumpeter swans can provide further insight into the species' adaptive capacity to habitat alterations, changing ecosystems, and other environmental stressors as well as the genetic health, as measured by genetic diversity and comparison with natural populations, of the Sandhills population.