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About Us

Broad Brook Coalition (BBC) is a nonprofit, all-volunteer organization incorporated in 1988 with the mission of preserving open space and promoting affordable housing. Under a memorandum of understanding with the Northampton Conservation Commission, BBC is responsible for the day-to-day management of the 850-acre Fitzgerald Lake Conservation Area. BBC's goals are to maintain and enhance the diversity and integrity of wildlife species and habitat at FLCA, promote outreach and education and provide public access for passive recreation that is compatible with habitat protection.

Our work in trail maintenance, stewardship, education and land preservation to expand FLCA is funded by the generous support of our members and occasional grants.

President's Message:

They're Smarter Than You Think

Conservation areas are great places to observe deer, raccoons, herons, otters, ducks, beavers, and many other wild animals and birds in their natural element. Although we may not see them often – and even then catch only a fleeting glimpse – it's hard to avoid a thrill at the encounter. But how do we see these creatures? Are they just another part of a complex landscape? Do we think of them as individuals? Do we consider their behavior as instinctual and rote, hard-wired in their genetic makeup, or as a manifestation of learning, reasoning, and decision-making?

Over the past 50 years, research has shown that a wide variety of animals base their actions on observation and reasoning, whether to gather food, choose a mate, or outwit a potential predator. Although the term "animal intelligence" covers a lot of ground, in its broadest sense it encompasses the mental processes that control complex behavior – the capacity to "acquire, store, retrieve, and internally process information at many levels of cognitive complexity" (1). These attributes may include communication, memory, self-awareness, counting, problem-solving, the ability to form social groups, the use of memory to lay future plans, innovative tool use, and navigational skills – abilities that are found in varying measure in different animals.

Many studies of animal intelligence have focused on species that we'll never find at the FLCA. A classic example is that of chimpanzees stacking boxes to reach a dangling bunch of bananas. Alex, an African grey parrot who was observed for over 30 years, could distinguish colors, shapes, and sizes, and had a vocabulary of over 150 words that he was able to use to communicate requests. Elephants, renowned for their highly developed social structure, put themselves in danger to protect their young, exhibit compassion for wounded or sick herd-mates, and are sufficiently self-aware to recognize themselves in a mirror. In addition to these examples, there are many other studies describing the cognitive abilities of a wide variety of mammals, birds, reptiles, octopuses, and insects.

Intelligent behavior has also been ascribed to many of the animals that we encounter closer to home.



Squirrels, for instance, are a lot smarter than we think. Although they may forget where they have stashed all the acorns they gathered in the fall, they are quite adept at problem-solving, outwitting almost every means we can think up to keep them off our bird feeders. Among the cleverest, though, are crows. Their complex social

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President's Message, continued

bonds allow them to work together to rout hawks and owls, while individually they can count, differentiate shapes, and distinguish not only their fellow crows but also different human faces. Crows are also accomplished problem solvers able to create tools like bending sticks or wire into hooks to extract food tucked away in otherwise inaccessible cracks and crevices. Even honeybees have been found to display signs of intelligent behavior in their social interactions and their ability to learn the best routes to nectar sources.

So, when we take that walk in the woods or through the fields, we can be sure that we are rubbing elbows with a diverse collection of intelligent creatures. How do we take this into account when we venture into their realm? It's important for us to remember that the wildlife we encounter are more aware of us than we are of them when we pass nearby.

We should be careful not to disturb their lives as they seek food, care for their young, or avoid predators (which in their view includes us). We should be especially careful where we tread: salamanders, frogs, and turtles (along with deer, coyotes, and bears) often use our paths as they make their way through the landscape. Straying from the path has its downside for wildlife as we turn up in places where we're not expected – a particular threat to ground-nesting birds like ovenbirds and ruffed grouse. And sudden noises or movements may be taken as a sign of aggression. For many of the same reasons, dogs should be kept on leash at all times in conservation areas. While it's a pleasure to observe wild animals on our hikes, sharing their habitat is a privilege and we need to respect their rights to the land.



(1) Menzel, R. & Fischer, J. (2010) *Animal Thinking: Contemporary Issues in Comparative Cognition*.

Additional reading:

https://en.wikipedia.org/wiki/Animal_cognition

https://www.ranker.com/list/the-15-smartest-animals-on-earth/analise_dubner

<http://discovermagazine.com/2016/jul-aug/animal-intelligence>

<http://bioteaching.com/insect-brains-and-animal-intelligence/>

<https://www.scientificamerican.com/article/weve-been-looking-at-ant-intelligence-the-wrong-way/>

Bob Zimmermann

The Wild Requires That We Learn the Terrain

"A place on earth is a mosaic within larger mosaics . . . Children start out learning place by learning those little realms around the house, the settlement, and outward."

– Gary Snyder, *The Practice of the Wild*

In the fall of 2015 I was charged with learning to read forests for a class called Community Ecology of the New England Landscape, offered at Antioch University New

"After just three classes, I can use these details to build a disturbance history of the site."

England. As a first exercise, I chose a steep granite slope under a dark canopy of eastern white pine, eastern hemlock, and white oak at the south end of the Fitzgerald Lake dam. With a child's focus I scrutinize this segment of the forest community to puzzle out its boundaries and disturbance history. Practically no understory exists, no seedlings or saplings. At the road edge I note a small mountain laurel, eco-indicator of warm, dry, acidic sites. I recall that the dam went in about 50 years ago, in the late 1960s. Then, I start with the trees.

Why start with the trees? First, I could identify them. Second, aging the trees establishes a site chronology. Third, trees condition the soil and create the habitat. As they drop leaves, bark, branches, or fall over completely, they become nurseries for a new generation of trees whose species are determined by the parent species present, as well as by chance encounters with wind- and animal-borne seeds.

I note several nurse logs at the top of the knoll, white pines blown down around 1990, which I can tell from the 30 years of decay. Barkless, splintering, tinged green with moss; a strong wind from the northwest, where thunderstorms originate, threw these pines in parallel piles toward the southeast. After just three classes, I can use these details to build a disturbance history of the site.

Turning to the slope, I study a pair of two-stem white oaks. Undisturbed, trees grow one stem. Multistem trees – coppices—result from logging or fire. Which happened here? The closest oak divides about two feet above the ground. One trunk bears leaves, but the necklaced holes left by a sapsucker stretch up the trunk every ten inches. The other trunk is a snag. Oak is a fire-resistant hardwood, so this snag could be evidence of fire.

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The Wild Requires, continued

Closer to the dam, two hemlocks show uphill basal scars. Scars at the base of a tree trunk can be evidence of fire. But these scars stretch far up the trunks. One scar does not reach the ground. Perhaps the scars reflect bruising from logging or windfall. Logging leaves stumps, though the absence of decaying hemlock stumps proves nothing; after 50 years hemlock stumps are gone. The absence of rot-resistant oak stumps, however, indicates fire as the disturbance; they can endure 100 or more years.

On the shore where the dam meets the hillside stands a huge white pine, more than 100 years old, here in the early 1900s, 60 years before the dam. The whorls of this pine begin 20 or more feet up, telling me that the seedling grew to sapling into tree in cramped conditions, stretching toward the light before branching. I wonder how far the slope extends under water and what vegetation grew there before being flooded.

Upslope stands a smaller pine, still impressive and at least 75 years old. Its high whorls circle the tree, their height confirming that the tree grew in woodland, the whorls indicating equal, but not abundant, sunlight all around. A 40-to-50-year-old red oak grows nearby. Tall hemlocks, similarly aged, take over the slope. They grew in sunlight; the slope was clear, as it would have been after a fire. The long-established white pine with its fire-resistant bark survived. This land was wooded prior to the building of the dam.

I stand at the top of the knoll, in a clearing of exposed granite. Though fires are not allowed in conservation areas, the charred sticks here indicate picnickers, not a fire event. Below, an edge community of black birches stretches around to the shore of the lake. Black birches, like hemlocks, tolerate shade. They hang out in the undergrowth, waiting for a gap to bring them sunlight. We read their bark to age them. At 50, black birch bark shows vertical cracks. They are "platy at eighty." By 100 or more years, a black birch's plates begin to break off. Along the shore 25- to 30-year-old red maples and red oaks – generalists – rise. Here begins a new piece of the forest mosaic.

I turn away from the lake to study the forest beyond the knoll. To the south a variety of oaks – chestnut oak (eco-indicator of hot, dry sites), bear oak (warm, dry), and white oak. The generalist black oak predominates, with occasional red oaks and red maples visible.

Several of the oaks, like the majority of the canopy trees, have been growing for at least 50 years, when the dam went in. A few began their lives 20 to 40 years before. All of these trees grow in the woods between the summit and the woods road.

Standing in the clearing, I remain puzzled. Am I looking into an adjacent, distinct forest community?

White pine saplings abound on the southern border of the clearing. I

see no more mountain laurel. And in the canopy, hardwoods predominate. Toward the southwest shore of the lake, three pine snags stand, 50 years old when they died.

A hardwood snag (evidence of fire) stands with them, probably a white oak given the color and texture of its remaining bark, perhaps 35 years old when it began to die. A scrawny, small-leafed, thorny shrub with red berries, the invasive Japanese barberry, grows on the rocky terrain below the snags. Though used in landscaping, I see no evidence that a house ever stood here; this single specimen established here through seed dispersal by birds.

I follow the path southwest down the hill and along the shore toward South Pasture. The topography lies smoother, with few evident stones. More soil covers the bony substrate. Beneath many tall white pines, 75 to 100 years old, broad leaves and needles decompose, creating more fertile soil that supports a dense understory populated with red maple, beech, and birch saplings. These early successional trees take advantage of the light streaming through the high woodland canopy. This young forest is distinct from the hemlock-oak-pine forest closer to the dam.

My professor confirms the site provides strong evidence of fire. Perhaps about the time the dam went in a fire burned through the area. Perhaps people burned the land to clear it before flooding it, to create a clear lake without contamination from rotting plants. Or . . .

At Christmastime two older women and two dogs cross the dam from Cooke's Pasture. A friendly exchange ensues. "We used to have some good times here!" the younger of the two sisters exclaimed. I commented on the fire pit on the knoll's granite summit. "Oh, yes!" she replied. "Good times!"

Amy-Louise Pfeffer

***"Standing in the clearing,
I remain puzzled. Am I looking
into an adjacent, distinct
forest community?"***

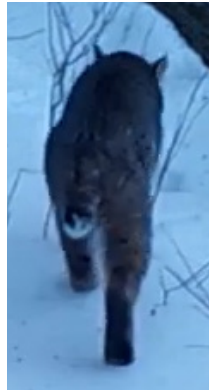
New BBC Trail Camera

This past fall, the BBC Board approved the purchase of a trail camera to record wildlife in FLCA. Trail Committee co-chairs Michael Kesten and Jim Reis volunteered to purchase, test, and install the camera. The brand and model ordered was a recommended Browning Strike Force Elite Trail Camera with a 55-foot detection range, an infrared flash, and 16GB SD memory for storage that cost around \$100. Filming is triggered by an infrared motion sensor. It is currently set to record during daylight as long as it detects movement, up to a five-minute maximum, but at night it has a 20-second limit each time it is triggered.



The trailcam installation crew (left to right): Jim Reis, Mike Murphy, Michael Kesten, Brigid Glackin, and Bob Bissell

In early December, Michael, Jim, and other trail committee volunteers scouted out several locations, and then set up the camera. The characteristics of the selected site included being 150 yards from the nearest trail, next to a stream with running water that probably wouldn't freeze, some signs of a nearby game trail, and a tree to mount the camera with a 55-foot clear view. To increase the likelihood of attracting animals, Brigid researched the use of scent lures and attended a workshop on the subject. She then purchased RK's Predator Plus meat base and Murray's Pred-a-Getter 1. Components include animal secretions, sweet substances and carrion. The smell of these substances was worse than almost anything any of us had ever experienced. We very carefully carried it out to the site in a plastic bag, and used garden gloves and Q-tips to apply to a nearby log.



Wonderfully, the very first picture was of a beautiful bobcat. Not surprisingly, given all the tracks in the snow around FLCA, most of the pictures are of deer, although there also are pictures of a raccoon, coyote, and a second one of a bobcat. We check the camera storage card usually every 2-3 weeks, and plan to periodically move the cam around FLCA, as well as use different types of lures. Selected clips

from the BBC trailcam can be viewed on the website at broadbrookcoalition.org/trailcam, where there is also a link to the full set of videos on YouTube.

Jim Reis and Brigid Glackin

Wildlife Motion Cameras:

Wildlife Conservation and Management Applications

Wildlife camera trapping is an extensively used technique for a wide variety of conservation and management purposes throughout the world. Relatively recent technological advances (primarily the advent of digital cameras) and a reduction in associated financial costs (no longer needing to develop and print film) have led to a substantial increase in the use of wildlife camera trapping over this past decade. Here are some of the varied ways that camera trapping can be used for the purposes of wildlife conservation and management (each followed by a specific example).

- **To document the presence of rare species, species of conservation concern, and/or species thought to have gone extinct:**
 - A current camera trapping effort is underway in Australia to attempt to document that the Tasmanian tiger, a species thought to have gone

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extinct in the 1930s due to human persecution, still exists. Undocumented sightings of this species have been reported since that time, and continue to come in; however none to date have been documented with reliable evidence (e.g., definitive photos, videos, or tracks).

- **To estimate population sizes of a wide variety of wildlife species:**
 - Camera trapping is the most effective technique in estimating the population size of the Sumatran tiger, one of the most critically endangered species in the world. Currently, the global population is estimated at less than 400 individuals existing in the wild.
- **To identify new species previously unknown to science:**
 - The Grey-faced sengi, a species of elephant shrew (so named for their long snouts), was first discovered in 2005 by a camera trap in Tanzania. This species is quite large for a shrew (it can weigh up to 1.5 pounds) and interestingly is related to elephants, manatees, and the armadillo.
- **To study behavioral patterns and provide novel ecological findings:**
 - A study published in November 2018 by researchers at the University of Saskatchewan documented the overlap of black bears, polar bears, and grizzly bears in the same location (the first ever such documented occurrence) via the use of wildlife motion cameras. This took place in Wapusk National Park on the shore of Hudson Bay, and is thought to have occurred primarily due to the effects of climate change on high-latitude ecosystems.
- **To assess the use and efficacy of wildlife crossing structures aimed at reducing wildlife-vehicle collisions and enhancing connectivity:**
 - Wildlife motion cameras are commonly used to assess what species and how many of each species utilize highway overpasses and tunnels constructed to reduce wildlife-vehicle collisions. Such data is critical in assessing how to best design such crossing structures to maximize their effective use by wildlife.
- **To identify poachers:**
 - Wildlife motion cameras are used extensively in Africa to identify poachers of critically endangered species such as elephants and rhinos.

Closer to home, a wildlife camera trapping study was conducted in 2015 at FLCA by Virginia Sowers, a UMass-Amherst student in the Department of Environmental Conservation. From April to September, wildlife motion cameras were set at 34 different locations which resulted in photographs of nine different mammal species (excluding humans and domestic dogs), including black bear, coyote, bobcat, and porcupine. The photographs were analyzed to assess patterns of locations of individual species with respect to attributes such as distance to the nearest building, distance to the lake, etc., to attempt to better understand how different species are associated with specific human and natural attributes within and surrounding FLCA. One interesting finding was that among the nine mammal species with photos, coyote was the species found at the greatest average distance from the nearest building whereas raccoon was found at the smallest average distance from the nearest building.

One of the greatest impacts that wildlife camera trapping studies have had in terms of wildlife conservation is that it has considerably increased the general public's interest in conservation and has enabled nonprofessionals to become actively involved in wildlife conservation efforts. For example, a number of different wildlife camera trapping studies post their photos online and rely on members of the general public to tag what species are seen in them. Below are links to some such studies where you can help these efforts by going through some of the photos and tagging what species you see (these don't require users to have any previous knowledge or experience in identifying any of the species; they all contain training images to help get you up to speed on what each species looks like).

- A wide variety of wildlife motion camera studies ranging from identifying species photographed in the rainforests of Borneo, monitoring wolf populations in Croatia, assessing the use of wildlife corridors in Kenya, and more:
<https://instantwild.zsl.org/projects/>
- Various wildlife motion camera studies ranging from identifying wildlife species in New York, identifying big cat species in the Serengeti, identifying endangered Steller sea lions in the Aleutian Islands, and more:
<https://www.zooniverse.org/projects/?discipline=nature>

Game On!

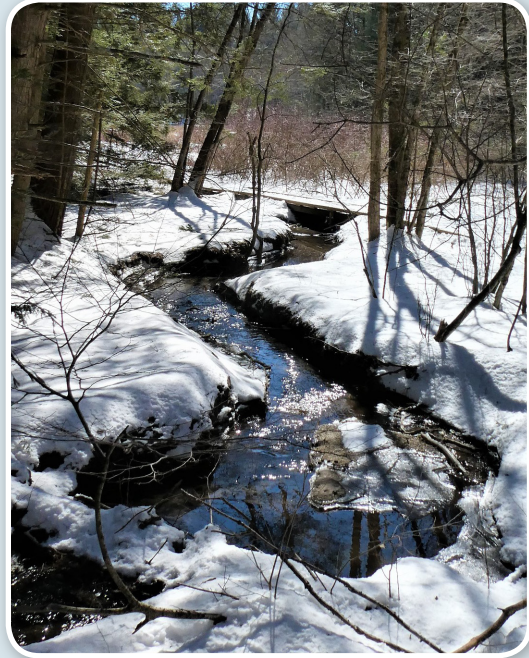
There's often only a small window at Fitzgerald Lake when the ice is thick enough to be safe and smooth enough for skating. When that happens, the word spreads quickly: Game On!



Winter to Spring



A trailside snowperson



Let the melt begin



A blowdown from an early March windstorm



Skunk cabbage is one of the earliest plants to emerge



Red maples are another early bloomer



A green frog peers from a vernal pool

2019 Walks and Talks

Please check the Broad Brook website (broadbrookcoalition.org) for updates on any of these programs, or call Dave Pritchard (413-268-3668) or Dick Wynne (413-584-7930). All walks are free and open to the public.

Spring Bird Walk

Marcia Merithew and Betsy Higgins

Saturday, April 27 (rain date Sun. 4/28), 7:00 – 9:00 a.m.

North Farms Rd. entrance

Spring is in the air – time to get out and go birding! At this time of year residents and returning migrants alike are bursting with song as they busy themselves with the urgent task of finding mates and building nests. Join Hampshire Bird Club's Marcia Merithew and Betsy Higgins as we walk through forest and wetland habitats and continue on to the more open spaces of the dam and Cooke's Pasture. Probable sightings include swallows, thrushes, woodpeckers, vireos, and early warblers as well as herons, ducks, and geese. Suitable for all ages and skill levels. Bring binoculars and field guides if you have them.

Beavers at Nightfall

Laura Beltran

Saturday, May 4 (rain date Sun. 5/5), 6:30 – 8:30 p.m.

Cooke Ave. entrance

Early evening is the ideal time to observe beaver activity. We'll meet at the Cooke Ave. entrance (former Moose Lodge parking lot) and take a walk along Boggy Meadow Rd., with a short off-trail segment, to a place where beavers have recently built a pair of dams and established an active lodge. This is a wonderful opportunity to learn about the dynamic process of how a woodland is transformed into a wetland once beavers take up residence. Suitable for adults and families. Binoculars and shoes for possibly wet, muddy conditions are recommended. Laura Tate Beltran is a teacher/naturalist at Arcadia Sanctuary in Easthampton.

Vernal Pool Walk

Brad Timm

Saturday, May 11, 10:00 a.m. – noon

North Farms Rd. entrance

Fitzgerald Lake Conservation Area is fortunate to contain several confirmed vernal pools just a short walk in from the North Farms Rd. entrance. Join biologist Brad Timm as we visit these pools and discover their truly unique ecology. We'll learn about the wide variety of animals that rely on vernal

pools for their existence – from amphibians and reptiles to an amazing number of diverse invertebrate species, as well as some mammals and birds. And we'll explore the importance of vernal pools to overall ecosystem functioning, and how climate change might impact these critical habitats. We will also get the chance to see some of these animals in action during our walk while we learn about their captivating life histories. All ages are welcome and encouraged!

Brad Timm is a wildlife biologist and BBC board member who has conducted amphibian research (typically centered around vernal pools) in New England for over 15 years.

Trees and the Forest

Bob Leverett

Saturday, May 18, 10:00 a.m. – noon

North Farms Rd. entrance

Forests may feel timeless as you walk through them, but they are complex, dynamic ecosystems, and each has its own distinct history. Join Bob Leverett for an examination of the New England forest as represented in the Fitzgerald Lake Conservation Area. We'll learn to identify individual species while also observing the successional past of the forest as a whole. Among other things, Bob will explain how trees are measured, how forests are aged, and how forested sites are documented for purposes of study and preservation.

Bob is a co-founder of the Eastern Native Tree Society and an expert on old-growth forests of the eastern U.S.

Improve Your Nature Photography

Michael Jacobson-Hardy

Saturday, June 1, 10:00 a.m. – noon

North Farms Rd. entrance

A walk in nature is always inspiring, but capturing that feeling with a camera is not always so easy. Join photographer and film teacher Michael Jacobson-Hardy on a walk at the Fitzgerald Lake Conservation Area to learn techniques for taking better pictures outdoors.

Michael will discuss such topics as close-ups vs. distant shots, how different light conditions will affect the image, and how to edit your pictures using different types of software. All skill levels and camera formats are welcome, including cell phones and point-and-shoot. It's not the camera that makes a great picture, but rather the mind and eye of the photographer.

Michael is the author of the recently published *Walking with Thoreau*, combining nature photography with excerpts from Thoreau's writings.

Butterflies

Tom Gagnon

Wednesday, July 10, 10:00 a.m. – noon

Cooke Ave. entrance

Join naturalist, birder, and butterfly enthusiast Tom Gagnon in search of the rare DION SKIPPER and other butterflies around Fitzgerald Lake. We will meet at the Cooke Ave. entrance (the former Moose Lodge parking lot) and hike along Boggy Meadow Rd. to the dam, where grasses and wildflowers form good butterfly habitat. The Dion Skipper is on the list of rare or uncommon resident Massachusetts butterflies. It was found at Fitzgerald Lake a decade ago and has been spotted intermittently since then. Close-focus binoculars will be a help, if you have them. Bug spray and water are a good idea. Please, no nets. For more information contact Tom at 413-584-6353.

Forest Shrubs and Plants of the Forest Floor

Molly Hale

Saturday, July 20, 9:00 – 11:00 a.m.

North Farms Rd. entrance

We naturally tend to look up when we're in a forest, toward the grandeur of the canopy, but there's an interesting and often overlooked world at our feet as well. Join naturalist Molly Hale for a tour of the forest floor, where a rich variety of plants have adapted to low levels of light and a range of soil conditions and microclimates. From low-growing shrubs and wildflowers to ferns, vines, mosses, and more, we'll learn to appreciate a part of the forest that most of us routinely walk through without giving it the attention it deserves.

Insect Tracks and Signs

Charley Eiseman

Saturday, Sept. 21 (rain date Sun. 9/22), 1:00 – 3:00 p.m.

North Farms Rd. entrance

Insects are extremely specialized in their habits, and because of this it is often possible to learn which ones are around us just by noticing the characteristic patterns and objects they create as they go about their lives. Participants will search for signs such as egg cases, cocoons, webs, burrows,

droppings, galls, leaf mines, and the various ways insects nibble, fold, roll, and tie leaves.

Learning about insects through studying these signs will give participants a new appreciation for their complexity, diversity, and interrelationships with other living things.

Charley is a freelance naturalist based in western Massachusetts and conducts plant and wildlife surveys throughout New England. He is the lead author of the field guide *Tracks & Sign of Insects and Other Invertebrates* and writes an insect-themed blog, "BugTracks."

Workdays at the FLCA:

Spring and Summer 2019

Shrubland Habitat and Native Plants Saturday, May 5, 9:00 a.m. – noon

Several years ago, we established three "islands" of native shrubs in Cooke's Pasture to provide food and habitat for shrubland birds and small mammals. We return every year to prune the shrubs, cut back competing undergrowth, and replace plants that have not survived the winter. Tools will be provided, though additional clippers are always welcome. Wear long pants and bring along your favorite insect repellent. Meet at the former Moose Lodge parking lot at the end of Cooke Avenue at 8:30 a.m. or at the Fitzgerald Lake dam at 9:00 a.m. Contact: Bruce Hart at 413-268-9391.

Annual Cleanup at the North Farms Road Entrance Saturday, May 25, 10:00 a.m. – noon

Each year we devote one day in the spring to cleaning up the North Farms Road entrance to the FLCA including clearing winter debris from the path to the bridge and boardwalk, picking up trash in the parking lot, and removing by hand invasive plants such as garlic mustard, Japanese knotweed, and multiflora rose in the adjoining woods. Please help us spruce up this heavily used route to the conservation area. Contact: Dick Wynne at 413-584-7930.

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Removal of Invasives on Boggy Meadow Road

Sunday, June 23, 10:00 a.m. – 1:00 p.m.

The margins of roads provide excellent habitat for the growth of invasive plants. We have surveyed and located many patches of invasives along Boggy Meadow Road, which connects the former Moose Lodge parking lot at the end of Cooke Avenue with the Fitzgerald Lake dam. We will work our way along the road, removing invasive plants such as multiflora rose, Asiatic bittersweet, autumn olive, and non-native honeysuckle by hand: pulling, cutting, and digging. Tools will be provided, but if you care to bring clippers, pruning saws, and lopping shears, it would be a help. And don't forget gloves, sunscreen, and insect repellent. Meet at the former Moose Lodge parking lot. Contact: Bob Zimmermann at 413-585-0405.

Removal of Water Chestnut from Fitzgerald Lake

Saturdays, June 15, July 6, July 27, August 17, September 14, 9:00 a.m. – noon

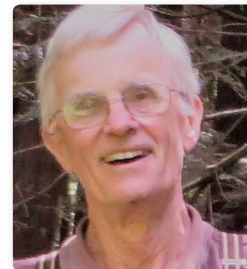
Two years ago we implemented a new approach to controlling water chestnut in Fitzgerald Lake called "pull early, pull often." In 2017 we removed roughly 1,100 lbs. from the lake, but in 2018 the yield was down to 300 lbs., so we believe the new protocol is effective. Nonetheless, viable water chestnut seed can persist for up to 10 years on the lake bottom, so we plan to continue our more aggressive approach this year. We'll organize crews in late May, begin pulling in mid-June, and continue at 3-week intervals throughout the summer. We will need volunteers with canoes or kayaks though we can always use the help of those who don't have their own boats. If interested, contact Bob Zimmermann by email (raz@umass.edu) or phone (413-585-0405) for further information or to volunteer.

REMEMBRANCE

It is with a sense of sadness and gratitude that we note the loss last fall of two outstanding Broad Brook Coalition members. Robert (Bob) Rundquist and Patricia (Pat) McDonagh exemplified the American spirit of voluntarism, willingly sharing their knowledge, experience, and love of the natural world. BBC and the Fitzgerald Lake Conservation Area were among of the beneficiaries of such a spirit.

Robert Rundquist 1946–2018

For more than two decades Bob offered his engineering prowess with other BBC volunteers as they worked on plans for construction projects or sought solutions to problems such as finding ways to extend the life of an aging footbridge.



Robert Rundquist

Patricia McDonagh 1947–2018



Patricia McDonagh

Pat, who spent much of her career as a leader in outdoor education of young children, served on the BBC board and fostered linkages with other local conservation organizations. In addition, as an expert on local wild mushrooms, she led a number of educational walks at FLCA offering the public a greater appreciation of these mysterious woodland life forms.

We will miss Bob and Pat's wisdom, dedication, and friendship. For those wishing to learn more about Bob and Pat, their obituaries can be found in the Daily Hampshire Gazette on November 14 and December 22, respectively.

Alan Marvelli

To Our Loyal Volunteers

We are most grateful for the many volunteers who have spent long hours pulling invasive plants, maintaining trails, helping with the rehabilitation of the Beaver Brook Greenway, and contributing in many other ways throughout 2018:

Bob Adams, Fred Beddall, Bob Bissell, Rufus Chaffee, Hilary Caws-Elwit, Doris Cohen, Keith Davis, Peter Flinker, Makani Freitas, Brigid Glackin, Steve Harding, Bruce Hart, Deb Jacobs, Jason Johnson, Patricia Jung, Michael Kesten, George Kohout, Isobelle McClements, Steve McDonough, Michael Murphy, Bella Nash, Alex Neubert, Justin O'Connor, Ivan Oransky, Holly Osborne, Amy-Louise Pfeffer, Beth Powell, Tricia Reidy, Jim Reis, Norma Roche, Bill Rosen, Margaret Russell, Laurie Sanders, Jon Sass, Chris Schmidt, Pete Schoenberger, John Sheirer, Mary Jo Stanley, Jon Steinberg, Heidi Stevens, Paul Thaler, Juliana Vanderwild, Matt Verson, Joel Walz.

New BBC Board Members: Maura Bradford and Brad Timm



Maura Bradford

Maura has long ties to the Valley and came to Florence from Groveland, MA, where she was a member of the Open Space and Trails Committee and served as a Trail Steward. On the OSTC, she participated in outreach and activism that culminated in voter approval of a \$3.75m debt exclusion to purchase and preserve land located adjacent to the Town's chief wellhead and watershed that was slated for development of a large subdivision. She also helped leverage CPA funds to purchase adjoining parcels to create a greenway that preserved one of the last remaining open spaces in the town for a mixed-use, passive recreational area. Maura's professional career includes outreach and education, advocacy, policy development, and regulatory compliance. As a member of the BBC board, Maura's stewardship focus is community engagement to encourage responsible, respectful, and sustainable passive recreation by a wide array of users while ensuring the protection of wildlife habitat, wetlands, and water resources within FLCA.



Brad Timm (and Zuri)

Brad, with his partner Lena Fletcher and her four sons, moved to Florence just over two years ago, and quickly discovered the gem that is FLCA. Brad first came to the Valley in 2003 to pursue his M.S. in Wildlife Conservation at UMass-Amherst researching the metapopulation dynamics of the State-threatened marbled salamander, staying on to earn his Ph.D. researching the ecology and conservation of the eastern spadefoot toad, another State-threatened species, at Cape Cod National Seashore. Brad has 15+ years of professional experience in wildlife conservation and management with a particular focus on amphibians and reptiles. As a BBC board member Brad looks to develop inventory and monitoring programs for a variety of wildlife and plant species to better understand what currently exists at FLCA, how that may change over time, and how active management and/or landscape change may impact these species. He also looks forward to increasing the public's awareness of the ecology and conservation aspects of species present at FLCA and involving the public in citizen science conservation efforts.

Species Spotlight



This is the first in a series of articles featuring species of animals and plants that are readily found in the Fitzgerald Lake Conservation Area. A fuller version of this article will be placed on the BBC website, broadbrookcoalition.org.

Common Name: Eastern Red-backed Salamander

Scientific Name: *Plethodon cinereus*

Physical Description: A small salamander, typically 2-5 inches in length, with two common color morphs:

- The "red-back" morph (gray-to-black along the sides and underneath with a prominent orange-to-red stripe running down its back for the entire length of the body and tail)
- The "lead-back" morph (a consistent gray-to-black throughout the body and tail)

Longevity: Uncertain in the wild, but individuals in captivity have been known to live to 25+ years of age!

Distribution: Found in woodlands from North Carolina and eastern Tennessee northward throughout New England and into southeastern Canada and westward into Minnesota.

Habitat: Typically found in moist woodlands under logs, rocks, and moist leaf litter; during dry conditions and in colder months will retreat underground in burrows to warmer and moister conditions.

Reproduction: After an elaborate "tail-straddling" courtship dance, the female picks up the male's spermatophore capsule to fertilize her clutch of typically 6-9 eggs. She stays with the eggs until hatched, and the young remain with her until dispersal after 1-3 weeks.

Prey: Eats a wide variety of small invertebrates including ants, beetles, earthworms, centipedes, snails, spiders, and many others.

Conservation and Management: Abundant throughout their range where forested habitat exists. Despite their small size, one study from New Hampshire estimated that the per-acre biomass of red-backed salamanders was approximately equal to that of all small mammals combined and almost twice that of all birds in the forest.

Interesting Facts:

- Red-backed salamanders do not have lungs and breathe entirely through their skin; this is one of the primary reasons that they need to keep their skin moist.
- They can detach their tails in response to attack by a predator. The tail can wriggle around for a period of minutes, which may distract the predator, enabling the salamander to escape. The lost tail, as well as any lost limbs, can later be regenerated.

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Volume 31, Issue Number 1, Spring 2019

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We are very grateful for membership dues, but want you to know that you can contribute in other ways.
Members and friends are needed to help carry out our goals.

Please consider one or more of the following volunteer opportunities:

Trail Committee (maintenance and repair) Stewardship Committee (includes invasive species removal)

Land Preservation/Acquisition Committee Occasional Work Days Education Outreach

Newsletter writer Other (please specify) _____