

# om the irector

Wisconsin's rare plants, animals and landscapes make our state special. Our dedicated and skilled DNR Natural Heritage Conservation staff, partners, volunteers and donors work together to protect and restore these valuable resources as a natural legacy for the generations that follow.

Many sobering wildlife reports this past year have underscored the threats to nature. We learned the Earth's plant and animal species are vanishing at rates tens to hundreds of times higher than over the last 10 million years. We learned that North America's breeding bird populations have

dropped by 3 billion birds (nearly 30%) since the 1970s, even some of our most iconic and familiar species.

We were already well aware of these issues, having seen these trends in Wisconsin, too. But we're thankful more people are learning of the challenges facing wildlife globally and here at home — and the need to continue and expand our efforts.

Fortunately, we have recent conservation successes to celebrate, and it's great to be able to share those with you in our 2019 Field Notes. These pages, only scratching the surface of what we've accomplished together in the last year, remind us of the fantastic work being done here in Wisconsin.

I look forward to accomplishing more together in the coming year to conserve our natural heritage.

Drew Feldkirchner



**Partner** 

power!

Releasing banded piping plover chicks

#### Piping plovers make history

Piping plovers had their best nesting season in more than a century in 2019! These endangered shorebirds nearly vanished throughout the Great Lakes region by the mid-20th century as development and people crowded the big, isolated beaches they need.

Over the past 20 years, partners including the National Park Service, U.S. Fish and Wildlife Service, Bad River Band of Lake Superior Chippewa, NHC and The Nature Conservancy have monitored the birds, protected nests and added habitat along Lake Superior and Lower Green Bay. Wisconsin has contributed 118 chicks towards the Great Lakes federal recovery goal of 150 breeding pairs, with the current population nearly halfway there.

#### A record year

Here's a look at 2019's record high totals in these categories.

- breeding pairs
- nesting sites, including first time nest on Stockton Island in the Apostle Islands
- 36 eggs laid
- 26 chicks reached flight stage

#### Private donations are critical, especially to pay for some rare species work not eligible for grants. (FY 2019 Revenue) 58.3% Grants \$4,839,985 Donation State Funds Match \$1,525,158 \$500,000 Program Revenue 3.0% **Donations** \$354,887 \$1,082,982

Your donation makes a difference

#### Easy ways to help

**Donate** \$10 to the **Endangered** Resources Fund on your Wisconsin income tax form

Your gift is matched by the state, doubling your impact for rare species and State Natural Areas.

**Buy an Endangered** Resources license plate

Your \$25 annual donation to keep the plate drives the next endangered species recovery.



About the background photo:

Royce Galindo, piping plover monitor for the Bad River Band of Lake Superior Chippewa, took the photograph while crouching in the water as the banding crew released two chicks toward their parent and nest site up the beach on a clear, serene day in the Apostle Islands. "It was half of the crew's first time visiting Outer Island, and I hope breeding piping plovers continue to use it!"

\$424,480

\$273,159

License Plate

Donor Funds \$385,343

Tax Return

# A dose of good news for bats

USGS National Wildlife Health Center, UW-Madison and NHC vaccinated bats infected with white-nose syndrome at two hibernation sites this fall, the first vaccines tested in the wild. The disease has reduced populations 72% to 97% at Wisconsin sites by frequently waking hibernating bats, depleting their energy and causing them to die from starvation, dehydration or exposure. In other efforts, NHC inspected 90 bridges for bat maternity colonies and will look to share results with transportation officials to potentially time bridge construction to avoid disturbing bats raising their young.





USGS' Susan Smith. left, and NHC's Heather Kaarakka vaccinate a bat.

# Milestones for migrators

Whoop-whoop for wild chicks! The last two years brought encouraging signs of increased natural reproduction in Wisconsin's whooping cranes. Nine chicks have fledged in the wild, 43% of all wild chicks fledged since coordinated efforts began in 2001 to establish a migratory whooping crane population in the eastern U.S. Whooping Crane Eastern Partnership members including NHC hope these trends continue as knowledge of managing these majestic birds improves and new captive breeding sites contribute to more birds being released into the wild.

A wild whooping crane chick and parent

Kirtland's warbler



Ring-billed gull

#### About the cover

#### Survey shows native mussels' strength

NHC conservation biologist Jesse Weinzinger took this selfie with an iPhone 7 before he and Jason Brabant, in the background, surveyed the Big Eau Pleine River for native mussels as part of a statewide, multi-year survey. "Since it was the start of the field season, we were just excited to get back in the water!"

We're happy to report that Jesse, Jason and other NHC conservation biologists completed Wisconsin's first statewide survey for native mussels in 40 years and released results in 2019. They found the highest numbers and diversity in the St. Croix River, and high diversity also on the Manitowish, Chippewa and Peshtigo rivers. Rebounding populations were noted in the Wisconsin and Lower Fox rivers and Green Bay as clean water regulations and cleanups pay off. Some of the 99 sites surveyed had declining mussel populations and 10 had no mussels. Major waters in southern Wisconsin, including the Pecatonica and Rock rivers, saw very large declines.





Giant floaters are one of Wisconsin's most widespread native mussels.

#### **Endangered Species Act success**

Kirtland's warblers flew off the federal endangered species list in October, having met recovery goals after years of intensive habitat management, mostly in lower Michigan where the core population lives. Numbers in Wisconsin don't yet meet the criteria to be removed from the state list. NHC and partners continue to expand and protect the bird's habitat and monitor nests to increase our small but growing population.

#### 45 years of colonial waterbirds

Forty-five years after NHC's Sumner Matteson and the late James T. Harris first surveyed for waterbirds nesting in colonies along the Wisconsin and western Lake Superior shoreline, the survey continued by kayak, motorboat and on foot, and has documented mixed trends. Herring gull and great blue heron populations are down, while ring-billed gulls have risen from fewer than 500 at one time to more than 30,000. Cormorants initially increased but have declined, piping plovers have increased and common tern populations have fluctuated. The survey has been conducted every five years by Matteson and the National Park Service in partnership with U.S. Fish and Wildlife Service, The Nature Conservancy and the Bad River Band of Lake Superior Chippewa.

# Boreal bonanza

#### **Donation safeguards rare forest**

A \$1.4 million, 362-acre donation by The Nature Conservancy has enlarged Baileys Harbor Boreal Forest State Natural Area in Door County by 75%, protecting a rare and unique forest along Lake Michigan that harbors dozens of rare animals and plants. Other generous 2019 gifts included land from Groundswell Conservancy and Ferry Bluff Eagle Council expanding Ferry Bluff State Natural Area in Sauk County and benefiting wintering bald eagles, and an anonymous donation enlarging Rush Creek State Natural Area in Crawford County to protect vulnerable Mississippi River bluffs.



**Wood turtle** 

turtle



## Rare butterflies respond to new habitat

Endangered Karner blue butterflies, globally rare frosted elfins and rare dusted skippers are already using habitat resulting from NHC work with We Energies to reduce construction impacts on rare species from a PSC-approved gas pipeline in west central Wisconsin. These efforts included a five-year management plan that restored 14 acres of occupied habitat and created 35 more. Discussions are continuing to ensure the habitat is maintained. Every year, NHC's review team provides guidance to thousands of landowners to avoid or minimize impacts on rare species and to enhance rare species habitat where possible.



#### Hatching success for rare turtles

Protecting wood turtle nests is important to conserving the long-lived, late-maturing species. So when Ron and Kathy Jaworski reported this state threatened species nesting on their property, they teamed up with NHC to install nest boxes to keep out predators. The Jaworskis also removed raccoons by live-trapping them to give hatchlings an even better shot at survival. Find instructions for a single 1-by-1-foot nest cage on the Wisconsin Turtle Conservation Program website, wiatri.net/inventory/witurtles.

# **Secrets** revealed

Trail cams offer clues to marten survival NHC biologists deployed trail cameras in the Chequamegon-Nicolet National Forest to generate more reliable population estimates and survival rates for the state's only endangered mammal, the American marten, and to reveal its habits. Such information will help refine recovery strategies. The first field season was very successful — more of the secretive martens than expected were photographed and a high percentage of individual animals were identified.



#### New digs for rare squirrels

Rare Franklin's ground squirrels have a new home thanks to active and retired NHC conservation biologists, Northland College professor Erik Olson and students, and private property owners. Partners live-trapped these secretive, special concern squirrels from private land where they were causing problems and released them on a different property where the owner has been restoring habitat for rare native species. Submit photos and reports of these and other rare species at dnr.wi.gov, "NHC," and click on the "Report" button.



Rare species surveys underway at a southeastern Wisconsin State Natural Area in 2019 show the benefits of habitat work by NHC staff and volunteers, including brush mowing and spraying to control invasive brush. Cover boards put down to attract snakes lured mostly common gartersnakes but also plains gartersnakes, the first time this species of special concern has been documented at the site. NHC and partners from UW-Whitewater also found plains gartersnakes while looking for massasauga rattlesnakes at a Walworth County site.



Franklin's ground squirrels have shorter, rounder ears than eastern gray squirrels.



A rare plains gartersnake

# Wisconsin Breeding Bird Atlas II Final Season Summary

#### WE DID IT! Fifth and final year of surveys now complete



#### What's next?

- ♦ Preliminary maps available now online: ebird.org/atlaswi/explore
- ♦ Project managers will review and finalize vast dataset
- ◊ Full results coming in several years, watch for the book!

# **HOW MANY SPECIES NESTED IN YOUR COUNTY?** 80 - 9394 - 106107 - 121122 - 133134 - 150

#### **THANKS TO OUR 2,000+ VOLUNTEERS**

Look what we've accomplished

All 1,283 atlas blocks surveyed

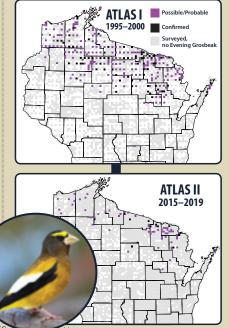
**161,000** bird checklists reported

**243** bird species found

2.2 million observations submitted

#### **Evening Grosbeak**

A familiar feeder bird in the north 30 years ago, this species' range has greatly declined, leaving only the northeast forest with a regular population. Records suggest this species may historically have been rare in the East, and after the "invasion" of the past century may now be reverting to its prior distribution.





#### FIRST EVER GLOSSY IBIS BREEDING IN WISCONSIN

The Glossy Ibis is a rare visitor to Wisconsin, almost exclusively nesting on the Atlantic Coast. This year two birds were seen all summer at Horicon Marsh, and in late summer they were discovered with young! This is the first documented breeding record for the species in the state. Time will tell whether this is a single occurrence, or the beginning of a new population.

#### 13 NEW BREEDING SPECIES

#### Not Confirmed Breeding During Atlas I

- **♦ King Rail**
- ♦ Canvasback
- **◊** Bufflehead
- ♦ Whooping Crane
- ♦ Glossy Ibis
- ♦ Mississippi Kite
- **◊ Eurasian Collared-Dove**
- **◊** Great Tit ♦ Kirtland's Warbler
- **◊ Yellow-throated** Warbler

♦ White-eyed Vireo

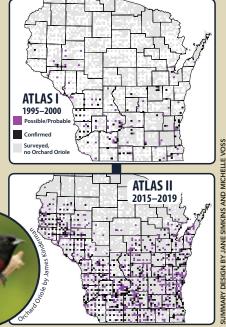
- ◊ Blue Grosbeak
- ♦ European Goldfinch

### **LARGEST RANGE CHANGES SINCE ATLAS 1**

We compared the proportion of priority blocks occupied by a species during the first atlas 20 years ago to the proportion of priority blocks occupied by that species now. Grassland and boreal species are among those disappearing from the most places, whereas a variety of species including several formerly rare raptors are expanding range.



Orchard Oriole Unlike the familiar bright orange Baltimore Oriole, the Orchard Oriole is smaller and darker. Its range continues to expand northward.

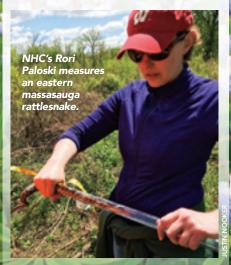


For more information contact Nick Anich: nicholas.anich@wisconsin.gov

# All creatures great and small

#### **Snake charmers**

NHC successfully captured, measured, tagged and released eastern massasauga rattlesnakes as formal long-term monitoring began for this state endangered and federally threatened species. Pilot efforts in 2018 uncovered the first Wisconsin massasauga with snake fungal disease. No infected massasaugas have been found since and there's more good news: The rare snakes responded to NHC habitat work by expanding to new habitat in Jackson County. The fungal disease can prevent snakes from feeding and drinking and makes them more vulnerable to predators. Submit photos of snakes with symptoms lumps along their face, neck and body — to DNRherptiles@wi.gov.





#### Good news for blues

NHC and stakeholders completed a 30-year habitat conservation plan and federal permit for the federally endangered Karner blue butterfly that allows roadside maintenance, timber harvests and other activities in Karner habitat but assures they're done in ways that conserve and minimize impacts, for example by delaying mowing until after the butterflies annual flight. Coincidentally but encouragingly, NHC discovered a new Karner population at a site predicted to host the butterflies by computer modeling! Such species distribution models can help steer future searches for new populations. Meanwhile, trained volunteers confirmed Karner presence at twice as many sites as in 2018, underscoring volunteers' value to monitoring efforts.



Mating Karner blue butterflies at a newly discovered location. Native lupine is key habitat for the species.

# Plant restorations flower

#### Growing efforts bear fruit

Restoration efforts grew in 2019 for globally rare plants in Wisconsin. NHC staff collected seed from federally threatened northern monkshood clinging to a Baraboo Hills cliff. A private nursery will raise plants from the seeds and NHC will reintroduce them to sites next year. In central Wisconsin, NHC teamed up with UW-Whitewater to reintroduce the federally threatened Fassett's locoweed to a lake bed where it was last found 15 years ago. Unexpectedly high water levels drowned the seedlings in 2019 but could ultimately set the stage for a future successful reintroduction. In southeastern Wisconsin, a second year of hand pollinating federally threatened eastern prairie white fringed orchids is bearing fruit: All flowers aided by human hands produced fruit and more of it than plants pollinated by nature! Hand pollination introduces new genes to potentially inbred populations and improves seed set and viability.



Removing pollen from an eastern prairie white fringed orchid.

NHC's Kevin Doyle collects northern monkshood seeds.

# **Boots on** the ground

Growing crews benefit rare landscapes Increased grant funding added State Natural Area work crew members throughout Wisconsin, increasing invasive species control by NHC to more areas than ever and strengthening earlier detection of invasive species in northwestern Wisconsin, which got its first crew members. How important is this? Recent UW research surveying 47 prairies found that plant species were vanishing at an accelerating rate overall, but those sites that best retained plant diversity and rare species over the past 50 years were the ones receiving regular prescribed burns, and most were SNA crew-managed sites.

#### Fire aids an Ice Age relict

Red Banks Alvar State Natural Area supports Wisconsin's best example of an alvar community an unusual blend of northern, southern and prairie plant species growing in very shallow soils on flat limestone or dolomitic bedrock. NHC's 2019 work to preserve this Ice Age relict included two prescribed burns to control invasive species and scattering prairie and oak woodland seeds to augment existing plants. More prescribed burning and a selective timber harvest to make room for oaks are planned for 2020.

> Prescribed burns help maintain fire-dependent landscapes like prairies, barrens and savannas.

SNA crew members tackle invasive species at Hogback Prairie.

Volunteers boost habitat Volunteers grew tens of thousands of violet seeds to help an endangered butterfly, the regal fritillary, in Crawford County. Elsewhere, volunteers spent hundreds of hours removing invasive species threatening remnant prairies, oak savannas and barrens. These are just a few highlights of how volunteers helped care for State Natural Areas in the last year.

A growing impact

36 volunteer groups

**43** State Natural Areas

3,296 acres impacted \$126,949 in value

Gatherin together DNR intern Anna Mancheski, left, and volunteers pick lupine seed pods. Volunteers rock at lupine-palooza

Volunteers and NHC collected 700 pounds of native lupine seeds — 37 pounds cleaned and dried

- in one week at Quincy

Bluff and Wetlands State Natural Area in Adams County. The work will help improve native habitat for Karner blue butterflies and other pollinators, and the estimated seed value of \$22,000 will provide the local match to secure grants for more management efforts. Statewide, a roving crew of SNA volunteers collected seed from at least 17 different sites to create new healthy prairie, oak openings and barrens in areas recently cleared of invasive plants.



#### Busy as bees

Thanks to 140 volunteers trained through NHC's new Bumble Bee Brigade, Wisconsin has fresh information on 16 of its 20 native bumble bee species, including the federally endangered rusty patched bumble bee. Volunteers added Jefferson and Portage to counties with the rusty patched and reported the first one documented in Marinette County since 1960! Volunteers also confirmed the presence in three new counties of the Fernald cuckoo, a very rare bumble bee that lays its eggs in the nests of other bumble bee species, which then raise the young to adulthood. Learn more at wiatri.net/inventory/bbb.

#### Good news for monarch butterflies!

The eastern U.S population had a good summer in 2019 due to better conditions on their breeding grounds. which include Wisconsin. In 2019, the



40-plus organizations in the Wisconsin Monarch Collaborative, including NHC, completed the Wisconsin Monarch Conservation Strategy, a blueprint for voluntarily adding 120 million new milkweed stems in Wisconsin over the next 20 years. Already, state residents using a new mobile app reported planting more than 10,000 additional milkweed plants. Download the HabiTally mobile app and add to Wisconsin's tally!

#### Restoring a wild rice lake

Work to restore wild rice beds at Spur Lake State Natural Area in Oneida County advanced. bringing together NHC, the Great Lakes



Alvssa Hoekstra removes a beaver dam to aid wild rice restoration.

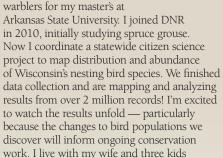
Indian Fish and Wildlife Commission, Sokaogon Chippewa Community, DNR's Lakes Program, Northland College, and local neighbors. Rice is nearly non-existent on the lake today due to high water levels and encroaching perennial aquatic plants. Efforts in 2018 to remove a man-made structure holding water levels artificially high were followed in 2019 by removal of beavers and beaver dams. Partners also monitored lake water levels and vegetation, and conducted a seedbank viability study.

## **Meet some** of our staff

### Nick Anich

Wisconsin Breeding Bird Atlas II Coordinator

I became fascinated with birds at St. Olaf College and haven't looked back. I held field tech jobs before studying Swainson's warblers for my master's at



#### **Amy Staffen** Natural Heritage **Inventory Ecologist**

in Ashland

I learned to love nature through botanizing and birdwatching with my parents in Madison's Crestwood neighborhood.

After stints as a high school French teacher and lab technician, I pursued a master's in landscape architecture (restoration ecology focus) from UW-Madison, which led to interesting jobs revolving around Wisconsin's native plant communities, from natural area management with NHC, The Nature Conservancy and The Prairie Enthusiasts, to invasive species education and policy development, to my current position. I'm really excited about my work on climate adaptation, oak barrens monitoring and landscaping with native plants! In my free time, I enjoy birdwatching, gardening and listening to music.



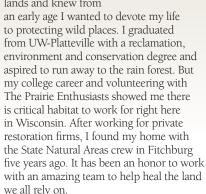
I grew up building forts in a rich mesic woods behind my parents' house in northern Michigan, which led me to a master's degree



from University of Michigan. I started with NHC in 2009, where I coordinate and conduct field surveys of natural communities and synthesize information into products that help managers prioritize conservation efforts. I love the amazing people I get to work with, especially engaging with partners in cutting-edge projects on wetland conservation and climate change vulnerability and adaptation. In my free time, I like to volunteer and explore natural areas with my wife and daughter.

#### **Bridget Rathman** Southwest District State Natural Areas Crew Leader

I grew up in Baraboo exploring local public lands and knew from



## **Meet some** of our volunteers

Zebra clubtail. Ryan Chrouser's





favorite dragonfly

### **Ryan Chrouser**

Ryan puts his childhood interest and his zoology degree to work helping advance knowledge of Wisconsin dragonflies and damselflies, also known as odonates. President of the Wisconsin Dragonfly Society

through 2020, the Eau Claire resident has photographed and documented over 12,000 dragonflies since 2011 for the Wisconsin Odonata Survey.

Favorite finds include both species of Williamsonia (ebony and ringed boghaunters) at a marsh in Eau Claire County. "These are rare glacial relict species with narrow habitat requirements and I hope to monitor these populations over the next several years to observe the effects of a changing climate.

"I really enjoy exploring new habitats and immersing myself in nature. Odonates take me to places that very few people travel. I am quite certain that I have set foot in several places that people have not visited for a long time. It helps me to feel connected with nature in a meaningful and powerful way."



#### Heidi Conde

From Eau Claire, Heidi appreciates that the data she and others collect by listening to and identifying the nighttime calls of frogs, owls and other wildlife "contribute to our overall understanding of our bio-diverse world and alert us to troubling trends that may require intervention.

"Besides the knowledge that I am part of this important process, there is the intrinsic enjoyment of it. My routes take me to dark skies, where I can observe the Milky Way, the planets, passes of space stations and other satellites. and meteors streaking the sky, as I listen for the calls of the animals I am surveying.

"I have seen a bobcat crossing the road and bats flying over a moonlit lake, heard beavers splash their warnings and muskrats munching on vegetation, smelled the fresh country air, and felt a sense of wonder and peace as fireflies wink all around me. I look forward to these experiences every year."

#### **Eric Howe**

Joining a nature club and volunteering with Chiwaukee Prairie in the mid-1990s led the Racine resident to awareness of birds and their habitat and a desire to learn bird



calls and plants. His volunteer survey work now includes the Wisconsin Breeding Bird Atlas II, Audubon Christmas Bird Count, Wisconsin Marshbird Survey, North American Breeding Bird Survey, Wisconsin Rare Plant Monitoring Program, and in 2019, NHC's Bumble Bee Brigade.

"If you enjoy the outdoors, exploring the finer details of nature, working with others or independently, there's a survey that you can get involved in!

"Surveys have provided opportunities to explore and connect with areas that I otherwise may not have ever visited and the chance to see the unexpected. One of my favorite memories occurred on one of my first marshbird surveys when a king rail began to vocalize but remained hidden. Immersed knee deep in its habitat, I was granted a rewarding view of a seldom-seen species peering at me from the cattails."

# Thank you!

Donors like you make a difference every day for Wisconsin's rare species and State Natural Areas. Every gift is matched dollar for dollar, doubling your impact for nature.

#### Honoring nature's protectors

In life, and now in death, Don Beghin and Jim Savinski have protected the Wisconsin nature they loved.

Their wives, Marian Beghin and Vickie Savinski, have directed memorial gifts to the Endangered Resources Fund in honor of the two longtime DNR employees.

"There really is not enough publicity about supporting our endangered species," Marian said, explaining why she chose the Endangered Resources Fund. "I think there should be more public awareness of the program and how important it is. A person wouldn't want to see the extinction of any of our treasured wildlife.'

Don, a farm boy, World War II veteran and conservation warden from 1949 until his retirement as chief warden in 1983, spent his life protecting wildlife and natural resources. For Don and Marian, nature was a big part of family life with their four children, and in retirement the couple delighted in seeing common and uncommon wildlife on their 100+ acre property.



Don Beghin



Jim and Vickie Savinski and grandkids

Jim, a U.S. Air Force veteran, started working as a DNR wastewater engineer in 1979 and retired 31 years later. He, too, loved the outdoors, fishing from his boat, canoeing with Vickie or riding bikes with her along state trails and enjoying the beautiful fall colors.

He served on the committee responsible for the Sheldon Nature Area, a 26-acre outdoor classroom adjoining an Oshkosh elementary school, believing early education is the best way to conserve our natural environment.

"Jim really, really cared about this state and he loved working for the DNR. He believed in what he was doing, keeping the water clean," Vickie says.



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