

Habitat works

The newsletter about designing, restoring and managing wildlife habitat.
Spring 2020



Habitat Works is published by Chesapeake Wildlife Heritage, a 501(c)(3) nonprofit conservation organization dedicated to designing, restoring and managing wildlife habitat and establishing a more sustainable agriculture through direct action, education and research in partnership with public and private landowners. We welcome your comments and contributions.

The Mighty Beaver: *Arguably North America's Most Influential Animal*

By Andi Pupke, Education & Outreach Director

For no less than a million years, Beavers (*Castor canadensis*) have been sculpting the continental landscape by controlling the flow of water and the accumulation of sediment, filling whole valleys and rerouting rivers. They are a classic keystone species in that they create conditions that support entire ecological communities and raise the water table in areas where they reside. They also cause trees to evolve to develop defenses against wood cutters. Some plants defend themselves from being eaten by manufacturing secondary metabolites that are unpalatable to herbivores (Johnston, 2017). As an example, Beavers avoid poplar species that contain condensed tannins (Johnston, 2017). Balsam poplar and white spruce—two species of trees that Beavers avoid—contain the highest concentrations of phenolic compounds.

Due to their work ethic, Beavers have become the symbol of diligence and industriousness. They prefer to work under cover of darkness, and this nocturnal behavior, along with their preference to stay low in the water, doesn't allow us much of a chance to see them in action. They are amazing eco-engineers. By damming small streams to create open water and wetland habitat, they have incredible impact on their surroundings. This work provides a home not only for the beaver and its family but for countless other species that depend on the conditions the beaver provides. Critters that depend on the habitat created by Beavers include amphibians, fish, ducks, geese and many others. The biodiversity supported by this habitat rivals that found in tropical rain forests (Backhouse, 2005). Almost half of the endangered and threatened species in North America rely on

SEE A BEAVER IN ACTION!

youtube.com/watch?v=kgMvv0lHM7g

youtube.com/watch?v=yJjaQExOPPY

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Beavers at CWH's Barnstable Hill Farm cut trees into manageable lengths.

wetlands. The removal of Beavers from their natural setting results in decreased habitat quality and an area that can be used by fewer wildlife species.

Beavers build dams to create open water. This allows them to move trees by floating them and to store vegetation under the water for use during winter. They cut down a tree by chewing around the base until it falls and then cut it into manageable lengths so it can be moved through the water to their dam or lodge.

Lodge construction starts under water by building a mound with different-sized branches and logs. They fill in the gaps with mud and debris until the mound rises above the surface. Once it is big enough, the beavers gnaw their way up through the mound from under water, creating an entrance tunnel and living quarters above the water line. Finally, they use their front paws to plaster the exposed exterior

with mud, which will harden while leaving a few small holes for ventilation. Keeping the entrance of their lodge under water helps protect them from predators.

Once Beavers have created open water with their dam, they excavate the mud to create canals so they can reach more trees. This extends their opportunity to get around by swimming. Beavers are ungainly on land, but once they hit the water, they can move with great speed. They can walk on their hind legs, balancing with their tail as they carry mud and vegetation in their front feet to patch their dam or lodge.

Beavers are excellent water managers. They can completely transform their environment, turning a willow and birch woodland with a trickling stream into a rich mosaic of pools, dams, canals and bogs. This environment can hold a great deal of water that would otherwise run downstream and cause flooding in times of heavy rainfall.



Beaver dam at CWH's Barnstable Hill Farm

Beavers do not hibernate. At the first sign of frost, they begin to hoard food—which comprises logs, branches and other vegetation—under water. They will be able to swim to this stash under the ice from their lodge, thus preventing their exposure to predators.

Throughout the years, some people have not appreciated the Beaver's charms and have referred to it as a large rat. Beavers belong to their own order, Castoridae, making them only distant cousins of rats in the Rodentia order. Other terms that have been hurled at them include “dentally defective” and “toothy tyrant,” due to their oversized front teeth and their penchant for felling trees.

They can wreak havoc on a tree plantation and cause flooding to roads, but this can be managed by using tree protectors and installing beaver deceivers, which will allow water to flow without attracting the attention of the industrious Beaver.

Native Americans had an intimate relationship with the Beaver. Not only did they use it for fur and meat, they grew crops in the fertile soils left behind by abandoned Beaver areas.

They fished in ponds and lakes created by the Beaver and based a great deal of folklore on the animal. One such story from tribes in the Northeast claimed that a giant beaver had dammed the St. Lawrence River to create the Great Lakes. The Beaver's importance to a particular tribe's diet and material culture depended on its availability. Archaeological evidence of this relationship includes the knife-scarred bones of Beaver butchered 3,700 years ago and fragments of Beaver pelts in a 2,000-year-old burial mound.

Trapping Beaver for their pelts up to the 19th century left the population so low it was feared it would not recover.

Today, the population is widespread and common in many parts of its range. Oregon is known as the Beaver State due to long history of fur trade.

Beaver ponds prevent erosion by slowing the water, allowing sediment to settle out and build up fertile soils once the beavers move on. They reliably and economically maintain wetlands, alleviate droughts, raise the water table, provide habitat and purify the water.

What's not to love about Beavers and the environment they create? ●

References

- Once They Were Hats: In Search of the Mighty Beaver*, Frances Backhouse, 2005.
- Beavers: Boreal Ecosystems Engineers*, Carol A. Johnston, 2017.



Ask Andi:

By Andi Pupke, Education & Outreach Director

What animal would leave this on top of a bluebird box?

ANSWER: That is an owl or hawk pellet.

Those are some impressive bones in the pellet—the bird that left this may have had a squirrel for lunch. From the size of it, I'd guess it is either a Barred Owl or a Great Horned Owl. The two owls compete for the same habitat, so whichever you hear around your bluebird house is most likely the culprit that left the pellet.

A pellet is a mass of undigested parts of the bird's food that some bird species occasionally regurgitate. The contents of a bird's pellet depend on its diet but can include the exoskeletons of insects, undigestible plant matter, bones, fur, feathers, bills, claws and teeth.

Owls swallow their prey whole or in large pieces, but they cannot digest fur, teeth, bone or feathers. Like other birds, owls have two stomach chambers. In the first chamber—the glandular

stomach, or proventriculus—all the digestible parts of a meal are liquefied. The meal then passes into the second chamber—the muscular stomach, or gizzard—which grinds down hard structures and squeezes the digestible food into the intestines. The remaining, indigestible fur, bones and teeth are compacted into a pellet that the owl spits out. Owls typically cast one pellet per day, often from the same roosting spot, so you may find large numbers of pellets on the ground in a single place. ●



Don't forget to sign up (or apply) for Phragmites spraying this fall!

Phragmites (*Phragmites australis*) continues to invade the waterways of the Eastern Shore and other parts of Maryland at an alarming rate. It's that very tall reed that blocks the shoreline view. Because it grows so thick, it can destroy a wetland's fragile ecosystem by choking out beneficial and native wetland plants.

It will soon be time to start thinking about having the Phragmites on your property treated. If it has been treated within the past three years, start looking for your sign-up form in the mail around the beginning of June. If you are new to the area and would like to learn more about Phragmites or request an application, contact Mary at 410-822-5100 by July 31.

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FUN WITH FIGWORTS

THE STICKY SCROPHULARIA

By Rusty Berlew

Honeybee on *Scrophularia*

I awaken on summer mornings to the sound of bumble bees. Bizz. Stop. Bizz. Stop. Bizzzzzz. Stop. The morning cuppa they seek is found in the figwort blossoms below my open window.

The figworts, genus *Scrophularia*, belong to the family Scrophulariaceae. I love that name. I love it because it sounds like a whole sentence without having to worry about nouns and verbs and such. Just muttering *skroff-you-lair-ee-AY-see-ee* makes you sound seriously intellectual. Go ahead and try it at your next dinner party.

Until recently, the family Scrophulariaceae was known as the snapdragon family. But due to modern taxonomic methods, the snapdragons were moved out of the snapdragon family, which seems a bit odd. At any rate, since the figworts are one of

the few genera left in the so-called snapdragon family, it is now known as the figwort family.

A Honey of a Plant

According to the Xerces Society book *100 Plants to Feed the Bees*, “Figworts are amongst the most prolific nectar producers in the plant world.” That’s a bold statement for a plant we don’t see very often. But back in the 1800s, many beekeepers planted figwort specifically for a honey crop, and they were rewarded handsomely. Xerces adds, “Beekeepers claimed a single acre could produce 400 to 800 pounds of honey, prized for being light, clear, and aroma-free.”

Back in the day, figwort was usually referred to as Simpson’s honey plant. The name Simpson became attached to the plant after a beekeeper, James

A. Simpson, wrote a letter to A.I. Root describing his experience with a marvelous honey-producing plant. The description was subsequently published in “The ABC of Bee Culture,” a Root publication. A passage from the 1888 edition praised the plant lavishly:

“This is a queer tall weed that grows in fields and woods, and it bears little cups of honey. It has produced so much honey under cultivation on our honey farm during the past two years that I am much inclined to place it at the head of the list of honey plants.”

Little Cups Filled to the Brim

It’s those little cups that so fascinate me. When I see a bee embracing the rounded petals with two or more feet, drinking deeply, I’m reminded of the chalices of Arthurian legend. I imagine

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something hammered from gold that requires two hands to lift. It is filled with wine or perhaps mead and passed from one person to another in high ceremony. For a more down-scale comparison, think of the flowers as sippy cups for bees.

All the larger insects I have seen slurping from the flowers embrace the blossoms with at least their two forefeet, and sometimes the mid ones as well. This includes the honey bees, bumble bees, larger wasps, and butterflies. The smaller bees, unable to span the distance, tend to just climb in.

On a sunny day you can see the nectar in the cups. And when the light is just right, you can see sticky drops oozing from the upper stems, small droplets dazzling in the sunshine. People who have walked through large stands of figwort say they emerge with sticky clothes and tacky skin—thanks to all the sap.

Rooted in History

The plants in the genus *Scrophularia* are erect perennials with square stems. Although the figworts can easily be grown from seed, once a plant becomes established, it arises each spring from thickened underground roots.

Some species, especially *S. nodosa*, have swollen-looking areas on the roots that Roman herbalists compared to the shape of figs. Since those herbalists were an imaginative lot, they also believed that figs resembled hemorrhoids. Calling upon the Doctrine of Signatures—which claims a plant can be used to treat the thing it resembles—figwort was used to treat hemorrhoids.

Not only does the common name “figwort” come from the appearance of the swollen roots, but the scientific name “*Scrophularia*” was derived from the word “*scrophulus*,” which referred to swellings of the type related to tuberculosis. Today, *scrophulous* means morally corrupt or degenerate. When you think about it, it’s all kind of gross.

Shade Tolerant Nectar Plants

The leaves of the plant are opposite, with short stalks and saw-toothed edges. They vary in shape from arrow- to lance-shaped and are coated with fine hairs.

The plants grow well in areas that receive partial shade, yet they will also grow in full sun. They are equally

tolerant of a variety of soil types and moisture levels. Although they seem to prefer open woodland, some species are found in marshy areas and others in deserts.

Some individual plants may reach eight feet in height, although four to five feet seems to be about average. They are great for gardeners because they are not invasive, and their acrid foliage makes them both deer and rabbit resistant.

The Flowers

The flowers of figwort are anything but showy. In fact, you can barely see them until you are up close and personal. But from that vantage point, the blossoms are unique and beautiful, ranging from yellow to green, purple, brown, maroon, and even bright red. The flowers have two lips. The upper one is quite long and overhangs the flower opening like a shed roof, sheltering the stamens and the nectar from rain. Inside, the stamens are light colored and look like a large tongue inside an open mouth.



Dialictus on *Scrophularia*



Osmia aglaia on *Scrophularia*

Nectar is secreted in two large drops at the base of the ovary. After they are removed by insects, the drops reappear in just moments. Some articles refer to the flowers as “malodorous” but I’ve never noticed that feature myself, and certainly the pollinators don’t seem to mind either.

The seed capsules are roundish and filled with tiny black seeds that number about 170,000 per ounce. Once the capsules dry, you can cut off the flower stalks and simply shake the seeds into a container. They can be planted in fall or early spring.

The Clientele

A large cross-section of pollinators partake of figwort nectar. In my own small patch, I have seen bees, wasps, butterflies, beetles, flower flies, and even hummingbirds.

Some people avoid figwort because of its attractiveness to wasps, but many gardeners like the idea of a robust wasp population due to their predilection for aphids. Some older articles even refer to figwort as “wasp flower.”

A Figwort for Every Region

For those of you who like to plant trees for bees, figwort is a perfect choice. A number of species are found in North America, so there’s a good chance you’ll find a local species that will thrive in your area. Some of the most popular species can be found in seed catalogs that specialize in native or bee-friendly plants.

Common Figwort: *S. nodosa* is called common figwort, woodland figwort, or sometimes knotted figwort. Common figwort prefers rich forest soils from SE Canada and New England west to Oklahoma and south to Georgia. It typically blooms in July and August. According to britannica.com, this particular species is originally from Great Britain but has naturalized in the eastern United States.

Lance-leaved Figwort: Lance-leaved figwort, *S. lanceolata*, is also called early figwort. The flowers are lighter than some of the other species, with yellow and greenish yellow petals tinged with red highlights. It occurs across the northern parts of North America, especially in the northeastern states, and is commonly seen in recently burned areas. It flowers from May through July.

Carpenter’s Square: *S. marilandica* is the species that was sold as Simpson’s honey plant. It is also called carpenter’s square, Maryland figwort, heal-all, and square-stalk. The sugar content of the nectar is high, ranging from 18% to 35%. It grows throughout the eastern states except for the coastal south and blooms from June through September.

California Bee Plant: Found along the west coast from British Columbia to the Mexican border, *S. californica* has dull maroon to brown flowers that bloom from March through July, depending on location.

If you live in southern California, several additional figworts are endemic to that area, including the black-flowered figwort (*S. atrata*), desert figwort (*S. desertorum*), and Santa Catalina figwort (*S. villosa*). In addition, the mountainous regions of Arizona and New Mexico are home to an unusual species, *S. macrantha*, sometimes called the red-birds-in-a-tree plant. ●

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Bald-faced hornet on *Scrophularia*



Lasioglossum ovaliceps on *Scrophularia*



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Mowing Trees to Create Habitat

By Ned Gerber, Director/Wildlife Habitat Ecologist

CWH recently purchased a tree-cutting machine that we use attached to a Bobcat on rubber tracks. This enables us to easily manage (but not necessarily kill) woody growth in meadows and herbaceous buffers when necessary. We enjoy managing land for early successional forest species like woodcock, eastern towhee, yellow-breasted chat, etc. These species are declining in population due to a scarcity of early successional habitat.

If you look around at the landscape, you will generally see short grass (lawn or Delmarva farmer CRP), mature woods and cropland. NONE of these land covers is helpful to early successional species. To create this habitat cost effectively, we can allow trees and shrubs to grow for 10–15 years and then shred them with this mower. We can then treat the cut stumps with an herbicide to kill the woody growth or, more likely, allow regrowth of the woody plants to benefit early successional wildlife all over again.