

THE BOGHAUNTER

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WISCONSIN STATE NATURAL AREA #2

Jim Reinartz, FOCB President

This year marks the 75th anniversary of the Wisconsin State Natural Areas program. With the encouragement of Aldo Leopold, Wisconsin's most famous conservationist, and his contemporary, State Parks Director C. L. Harrington (Harrington Beach is his namesake) the Wisconsin Legislature created what was initially called the State Scientific Areas Program in November 1951. The program was designed to protect the best examples of Wisconsin's native "natural communities" – distinct groupings of plants, animals, soils, geology and climate that include different types of grasslands, wetlands and forests (<https://dnr.wisconsin.gov/newsroom/release/118026>).

The State Natural Areas program protects the best remaining examples of pre-settlement Wisconsin - the rarest plants, animals, and landscapes of the state. Leopold and Harrington designed the program because they wanted to safeguard two specific areas - Parfrey's Glen, near Baraboo, and the Cedarburg Bog. In 1952, the Cedarburg Bog became State Natural Area #2. The Bog was given additional national recognition in 1973, when it was registered as a National Natural Landmark by the U.S. Department of the Interior. There are only 18 sites designated as National Natural Landmarks in Wisconsin.

The Conservation Commission of the State of Wisconsin, predecessor to the Department of Natural Resources, made

its first purchase of land in the Bog in 1946. At that time the Bog was already well-known to naturalists such as the Milwaukee Public Museum Curator of Botany and orchid expert, Albert Fuller. Much of his research on Wisconsin's native orchids was conducted at the Bog.

There are now 698 State Natural Areas in Wisconsin, each with a management plan designed to protect its biological diversity. In Wisconsin there are over 230 plant and animal species listed as endangered or threatened. More than 90% of the listed plant species and 75% of the listed animal species are currently protected in state natural areas.

Most of the 2,200-acre Cedarburg Bog is owned by the Wisconsin DNR and about 90 acres is owned by the University of Wisconsin. The Friends of the Cedarburg Bog is the first "Friends" group formed to support a State Natural Area. Your support allows us to continue to work to protect this wetland gem from invasive species and showcase the unique plants and animals that call it home.

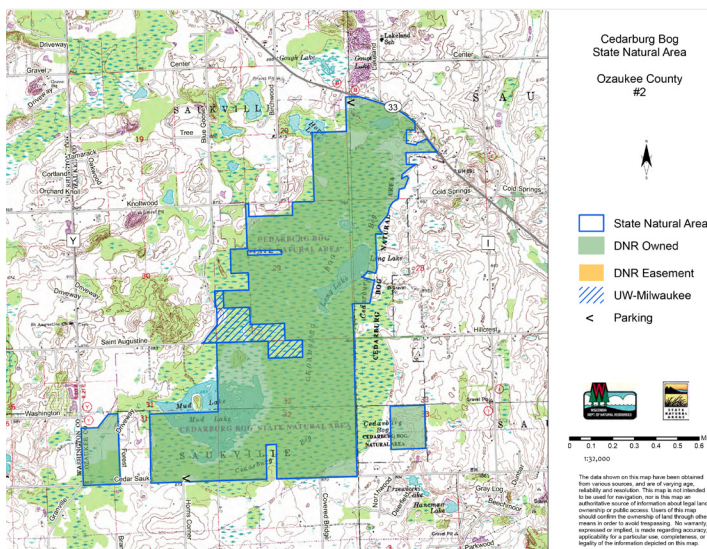
TURTLES OF THE CEDARBURG BOG

Gary S. Casper - Originally published in the Fall 2007 issue of the BogHaunter

Turtles are old - really old. Something readily recognizable as a turtle, *Proganochelys*, walked the Triassic swamps about 225 million years ago. It had all the key features of modern turtles, plus small teeth on its palate - a feature since lost. The basic turtle body plan has worked so well that it has changed little for well over 200 million years.

In North America, turtles survived the doomsday Chicxulub asteroid impact in Yucatan approximately 65 million years ago, which nearly sterilized large portions of North America. Turtles then proliferated during the Age of Mammals, when a menagerie of large and frightening beasts such as mastodons, saber-toothed tigers, giant sloths, and dire wolves ruled the land.

Much later, the Ice Ages forced turtles south of advancing glaciers, only to plod northward again as glaciers retreated. In Wisconsin, the Cedarburg Bog area was scoured by an ice sheet approximately 12,000 years ago, a mere blink of an eye in geologic time. Since then, a few species of tur-



bles, those ancient survivors, have managed to re-establish themselves in the Bog.

At least three species are known to inhabit the Bog, painted turtle (*Chrysemys picta*), snapping turtle (*Chelydra serpentina*) and the state Threatened Blanding's turtle (*Emydoidea blandingii*). Two others, the spiny softshell (*Apalone spinifer*) and the Stinkpot (*Sternotherus odoratus*), are known from the region but not from the Bog (yet).

All of the Bog's species are diurnal, active during the day from late March through early November, and prefer warm water and soft muddy bottoms, occupying well vegetated lakes, ponds, marshes, sloughs, oxbows, sluggish streams, and bogs.



Painted turtle

The most familiar is the painted turtle. Widespread and common throughout the eastern U.S, they mature at 3-5 years (males) to 6-10 years (females) of age and may live 30-40 years. Clutch sizes average about 10-15, and nesting is in June.

Females are often found seeking nest sites in dry, sunny, exposed soils. Sometimes second clutches are laid in late July. Painted turtles are commonly observed basking on logs and shorelines, a behavior which elevates body temperatures for metabolic benefits (e.g. digestion), exerts some control over external parasites such as leeches, and kills algae on their shells.

In winter, painted turtles hibernate in deeper water areas, and winter kills are known when prolonged ice cover results in extended periods of low or no oxygen. Diet consists mostly of aquatic invertebrates, which explains why painted turtles are most abundant where fishes are absent.

Also regularly sighted at the Bog is the snapping turtle. Snapping turtles are common residents of Mud Lake and other permanent and semi-permanent lakes and wetlands of the Bog. They mature at 4-5 years (males) to 12-15 years (females) of age and may live 40 years. Clutch sizes average about 20-40, and nesting is in June.



Snapping turtle

Snapping turtles bask only in early spring, which helps to shed the load of leeches accumulated over the winter. Like painted turtles, they hibernate in deeper waters and winter kills are known. They eat a variety of plant and animal matter and carrion. Contrary to popular belief, snapping turtles are generally insignificant as predators upon game fish and waterfowl, although they will take them occasionally. Up to a third of their diet can be plants.

Less frequently seen is the Blanding's turtle, named after a medical doctor in Philadelphia who first reported them to science more than a century ago. There have been a few sightings of both adults and juveniles at the Bog, where they appear to be a rare resident of Mud Lake and its environs. The first photographs of Blanding's turtles from the Bog were obtained in 2006 - attesting to how rarely this Bog resident is observed.

Blanding's turtles are especially appealing, with fine yellow speckling on black shells, big brown and yellow eyes, and a bright golden yellow chin and throat. They also have captivating personalities, being extremely docile and almost never biting. The growth rings on their shells can give an estimate of their age up to about 25 years or so (a new ring forms each winter).

Blanding's turtles share certain life history features with humans - females reach reproductive maturity at about 15 years, and they live well over 70 years. They tend to favor ephemeral wetlands, especially in spring, and spend considerable time foraging on land in forests and fields in mid-summer. Clutch sizes average about 12, and like other species nesting females are often encountered along roads in June. They return to the same general nesting area year after year, and although they can nest annually in Wisconsin, they often skip a year. Basking is mostly in spring, especially just after spring emergence. Unlike other turtles, they sometimes hibernate in ephemeral wetlands by digging into mud or under hummocks or into vegetative bog mats, where prolonged oxygen deprivation can be severe. They seem especially tolerant of low oxygen and winter kills are rare, usually the result of freezing rather than oxygen deprivation.

Crayfish and other aquatic invertebrates are preferred prey items, and they also eat amphibian eggs and tadpoles (in

season), plants, occasional minnows or carrion, and are suspected to consume fungi and earthworms during bouts of mid-summer terrestrial foraging. Blanding's turtles are known for large activity ranges. Individuals I have radio tracked typically have a home range of about one square mile, including multiple habitats such as ephemeral wetlands and marshes for spring and summer foraging, grasslands and woodlands for mid-summer foraging, fields and roadsides for nesting, and deep lakes or ponds for winter denning.

A remarkable thing about turtles is their increasing fecundity with age - the older a female turtle gets, the more and better babies she has. Imagine grandma having sextuplets in her 60s while mom is only having twins in her 30s! This has conservation implications; because with most reproduction coming from old adults, and with juvenile mortality very high, there is essentially no harvest-able surplus of adults.

Unfortunately, adult mortality has greatly increased from harvest, poaching, and highway traffic; and mortality in all ages has increased from super-abundant urban predators (skunk, raccoon, fox, coyote, etc.) that predate on eggs in nests. These problems raise serious questions over the long-term viability of many turtle populations.

Some studies have shown that turtle populations near highways are skewed toward males - because the females are often killed while nesting. Better urban planning to reduce the impacts of road building and resultant habitat fragmentation would help turtles. Highway ecopassages, tunnels that allow turtles and other wildlife to pass safely underneath highways, are being tried in many areas.

We know little about the specific turtle community in the Bog, its ecology and conservation. How many turtles are there, what are their survival rates, reproductive challenges, and conservation issues? Road mortality, nest predation, and climate change are likely to be having negative influences on our turtles - but we have no specific data.

SANDHILL CRANES - SOUND OF THE WILD

By Kate Redmond, Originally published in the newsletter of the Lake Michigan Bird Observatory

If you wanted to see a Sandhill Crane in southeastern Wisconsin fifty years ago, you had to travel to the Cedarburg Bog, where a pair reliably nested at the south end of that 2,200 acre wetland. One pair, not two - the cranes didn't like company.

Sandhill Cranes have been around for 2.5 million years, and we almost lost them. Plentiful when settlers started farming

Wisconsin in the mid-1800's, their numbers fell as their habitat was destroyed, and they were shot as crop pests and for food (one long-ago hunter called them the "ribeye of the sky"). Greater Sandhill Cranes are the subspecies that calls Wisconsin home, and by the 1930's, there were only about 1,000 of them east of the Mississippi. Wisconsin hosted about 50 of them.

The great conservationist Aldo Leopold believed they would become extinct and lamented their passing in an essay in Sand County Almanac called "Marshland Elegy." He wrote, "Someday, perhaps in the very process of our benefactions, perhaps in the fullness of geological time, the last crane will trumpet his farewell and spiral skyward from the great marsh. High out of the clouds will fall the sound of hunting horns, the baying of the phantom pack, the tinkle of little bells, and then a silence never to be broken, unless perchance in some far pasture of the Milky Way."

With the protections for birds that were brought by the Migratory Bird Treaty Act of 1918, and for wetlands that resulted from the Migratory Bird Conservation Act in 1929, cranes started to rebound. Still, in his 1991 book Wisconsin Birdlife, Sam Robbins listed the Sandhill Crane as an "uncommon migrant and uncommon summer resident." Their reproductive biology explains their slow recovery - cranes produce only one or two chicks (called colts) per season, and typically, only one survives. They may not breed until they are four or more years old.

Greater Sandhill Cranes (*Antigone canadensis tabida*) are hard to miss. Four feet tall with a six-foot wingspan, adults have long bills, a red forehead, white cheeks, and gray plumage that may look rust-stained due to iron in the soil that sticks to the birds' beaks and is transferred as they preen. About the same size as Great Blue Herons, they fly with necks and legs extended (herons usually tuck their necks in). Their wings are narrower than a heron's, and the upstrokes of their shallow wingbeats seem more empathic than the down strokes. Males and females look alike, and young birds are browner. They have a vocabulary of bugles, honks, hisses, and snores, some of which can be heard for miles. They soar admirably, and it's not uncommon to hear their calls coming down from high up in the sky.

Another subspecies, the Lesser Sandhill Crane (*Antigone canadensis canadensis*), numbers more than a half-million birds and lives in central North America. These birds breed in the Arctic and stage spectacular migrations through the Great Plains that are recorded by cameras at the Audubon Society's Rowe Sanctuary. Fifteen states allow crane hunting, almost all of them involving the Lesser Sandhill population.

Cranes are omnivores, feeding in wetlands and uplands on seeds, berries, and tubers, plus invertebrates and vertebrates (including rodents, snakes, frogs, and even small birds). They may also eat sprouting agricultural crops in spring and glean waste corn after the fall harvest. Because cranes nest on the ground, foxes, raccoons and coyotes prey on the young birds, and so do crows, raptors, and gulls; their attacks are rebuffed by hissing and kicking adults. I used to live a mile away from the Cedarburg Bog, and no matter what time I went outside at night, they were always very vocally awake, protecting their young from nocturnal prowlers.

Nests are broad piles of vegetation that are collected by both males and females, but the female does the majority of the incubating. Colts are able to leave the nest and follow their parents after about eight hours. Both parents feed the young at first, and within eight to ten weeks, the young birds are as big as their parents and are able to fly.



Sandhill crane in flight

Juveniles migrate south with their parents, but the next spring they join a roving “bachelor flock” until they’re old enough to pair off. Cranes mate for life and stay together during the winter, but they will find a new mate if one dies.

Fun Fact – Cranes court with energetic bobbing, leaping dances that include a call-and-response by the male and female, and the best dancer wins.

Wisconsin now has 30,000 to 40,000 Greater Sandhill Cranes, a little less than half of the entire eastern population, and volunteers turn out every April for the Annual Midwest Crane Count to help census them. As their numbers have increased, so has their tolerance for other pairs of cranes breeding nearby. Leopold would be happy to hear that. He said “When we hear his call we hear no mere bird. We hear the trumpet in the orchestra of evolution. He is the symbol of our untamable past, of that incredible sweep of millennia which underlies and conditions the daily affairs of birds and men.”



Sandhill cranes walking

FRIENDS STEWARDSHIP UPDATES

FOCB stewardship volunteers have been busy with two projects in the past couple months.

Garlic mustard in the Field Station Beech-Maple Forest State Natural Area

Including the 18-acre “Wright Tract” owned by The Nature Conservancy, the Field Station’s Beech-Maple Forest (State Natural Area #61) is 80 acres of one of the finest examples of old-growth upland forest remaining in southeastern Wisconsin. The sand and gravel glacial deposits and extreme kettle-hole glacial topography make the woods an atypically dry variety of sugar maple and American beech dominated forest.

Adjacent to the Field Station’s woods to the west is another 40 acres of privately-owned old-growth forest that is rich with ephemeral ponds that are highly valuable as amphibian breeding habitat. Together, these 120 acres of old-growth forests are a natural area of great regional and statewide importance.



Route used to systematically search the Field Station’s forest and the private forest to the west. The dots represent the permanent grid marker location in the university-owned part of the forest.

Garlic mustard (*Alliaria petiolata*) was first identified in Wisconsin in 1938. It did not become widely established and recognized as a severe ecological problem across the state until the late 1980s and early 1990s when after decades of slow, localized growth, the plant underwent an aggressive population explosion. By the late 1980s, it went from a minor curiosity to an aggressive, widespread invader across Wisconsin's woodlands. Garlic mustard can spread aggressively because it can grow in deep shade, lacks natural predators in the Midwest, and produces thousands of seeds per plant (Wisconsin DNR).

Since the Station's forest is used by the public for education and research it was inevitable that garlic mustard would be introduced by mud on visitors' boots if not by wildlife movement from adjacent properties. The first garlic mustard plant was found in the Field Station woods around 2004. By 2007 Field Station staff and the Friends of Cedarburg Bog had the foresight to recognize that the only way to prevent an eventual severe infestation and spread of garlic mustard would be to conduct annual searches and remove the isolated first-colonizers that would come into the forest. With the land-owner's permission, the block of privately-owned forest to the west was also included in the annual searches. Garlic mustard, like all invasive species, does not respect property boundaries, and the ecological importance of those woods was recognized.

A route was developed to thoroughly search the woods in a systematic way. Friends' volunteers continue to help the Field Station with the annual searches which have just been completed for 2026. We find and pull small patches of garlic mustard, and we celebrate when we find and pull individual, isolated, plants because they represent a next-year's-patch prevented. Thanks to these efforts the Field Station Beech-Maple Forest State Natural Area is still mostly garlic mustard free.

Raising Purple Loosestrife Control Beetles for Release on the Mud Lake Population

For a third year, FOCB volunteers led by Christine Bohn from our Stewardship Committee are raising *Galerucella* or "Cel-la" beetles to continue biocontrol of the Mud Lake population of invasive purple loosestrife. Purple loosestrife appears to have been introduced to Mud Lake by duck hunters who used it to construct their blind. It is now well-established and chemical control is not feasible because of the difficulty of accessing the plants in the floating cattail mats.

Fortunately, a biological control beetle has been found and developed for use in North America. In Eurasia, where the plant and beetle are native, the beetle is a specialist on purple loosestrife. Its entire life cycle depends on the purple

loosestrife plant, making it a perfect candidate for biological control. Its feeding does not typically kill purple loosestrife, but it stresses the plant keeping it smaller and can often completely prevent seed production and spread.



Christine, Tom, and Marty with dug purple loosestrife plants ready to haul to the Field Station's cattle tanks.

On May 4, before purple loosestrife had begun much growth, the FOCB crew dug plants from a local population, put them in buckets, and moved them to the cattle tanks at the Station where the beetles are being grown. They let the plants grow without beetles until June 10 when they put about 10 beetles on each plant and netted them.

The beetles will lay their eggs and multiply. They will be ready to be released when there's not much foliage left on the plants and there should be a large number of beetles. At that point in late July or early August, we will load the plants into canoes and take them out to Mud Lake for release. The project's volunteers are planning an inspection of the purple loosestrife on Mud Lake later in the season to see what density of beetles are present from previous releases and the level of damage to the loosestrife population.

Alex Mann, Tom Thornton, Marty Honel, Jaymi and Noelle Holland, and Jim Reinartz are helping Christine with the project. Thanks to all our FOCB volunteers.

Friends of the Cedarburg Bog:
Supporting stewardship and
appreciation of the Cedarburg
Bog through land management,
preservation, research and education.



Photos By Brian Morrison

FRIENDS OF THE CEDARBURG BOG EVENTS

Unless otherwise noted, walks meet at the UWM Saukville Field Station on Blue Goose Rd. Registration Required.

Please register at: www.bogfriends.org (click on Programs & Events).

Walks are free and open to the public; a \$5 donation is appreciated.



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Quarterly Board Meeting

Thursday, July 9, 6:00 pm

All members are welcome to join the FOCB board meeting. The July meeting is being held in person and over Zoom. If interested in the agenda and to receive access to the meeting, please contact admin@bogfriends.org

Dragonflies of the Bog

Sunday, July 19, 10am - 1pm

Join Jamie Schiesel for a short indoor program followed by a field trip through the Cedarburg Bog looking for odonates (dragonflies and damselflies). Wisconsin has 160+ species of odonates to see from April to early November. Learn about the anatomy and life cycle of these ancient insects and see them up close in the field. The Bog is home to many families of odonates, each with unique colors, size, and lifestyle to discover! Jamie works at the Mequon Nature Preserve as the Ecological Education Manager and is a board member of the Wisconsin Dragonfly Society. Bug nets will be provided during this exciting adventure and although kids are welcome, this program will focus on adult education and comprehension in identification of many species of odonates.

Mothing in the Moonlight

Saturday, August 1, 8:30pm - 10pm

When night falls, a hidden world emerges. Join Naturalist Brooke Gilley to explore the bog using specialized mothing equipment and a "secret recipe" to attract moths. We'll also use blacklight flashlights for a caterpillar hunt. Come discover the wonders of the night.

Wisconsin Indian Ethnobotany

Saturday, August 15, 9am - Noon

Join Lee Olsen, who has been teaching Ethnobotany of the Western Great Lakes for over 30 years and is famous for his work and knowledge in that area, on a walk in the Cedarburg Bog and its wooded islands. Lee will show a wide variety of plants used for food, medicine, and technology; and he will demonstrate some native plant use skills. You will see beautiful samples of native art made from birch, cedar, tamarack, and Black Ash --- all species found in our very own Cedarburg Bog.

Bats of SE Wisconsin

Saturday, August 29, 6:30pm-8:30pm

Did you know that Wisconsin is home to eight bat species, with half of them hibernating in caves during the winter? Unfortunately, these bats are at risk due to white-nose syndrome, a fungal disease that has led to some of our cave-dwelling species becoming threatened and endangered. To learn more about these nocturnal creatures, join Helen Holtz from the Waukesha County Land Conservancy and the WDNR Bat Ambassador on Saturday, September 14th. She will be presenting for the Friends of the Cedarburg Bog, sharing insights into the importance of bats and their hibernation habits.

Purple Loosestrife Control Beetle Project



Collecting about 10 beetles to place on each netted purple loosestrife plant.



Netting the plants to contain the beetles which will multiply on the plants.