

The BogHaunter

the newsletter of the Friends of the Cedarburg Bog
Volume 6, Number 3 Summer, 2011

CRAYFISH IN THE BOG

They're very important members of aquatic communities, but they're not often seen. As omnivores and scavengers, these master recyclers reduce large chunks of organic material into smaller pieces that smaller critters can eat. They have a big impact on the density of plants in their wetland, and that affects other members of the community.

A shell called a carapace covers their front end, the *cephalothorax* (fused head and thorax). Antennae, stalked eyes, and five pairs of walking legs decorate the cephalothorax (they can regenerate lost limbs). Gills are located inside the head. The six-segmented abdomen has small leg-like appendages and ends in a flipper-like tail. Crayfish move forward by creeping, scoot backward by quickly tucking/folding their jointed abdomen under them several times, and can also walk sideways.



Crayfish feed on dead plants, live plants, snails (mainly species with thin shells), aquatic insects, small fish and carrion. They use the largest claws, on their front pair of legs, to crush or rip their food. In the Bog, crayfish are eaten by fish, raccoons, mink, otters, and screech owls. Small piles of "scat" and pellets deposited on the boardwalks frequently contain crayfish shells.

Crayfish inhabit shallow waters, both running and still, and they also live away from permanent water. They are indicators of relatively unpolluted

water. Some species spend most of their lives in burrows, leaving only to feed. Others that live where conditions are seasonally dry may make burrows in an attempt at climate-control. In search of water to keep their gills moistened, they excavate vertical tunnels, sometimes down into the water table. They use their front pair of claws to push globs of dirt to the surface and may form a cylindrical "chimney" at the top. Others may simply cap their burrow in dry conditions.

Burrowers live in solitary splendor, except for a bit of co-habiting during the breeding season and except for the presence of *inquillines* - animals that routinely inhabit the nests of other species. A few species of snakes (including the Threatened Butler's garter snake), frogs and salamanders take shelter in crayfish burrows during dry spells or for the winter. In the Cedarburg Bog, one of those "lodgers" is the aquatic *naiad* (larva) of the Hines' emerald dragonfly (*Somatochlora hineana*), an endangered Bog-dweller. The naiad has been found in burrows of the devil crayfish (*Cambarus diogenes*). Hanging out in a crayfish burrow assures the naiad of water, but naiads are definitely on the crayfish's menu, so it's not always a win-win arrangement.

There are nine species of crayfish in Wisconsin, some burrowers and some aquatic. Two species are "aliens" that are originally from other regions of the United States. The Rusty crayfish (*Orconectes rusticus*) from the Ohio River Basin has achieved pest status here. It has recently been joined by the Louisiana or red swamp crayfish (*Procambarus clarkii*). These newcomers might have been discarded by bait fishermen or by aquarium owners. They may have been classroom pets, ordered through biological supply

catalogs and freed at the end of the school year. Shipments of live red swamp crayfish can be ordered for crawfish boils, and excess animals may have escaped or have been dumped.



A rusty crayfish.

However they arrived here, both of these alien species are aggressive toward native crayfish, toward the fish that would normally eat them (and toward the toes of wading humans). They eat twice as much as native crayfish, and they eat fish eggs, small fish, insects eaten by fish, and the aquatic vegetation needed by fish for cover and for spawning areas.

There has never been a Bog-wide crayfish survey, either for species or density. Two species of burrowing crayfish are known to live here and several more undoubtedly do. Besides the Devil crayfish, which gets its name from its habit of creating its burrows in cemeteries in Louisiana, another burrower, the Prairie crayfish (*Procambarus gracilis*) has been found here. Researchers who get out into the Bog report that portions of the open mat are "peppered" with holes that can be seen as the pressure from the person's feet causes water to bubble out of the holes.

REED CANARY GRASS

Researching Reed Canary Grass (*Phalaris arundinacea*) is like reading the story of Dr. Jekyll and Mr. Hyde. According to many references, Reed Canary Grass (RCG) is a beneficial grass that improves the soil, holds it in place, helps reclaim contaminated, dry, or wet lands, and provides fodder for livestock and fiber for paper. It serves as a decorative landscaping grass and even has potential as a biofuel. Others consider it a scourge of the earth, especially in wetlands. It seems that one man's virtue is another man's vice.



Reed canary grass

RCG reproduces with seeds and also spreads aggressively through underground stems called rhizomes. It spreads easily - seeds or chunks of rhizome that float through a wetland or are carried down the road on the blade of a highway mower may start a new colony.

It's found in temperate regions of America and Eurasia. Some experts think that the variety of RCG that is native to North America has been out-competed and replaced by the imported European strains and that the vast majority of RCG in the northern half of the country is European (there's no easy way to tell them apart) It's still being planted.

Horticulturists in New England worked on developing super-strains of RCG grass for livestock forage and erosion control during the 1830's, and since then, research has been aimed at making it more palatable and nutritious and higher yielding. The strains that have been imported from Europe and widely distributed here have been chosen deliberately for their "vigor." Until recently, wetlands have been viewed as wasted lands, and planting RCG around a wetland was a way to make it more "productive."

Mother Nature loves diversity, but once established, RCG forms a dense, stubborn *monoculture* (a community with a single dominant plant) of grasses that are four to six foot tall. RCG monocultures crowd out native plant species, and most animals don't use it as either food or shelter. It succeeds in a wide variety of habitats, from dry and disturbed ground to its favored wetlands. It's been called a "Bio-bully."

RCG has existed in low numbers in the Bog for years, apparently the less aggressive native strain. But road edges around the Bog are lined with RCG, and time will tell if it will become invasive in the Bog. The Friends are developing a control plan for another grass, *Phragmites*, which also has a "pushy" European form that is replacing a native strain. Invasives are an increasingly important chapter in the story of natural areas these days, and the down-side of having 2300 acres of largely inaccessible wetland is that control efforts are difficult.

There are a variety of methods, mechanical and chemical, for eliminating RCG, but most herbicides should not be used in wetlands. It may take several years for control efforts to be effective because although the plants may be gone, an extensive seed bank remains. Seeding with native plants as the RCG is removed is vital because RCG has one "Achilles heel" that can help with long-term control - it does not grow well in shade. [Invasive Plants of the Upper Midwest](#) by Elizabeth Czarapata is a great source of information about invasives.

BATTLING THE ALIENS

The Friends of the Cedarburg Bog recently received an additional grant of \$8,500 to fund its work on controlling invasive plant species in the bog and on adjacent upland properties. The grant represented a second year of funding under a three-year "adoption" of the bog by WE Energies through the Wisconsin Energy Corporation Foundation under the Natural Resources Foundation of Wisconsin's (NRF) "Adopt-a-Natural Area" program.

NRF invites individuals, businesses and organizations to get involved in the protection and stewardship of State Natural Areas (SNAs). Private

entities can "adopt" individual SNAs of their choice by providing financial or volunteer support for their upkeep. The program aims to ensure the long-term health and well-being of Wisconsin's most pristine lands -- our State Natural Areas -- by engaging the public in the protection of these important properties.

The Friends has secured a total of \$45,500 to spend on the control of Glossy Buckthorn and *Phragmites* in the Bog and Oriental bittersweet in the bog and adjacent uplands on private land between 2010 and 2013. In addition to the three years of "adoption" funding, the Friends last year was awarded a \$20,000 Knowles-Nelson Stewardship Grant.

The FOCB Stewardship Committee expects to spend about \$35,000 on control of buckthorn in the bog and about \$10,000 on control of bittersweet. The buckthorn work can only be done in the winter when the bog is frozen; the bittersweet work can be done at any time of year.

Glossy buckthorn spreads very aggressively in large numbers because it thrives in both wet and dry habitats ranging from full sun to shaded understory. It casts a dense shade as it matures into tall shrubs. This shading has a particularly destructive effect on herbaceous and low shrub communities, and crowds out native species. Kate Redmond reports "there are butterfly species I no longer see on the east island because there are no sunny spots."



Glossy buckthorn

The initial plan was to do the control labor using DNR Natural Areas crews. However, the WDNR Natural Areas program was not able to raise a crew to do the work this past winter until late March, when a small crew was able to start the work.

FOCB is working with Andrew Krueger, DNR property manager for the Bog, and Jim Reinartz, UWM Field Station Director to try to get more DNR crew time spent on the project next winter. With only one more winter season to accomplish the work on buckthorn in the bog, the FOCB Stewardship Committee feels that it is important to have a second option, to ensure that the work is accomplished. The committee contacted four private contractors and asked them for quotes to perform buckthorn and bittersweet work on a time-and-materials basis.



An elm covered by Asian bittersweet.

Since the bittersweet work can be done now, the committee hired Environmental Design, Inc. to work on bittersweet to a maximum of \$10,000 spent on the project over this growing season. FOCB also can gain experience working with a private contractor should we want to hire them to do some of the buckthorn work next winter.

FOCB has obtained permission to control Oriental Bittersweet on two adjacent properties. Oriental bittersweet -- which like buckthorn is spread by "bird-poop" seeds -- was originally planted on private lands near the bog as an ornamental, but is encroaching on Bog property. It grows quickly and can overtop native plants and tall trees, shading, girdling, and eventually downing them.

LITTER PICK-UPS

The Friends of the Cedarburg Bog organization was founded to protect and preserve and to educate people about this amazing natural area we call the Cedarburg Bog.

Part of our stewardship mission is keeping the place tidy. The Friends' Stewardship Committee is scheduling a few litter pick-ups along Cedar Sauk Road, the southern border of

the Bog, in conjunction with the town of Cedarburg's *Adopt-a-Road* program. If you want to help out, make sure we have your email address. Many hands make light work.

IT'S A VERY WELL-KEPT SECRET

Non-profit organizations need to have an annual meeting and to notify their members of its date so they can attend. Most people are super-busy and the idea of attending a business meeting is a big yawn. But "*Annual Meeting*" is the wrong name for what we do.

IT'S REALLY A PARTY! It's like the Annual Winter Walk -- but *without* the snow and the ice and the cold. Take a guided walk along the University Boardwalk or the Public area at the north end of the Bog off Hwy 33 and then enjoy a pot-luck supper and a campfire. Yes, there *is* a *wee* business meeting (by the campfire), but it's only about 7 ½ minutes long, and you can roast marshmallows while it's happening.

This year's Annual Meeting is October 2, from 3 to 7 PM. Look for details in the next *BogHaunter*.

ESCARPMENT-The Life and Times of an Ancient Land

Roger Kuhns teaches a popular one-week Summer Workshop called Ecological Geology at the UWM Field Station. He also presents original monologs about his reflections as a geologist.

Roger is an environmentalist and writer as well as a geologist. "*Escarpment*" describes his curious journey of discovery, crossing a billion years of geologic and ecologic time, woven into a life of diverse careers that started along the shores of Lake Michigan. The journey also delves into the ever-changing eco-landscape of Eastern Wisconsin and explores important issues of today, like sustainability and climate change, within the perspective of natural history.

"*Escarpment*" will be presented at Riveredge Nature Center on July 13, 6:30-8:00 p.m.

COMING SOON

We're working on checklists of the species of birds, dragonflies, and butterflies of the Bog. Paper versions will be placed in a new kiosk to be built in the parking lot at the north end of the Bog off of Highway 33 and will also be down-loadable at the UWM Field Station website: www.Fieldstation.uwm.edu. Click on "datasets" and then on "Species Lists."

DID YOU KNOW?

That Jack-in-the-Pulpit (*Arisaema triphyllum*), a plant of rich woods and damp-lands, may switch gender during its lifetime? In its first few years of life, most of the flowers it produces are male. As a plant becomes older and stores more energy, the majority of its flowers are female (it takes more energy to produce seed). If its habitat changes or it gets injured or diseased, the plant switches back to male flowers.

CALENDAR

There's a lot going on this summer!

Riveredge Bird Club

First Tuesday of the month.

Optional hike: 6 to 7 PM.

Program: 7 PM

July 5: *The Ecology of African Birdlife*

August 2: *Saving the State's Most Endangered Birds*

Free: The public is welcome.

Riveredge Nature Center Barn.

Friends of the Cedarburg Bog

Quarterly board meeting

July 7, 7 to 9 PM

Members welcome

UWM Field Station

MAPS bird banding

July 9, 16, 24, August 6

8:00 to 11:00 AM, weather

permitting. See resident song birds mist-netted and banded in this long-term research project. Observers welcome. For information, location or to register, contact Mary Holleback at maryh@riveredge.us or 800-287-8098. Riveredge Nature Center

Annual Butterfly Count

July 9, 8:30 AM to 3 PM

Come for all or part of the day and help tally butterflies. Bring a lunch. Beginners welcome. For information, contact Riveredge at 800-287-8098 or riveredge@riveredge.us. Riveredge Nature Center, Newburg

ESCARPMENT-The Life and Times of an Ancient Land

July 13, 6:30 to 8 PM

Details on page 3 of the newsletter. Please let us know you're coming. Contact Riveredge at 800-287-8098 or riveredge@riveredge.us
Fee: \$6.00 donation suggested
Riveredge Nature Center

Green Fire: Film and Discussion

August 11, 7 PM

Enjoy a full-length, documentary film about legendary conservationist Aldo Leopold and his legacy. To register, contact Riveredge at 800-287-8098 or at riveredge@riveredge.us.
Fee: \$6 donation requested
Riveredge Nature Center barn

Tenderloin and Trout

August 14, 4 to 10 PM

20th Annual Ozaukee Washington Land Trust fundraising dinner. Dine on delicious local foods, bid on unique silent auction items, enjoy live music and an evening campfire. Reservations *required*. Contact Garry Schalla at gschalla@owlt.org or at 262-334-1794, or register at www.owlt.org.
Forest Beach Migratory Preserve (former Squires Golf Club)

Monarch Tagging

August 20, 1 to 3 PM.

Help catch, tag and release Monarch butterflies and take part in the Monarch Watch migration research project. A Family Program (kids under 12 must be with an adult). Pre-registration suggested. Contact Riveredge at riveredge@riveredge.us or 800-287-8098. Members: Adult \$4, 12 & under \$3, 3 & under FREE. Non-members: a bit more.
Riveredge Nature Center, Newburg

Bluegrass and Brats in This Old Barn

September 16, 5:30 to 7:30 PM.

Food available for purchase. 7:30 PM: Big Cedar Bluegrass Band, tickets \$12. Lac Lawrann Conservancy, 300 Schmidt Road, West Bend

Autumn Feast at the Preserve—

Sample the Local Harvest and Nourish our Children's Minds

September 22, 5:30 to 8:30 PM
A catered fundraising dinner and cooking demonstration. Proceeds to support K – 12 and post-secondary environmental education. For information or reservations call Christine at 262-242-8055, ext 107. Mequon Nature Preserve's PieperPower Education Center, 8200 W. County Line Road, Mequon.

Star Spying at the Cedarburg Bog - A Friends' Event

Sept. 24, 7:30 to 9:30 PM

Take a tour of the night sky guided by the Northern Cross Science Foundation. Bring a lawn chair and binoculars, the NCSF will supply the telescopes. Please register at 262-675-6844 or fieldstn@uwm.edu
A \$3 donation is suggested.
UWM Field Station.

SAVE THESE DATES

More information coming in the October *BogHaunter*

Sturgeon Fest

October 1, 10 AM to 2 PM
and at <http://riveredge.us/>

Fungi of the Field Station's Beech-Maple Forest

October 1

Friends of the Cedarburg Bog Annual Fall Potluck (and business meeting)

October 2, 3 to 7 PM

*The Cedarburg Bog:
designated an Important Bird
Area and a Wetland Gem*

Volume 6, #3, Summer 2011

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Frogs of the Bog

"One or two chances, that's all you got," I thought as I watched the lone male wood frog (*Lithobates sylvaticus*) croaking in a vernal pool along the Little Menomonee River in extreme northern Milwaukee County. This was the first wood frog reported from the county in over 70 years. As I watched him in a headlamp, all alone in this contaminated Superfund site, I realized this was one tough frog. Eventually his kind would reclaim this area, once again spreading the primary energy in the pond across the land, in the form of hopping frog flesh. Wood frogs have relatively short lives (3-5 years), with typically one or two chances to breed, but they lay a lot of eggs (up to 1,500). They use temporary ponds for breeding, a habitat that is not stable, and during drought years reproductive output is often zero. The key to their persistence is prolific egg production coupled with effective juvenile dispersal to constantly find and exploit new ponds. They persist on a landscape by using the existing ponds as a source to recolonize the ponds where reproduction failed. This strategy works only where there are multiple ponds connected by suitable habitat on a landscape the frogs can traverse. At the Bog, a friendly landscape of diverse habitats is preserved and protected.



The wood frog is commonly observed in and around the Bog. It spends most of its short life roaming the forest floor searching for invertebrate prey. Mostly nocturnal, it spends the winter in underground nooks and crannies, such as root channels and small depressions under a thick layer of rotting leaves or moss. Wood frogs are amazingly freeze tolerant, able to produce an antifreeze that helps get them through the winter. Two or three winters are normally a lifetime experience. In spring, wood frogs are the first frog to breed, arriving at small temporary ponds and shallow marshes often before they are completely ice free. Their soft quacking call is an early sign of spring. After breeding, the frogs disperse into the surrounding forest.

Other Bog frogs such as the eastern gray treefrog (*Hyla versicolor*), spring peeper (*Pseudacris crucifer*) and boreal chorus frog (*Pseudacris maculata*) have similar strategies of short lives but high reproductive output and good dispersal abilities. They also exploit the fickle temporary ponds. These species are common residents in and around the Bog, with treefrogs and spring peepers utilizing more forested habitats and chorus frogs more open and grassy habitats. All are often heard but rarely seen. Peepers and chorus frogs call in early spring, with familiar peeps and trills. With patience and a headlamp, stalking these frogs at night can be rewarding. They usually call from right at the water surface at the base of plant stems. Treefrogs give their bird-like warbling call later (about the time leaf-out begins), and often from shoreline bushes and trees up to 10 feet high. All three species are most active on rainy or humid nights, when they can be found crossing roads. Treefrogs sometimes hunt insects around outdoor lights and lighted windows at night.



Spring peeper Gary Casper photo



Gray Treefrog Gary Casper photo

Somewhat more long-lived frogs are the very aquatic American bullfrog (*Lithobates catesbeianus*) and northern green frog (*Lithobates clamitans melanota*). These frogs spend most of their time along shorelines of permanent lakes and streams, and are the last frogs to call, usually in June. The deep bass note of the American bullfrog carries far, while the short twang of the green frog can be heard for many weeks over an extended breeding period. Both these frogs hibernate on the bottom of lakes and streams, and neither is freeze tolerant. Both are highly prolific, laying thousands of eggs each year. The Bog lakes support these frogs, and they are occasionally found in deeper isolated wetlands as well. Bullfrogs are famous for their cannibalism and undiscerning taste, basically stuffing anything that moves into their gaping mouths, with scorpions, bats, small alligators and muskrats all recovered from stomachs.



Green frog



Bullfrog

The eastern American toad is another common Bog dweller, with very generalist taste in habitats, found in many residential settings such as gardens, but also in woodlots, forests and meadows. Very terrestrial, toads visit water only when they breed in May. Their long trills can be heard varying in pitch by the size of the toad and the pitch of its neighbors, resulting in interesting harmonies in the chorus. Like the wood frog group, toads hibernate on land, but rather than being freeze tolerant, they are good burrowers, digging underground to escape the freezing cold. Their soft bellies absorb water to help wait out dry periods. Like bullfrogs, they are highly prolific, laying up to 20,000 eggs. While they do use temporary ponds, they also breed in permanent waters, laying strings of eggs wrapped around shoreline vegetation. Toad eggs hatch quickly, in less than two weeks, and the tadpoles are distasteful to predators. As adults, toads sport large poison glands just behind their eyes, which serve as protection. Many gardeners welcome them for their insect control capacity.



American toads Gary Casper photo

The northern leopard frog (*Lithobates pipiens*) is the most complicated Bog frog. Like bullfrogs, they hibernate on lake and stream bottoms, and are not freeze tolerant. They occupy natural shoreline habitats, where vegetation provides cover. In early spring they leave their deeper, colder hibernating waters for warm shallow marshes and temporary ponds, where they breed. The soft snoring calls do not carry far, and up to 6,000 eggs are laid in globular masses. These hatch and undergo a larval period before transforming in July or August, when froglets leave the ponds. Meanwhile, upon leaving the breeding sites the adult frogs spend most of their summer foraging on land, in meadows and around forest edges, sitting out dry periods in protected hummocks. Summer rains often bring them out in numbers. Come fall, a migration back to permanent water takes place for hibernation. This complex life history takes a typical frog on a journey through three critical habitats each year - the permanent waters for hibernation, the shallow temporary wetlands for breeding, and the upland summer foraging sites. Intact landscapes providing these features are needed, and the Bog provides.

Frog numbers are always in flux, with reproductive success varying from year to year, based on unpredictable weather patterns. Frogs have evolved to survive this uncertainty through a complex system of high reproductive output and good dispersal potential, so habitats can be constantly recolonized. Habitat fragmentation can compromise this strategy, and stymie the return of frogs to places where weather knocks them out for a few years. That is why we need the Bog, and other large natural areas like it. To prevent long term amphibian decline habitats need to be connected, without major barriers to stop the frogs such as expressways and large developed areas. With a little planning, the frogs can do just fine.

Gary S. Casper, Associate Scientist, UWM Field Station

Further Reading

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- USGS Frog Call Quiz: : <http://www.pwrc.usgs.gov/frogquiz/>