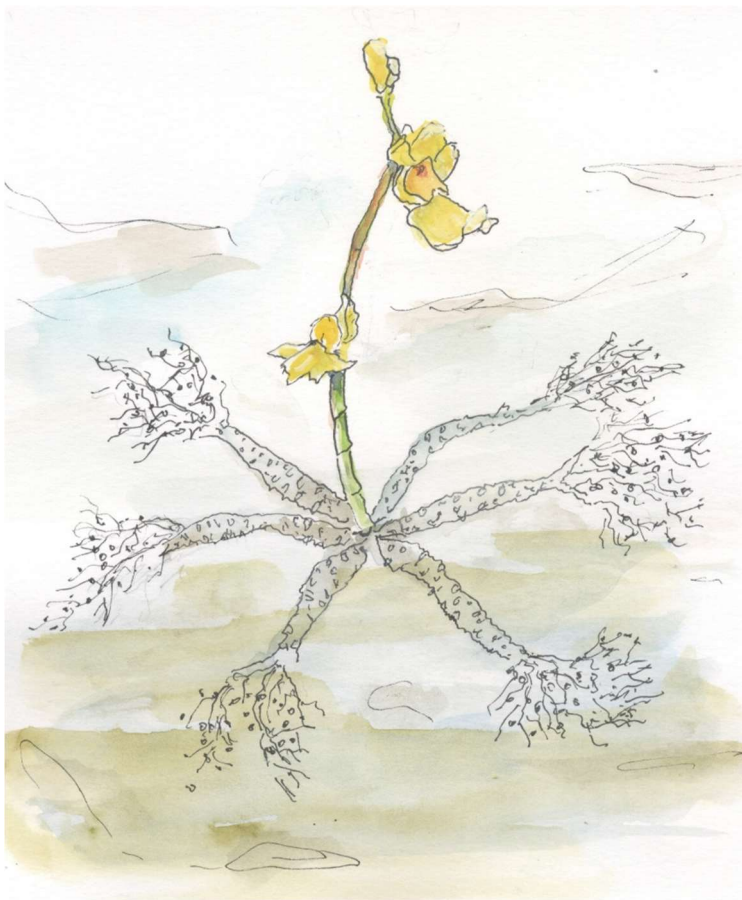




THE GREAT SWAMP NEWSLETTER

RESEARCH • EDUCATION • CONSERVATION

ADAPTATIONS IN THE SWAMP



Swollen bladderwort (*Utricularia inflata*), a carnivorous plant.
Sketch by Sharon Nakazato.



Healthy green ash trees sprouting from an ash stump left by beavers.
Photo by Ted Kozlowski

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Contributors: Paul Andrews, Patricia Butter, Kathryn Jaliman, Ken Luhman, Judy Kelley-Moberg, Ted Kozlowski, Sharon Nakazato, Hunter Nigey, Astri Teal

Friends of the Great Swamp was founded in 1990, as a non-profit volunteer organization. Our mission is to preserve and protect the health of the Great Swamp watershed through research, education and conservation.

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KEN'S KORNER

Summer Storms vs The Great Swamp by Ken Luhman

As summer comes to a close, it is worth reflecting on this season's unique weather, marked by severe storms and heavy rainfall. These weather events not only tested our resilience but also underscored nature's power. The Great Swamp serves as a vital watershed, managing and retaining rainwater runoff during such storms, and has proven effective in this role.

Although The Great Swamp held its composure, the surrounding storms significantly altered the landscape. The return of birds in spring typically signals a vibrant summer ahead, but the subsequent storms transformed the environment.

The river swelled and silt levels increased, while both the Swamp and its rivers maintained unexpectedly high-water levels. Intense storms uprooted trees, severely damaged riverbanks, and altered the riverbed, affecting local flora and fauna. These changes contributed to a notable difference in the summer ecosystem compared to previous years, particularly evident in the sounds of nature. The absence of birds, insects, and other wildlife became starkly apparent during what were once lively mornings, afternoons, and evenings.

Initially, we planned to test The Great Swamp's water throughout the summer. However, because storms significantly altered the Swamp River's and East Branch Croton River's normal flow and clarity, we were forced to postpone testing until next year.

These irregular conditions would likely have produced unreliable data and an inaccurate report.

Efforts were made to clear fallen trees along the north flow, particularly after each storm. Paddling through familiar areas during morning and evening runs illustrated the unusual quietness; it seemed as if the storms had driven local wildlife into hiding. Even our community events, such as the morning paddles held at 6:00 am, lacked the vibrant atmosphere that once characterized them.

While several hypotheses may explain the decrease in wildlife activity in the Swamp, the storms have undeniably shaped the local ecosystem in profound ways. With many years of paddling experience across different seasons, I find this summer particularly challenging, yet I still see hope for recovery and a return to normalcy. We miss the vibrant displays of captivating wildlife — birds, buzzing bees, playful otters, muskrats, and beavers. I am confident that the shelter provided during the storms will encourage their return. Let us all embrace this hope for renewal and acknowledge the resilience embedded in our Great Swamp.

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FrOGS Needs *Your* Help!

JOIN ~ VOLUNTEER ~ DONATE

The generosity of our members and supporters extends FrOGS's reach and effectiveness.

Please fill out and return this form or visit frogs-ny.org

Friends of the Great Swamp is an organization dedicated to preserving The Great Swamp through educational programs, scientific research, conservation, and by making all aware of this wonderful resource in our midst.



So we know whom to thank...

DONATION	Remember your donations are tax deductible! Send yours to: Friends of The Great Swamp, P.O. Box 373, Pawling, NY 12564		
	☐ Supporter \$35	☐ Couple \$60	☐ Friend \$100
	☐ Patron \$250	☐ Sponsor \$500	☐ Benefactor \$1,000
	Please use my donation for: _____		
VOLUNTEER	We can always use another helping hand! Let us know which activities you're interested in helping with.		
	☐ Fall Celebration	☐ Trail Work	☐ Booth Staffing
	☐ Habitat Restoration	☐ Animal Surveys	☐ Event Registration
	Suggest an activity: _____		

NAME _____

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SIGHTINGS IN THE SWAMP

The Mighty Bullfrog

By Hunter Nigey



Imagine you are walking along the edge of a quiet pond in early fall. The air is cooler than it was during the summer, and leaves of red, orange, and yellow drift onto the water. You hear birds calling in the distance and notice gentle ripples moving across the pond. If you look carefully near the muddy shoreline, you may spot an American bullfrog (*Lithobates catesbeianus*) sitting quietly among the plants. Although the pond seems peaceful, bullfrogs are busy preparing for the colder months ahead.

Bullfrogs are the largest native frog in North America and live near ponds, lakes, marshes, and slow-moving streams. During the warm summer months, they spend much of their time hunting for food. Bullfrogs eat insects, fish, crayfish, small animals, and even other frogs. They often sit still near the water's edge and wait for prey to come close before quickly catching it with their sticky tongues. Their strong back legs and webbed feet help them move easily through the water.



Male American bullfrog. Males have yellow throats whereas females have white or cream-colored throats. Sketch by Sharon Nakazato.

If you stop for a moment and watch a bullfrog, you may notice that it blends in with its surroundings. Its green and brown coloring helps it hide among plants, mud, and rocks near the water. This camouflage protects bullfrogs from predators such as birds, snakes, turtles, and larger animals. Bullfrogs can also remain very still when danger is nearby, making them even harder to see.

The changing seasons affect bullfrogs in important ways. During the summer, bullfrogs are active because warm temperatures make it easier to find food. In the fall, however, cooler weather causes them to slow down. They move less and spend more

time hiding in shallow water, mud, or beneath plants. Unlike some animals, bullfrogs do not migrate to warmer places. Instead, they stay near the pond and prepare for winter by finding protected areas where they can conserve energy. Bullfrogs soon settle into the mud and debris at the bottom of their habitat to overwinter, but do not bury themselves completely.

Bullfrogs also have an interesting life cycle. During the breeding season, male bullfrogs produce



Jeremiah, a bullfrog

deep calls that help attract females and warn other males to stay away. Females lay up to 20,000 eggs as a floating jelly-like mass in shallow water. These eggs hatch into tadpoles in 3 to 5 days. Tadpoles look very different from adult frogs because they have tails and gills. As they grow, they develop legs, lose their tails, and eventually become young

bullfrogs that can live both in and around water.

A pond in the fall is not only beautiful, but it is also a reminder of how animals adapt to the world around them. Every bullfrog hiding in the mud or resting beneath the water is preparing for the changing seasons. The next time you visit a pond or wetland, take a moment to look closely at the quiet water's edge. You may discover that even when nature seems still, animals like bullfrogs are constantly adapting and preparing for what comes next.

Amazing Bullfrog Facts

- Bullfrogs can grow up to 8" and weigh over 1 pound
- Males produce a loud, deep, bass-like "jug-o-rum" bellow that sounds like a bull and can carry over a mile. A bullfrog's mouth and nostrils are kept closed when they croak.
- Male bullfrogs aggregate into groups called choruses
- The tadpole stage can last from a few months in the south to 3 years in the north, where the colder water slows development
- Lifespan in the wild is estimated to be 8 to 10 years
- When brumating in the mud, they rely entirely on their skin to "breathe" by absorbing oxygen from water

BLADDERWORTS IN THE GREAT SWAMP

By Patricia Butter

Lurking in The Great Swamp are plants that have flipped the script – from prey to predators. You don't need to be alarmed, however, unless you are a very small aquatic organism such as a water flea, protozoan, or nematode.

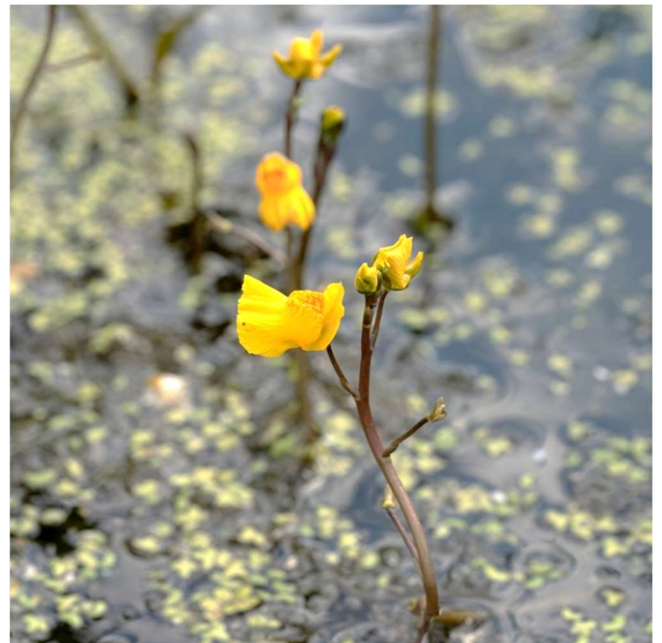
These plants, commonly called bladderworts (*Utricularia*) were given the scientific name by Carl Linnaeus, a name derived from the Latin word *utriculus* for the small bladders that can be found among their floating foliage. These bladders function as traps. When an organism swims past, it triggers hairs near the mouth of the trap and suction is released. The organisms are pulled inside at velocities of up to 4 meters per second — one of the fastest recorded motions in the plant kingdom. Enzymes and microbes inside the traps break down the bodies of their prey and the nutrients are absorbed into the plant's tissues. Lacking roots, this adaptation provides these unique plants with an alternative source of energy for growth. These survival strategies have proven to be effective, and there are about 290 species of bladderworts globally, inhabiting every continent except Antarctica.



The traps of yellow bladderwort collected from Turtle Pond, Patterson.
Photo by Patty Butter.

In 2023, yellow bladderwort (*Utricularia* × *neglecta*, a cross between two other species), was documented in The Great Swamp for the first time with photographs uploaded to the iNaturalist app. In 2024, it was confirmed in North America in a DNA analysis of plant material from Ohio. Previously known from Europe and western Russia, it appears that the plants were introduced to North America.

In 2025, I collected samples and herbarium specimens of these plants from the East Branch Croton River and Turtle Pond in Patterson and submitted them for DNA analysis to confirm their identity. Working together with an international group of botanists, we analyzed the characteristics of the plants to create a key for their identification. We then used these criteria to analyze 8,860 photos on iNaturalist to gain an understanding of the potential distribution of the plants from Ohio to New York and beyond — a range extending from Canada to Maryland. We also examined 3,400 herbarium specimens to search for records that could indicate how long ago these plants may have been introduced.



Yellow bladderwort flowering in the East Branch Croton River, Patterson, NY in 2024. Photo by M. Horton-Sacha.

The oldest specimen that we found was from Conesus Lake, NY from 1968. Our study, *Utricularia tenuicaulis* Miki and *U. × neglecta* Lehm. (*Lentibulariaceae*): recent additions to the flora of North America, was published in September for advanced access in the Journal of the Torrey Botanical Society. Our hope is that the information shared in this study will help others to identify these plants and gain an understanding of their impact on biodiversity in sensitive and important wetlands such as The Great Swamp. It is unclear if native species of bladderworts also occur in The Great Swamp, and if this introduction might have an impact on the native plant populations.

THERE IS SOMETHING IN THE WHISPER OF THE TREES

By Ted Kozlowski, Forester and Patterson Environmental Conservation Inspector

For the past seven years, I have walked almost every day with some friends and my dog in a small but representative section of The Great Swamp. On these walks, I have observed the changing patterns in the forest that serves as an important filter and buffer for the East Branch Croton River that flows through it.

WHY FALL COMES EARLY IN THE SWAMP

As the autumn season descends upon us, the first signs are usually found in the forested wetlands. This year it was towards the end of August in The Great Swamp. There are multiple factors that contribute to this. As summer wanes, the nights get cooler, and heavier cold air will migrate down into the valleys where swamps are usually found. This creates the early morning fog for commuters traveling along Route 22. The cooler air and decreasing daylight are a signal to trees and plants that the time to go dormant is nearing. Swamps are also harsh environments for trees. Too much water — or too little — creates additional stress, which contributes to early fall colors. This year we experienced both conditions.

THE CHANGING BEECH COMPONENT

Beech leaf disease has decimated many of the American beech trees throughout the area. The small beech grove within my daily travel is in terrible shape and we will likely lose it. As the forest canopy opens up from the loss of the beech trees, increased sunlight will favor opportunistic plants and tree seedlings. The question is what will take over? Native species or invasive ones? As the beech trees die and decay, they will offer new opportunities for wildlife in the way of nesting cavities and will support insects that will also act as a food source for many birds and mammals.

ASH TREES – and an UNLIKELY ALLY

Green ash is an important native tree species in The Great Swamp and it too was decimated by another invasive enemy, the emerald ash borer (EAB). The wave of EAB that hit our area three years ago wiped out a majority of the ash trees. Once EAB did their work, they either died out or moved on. But there was an unintended beneficial service provided by the resident beavers found in The Great Swamp. Hundreds of young ash trees that were cut down by the beavers for their dams were spared from the ravenous EAB. The cut ash tree stumps resprouted, and with little or no EAB present, they have grown vigorously at well over a foot per year and are thriving.

Now the beaver can be problematic, as some of us have seen, and their actions have caused flooding that has killed a number of trees in less hydric zones. While this is

unaesthetic, the opportunities for wildlife habitat will remain in the way of food and nesting cavities. If (and that is a big if) invasive plants do not take over, then more tolerant native species will.

DWINDLING NUMBERS

As each year passes, I see fewer elms due to the beetles that carry Dutch elm disease. The red maples will likely fill the void as time passes. The elms are slowly disappearing.

Over the past few years, I have seen fewer Canada Geese in the Swamp, and this may be due to more human activities and less open grassy green zones for them to forage and rest (and I consider that a positive). There is also a healthy Barred Owl population in my daily walk, which may contribute to goose control.

It is my opinion that invasive plants are the main threat to our forest resource, regardless of habitat. Tree seedlings are suppressed by the dense shade and choking vines of these invasive plants. Foraging deer add to the problem. Forest regeneration is challenged.

THE WHISPER

These seven years of walking through the same part of The Great Swamp have revealed significant changes in the forest and its ecosystem. Nature has always been about adaptation and survival, but the unintended introduction of invasive plants, insects, and diseases has dramatically altered that competition. Native trees that evolved here over thousands of years are suddenly confronting threats for which they have few natural defenses. It is probably too late to eradicate every invasive species from our woodlands, but that does not mean there is nothing we can do. We can begin on our own properties and along the places we care for by controlling invasive plants and encouraging native wetland trees and shrubs such as swamp white oak, tulip tree, red maple, wahoo, green ash, black gum, and our remaining elms. When appropriate, even something as simple as carrying a good pair of pruners on a woodland walk can help. Freeing young native trees from choking vines and reducing invasive shrubs such as multiflora rose, Japanese barberry, autumn olive and euonymus can give those native trees a fighting chance. Forests are never static. They are constantly responding to water, weather, wildlife, insects, disease, and human activity. If you walk in the same woods often enough — and pay attention — you begin to notice those changes.

There really is something in the whisper of the trees. We just need to listen.

GOATS TO THE RESCUE!

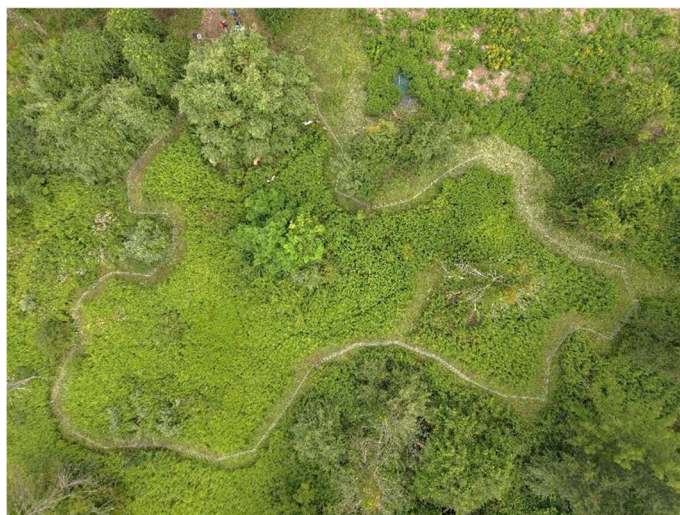
By Astri Teal

If you happened to pass by FrOGS's Cricket Hill Preserve this August, you might have noticed a herd of goats on the hill. You might even have responded to the invitation to stop and meet them. Why goats in The Great Swamp? They have actually been enlisted in our aid as we work hard to remove persistent invasive species so we can plant native shrubs and ground cover, especially to provide better nutrition for our vulnerable, declining New England cottontails. Unlike the widely-spread nonnative Eastern cottontail (the familiar bunny you see on many lawns and parks in our region), New England cottontails require a dense shrubby understory for protection from predators and a source of native food for the long winter.



Sketch by Sharon Nakazato.

The area the goats grazed allows us to improve the habitat for New England cottontails and 70 other species — like the American Woodcock, Prairie Warbler, and box turtle — that depend on native plants for their survival. Voracious and not picky eaters, the hired goats made good work of multiflora rose, autumn olive, mugwort, oriental bittersweet, and privet over their two weeks of employment. Check out the before and after drone photos of where they grazed!



Before and after photos of area cleared of invasives by hungry goats.

We still have more work to do removing roots and putting in native plants. We can use lots of help, so by all means let us know if you are interested in volunteering for that work.

In case you missed seeing the goats this year, we hope to invite them back next year if we can raise the funds. Please consider donating to our Goat Fund Me page: <https://www.gofundme.com/f/support-friends-of-the-great-swamp>

THE 2026 GREAT SWAMP CELEBRATION and ART SHOW

The Great Swamp is our local environmental treasure. We are thrilled to commemorate the Swamp with our 30th Annual Great Swamp Celebration and Art Show on Saturday, October 17 from 11:00 am to 5:00 pm and Sunday, October 18 from Noon to 4:00 pm at Christ Church on Quaker Hill, 17 Church Road, Pawling, NY.

Please join us for a weekend of celebrating “our Swamp” and the environment. There will be exhibits about The Great Swamp, backyard conservation, insects, and invasives management. A table full of fabulous, colorful FrOGS t-shirts and hats makes holiday shopping easy. James Eyring will bring his birds of prey, and weather permitting there will be a show outside each afternoon. He will share about the lives of these raptors, be available for questions, and you’ll be able to “meet and greet” the raptors throughout the day. There are educational activities and games for the kids, raffle prize of a kayak, live animals, food, and lots of family fun! Meet friends and neighbors, enjoy the art show and the beautiful fall scenery from atop the hill, and help support FrOGS’s continued effort to protect The Great Swamp watershed.

The Juried Art Show features many talented, local artists and includes drawings, paintings, prints and photographs. Local artisans’ wares will be on display at our craft sale. The creations are inspired by The Great Swamp and share the artists’ experience of the beauty to be found in the Swamp and among its creatures, plants, water, sky, shadows and secrets. A percentage of these sales goes to benefit FrOGS.

Student art work from the surrounding schools will also be on exhibit. One of the founders of Friends of the Great Swamp, Edie Keasbey, explained about inviting the area school children to participate in this yearly event. “Although this event is geared toward adult art, we have always wanted children’s participation as they are our future.” Last year we were dazzled by the creativity and quality of the children’s Swamp-inspired art. Some of the pieces were actually done by students plein-air painting in The Great Swamp. We appreciate all these teachers in being our partners in inspiring the love of the Swamp in the next generation! The children are proud of their work and often follow up in school with projects related to The Great Swamp and nature.

We invite all our old and faithful FrOGS friends and those we hope to become new enthusiasts to come to this special event. We will celebrate the importance of The Great Swamp in protecting the quality of our drinking water, as a home to native plants and animals, as well as green space for our communities to enjoy. See you there!



“Canada Goose” by Dev Suchite, Dunlop Award winner 2025



Clay sculpting with Cheri Ingraham



One of James Eyring’s raptors.
Photo by Jon Harrison.



“A Swamp in the Mist” by Mary Ann Taormina, 2nd Place Painting 2025

CALENDAR OF EVENTS

Great Swamp Celebration and Art Show

October 17 – 18, Saturday (11:00 – 5:00) and Sunday (Noon – 4:00)

At Christ Church on Quaker Hill, 17 Church Road, Pawling, NY. Premier Art Show, raptor flying, educational exhibits, games for children, animals, kayak raffle. Fun for all ages!

Bedford Audubon (Katonah, NY)

Most Months:

First Wednesday's Bird Walk

Third Thursday's Bird Walk

October 10, Saturday (9:00 – 11:00) Breakfast with the Hawks

October 24, Saturday (7:00 – 11:30) Sparrow ID Workshop + Field Trip

October 31, Saturday (8:00 – Noon) Better Bird Shots: Photography Workshop

Check calendar for times and locations

<https://bedfordaudubon.org/program-calendar/>

FrOGS Plein Air Dates

October 10, Saturday (3:00 – 5:00 pm)

Fall photo walk and tips on photo techniques with smartphones. Led by Lonna Kelly at the Diverting Reservoir trail, Brewster. Prior registration is required.

October 12, Monday (9:30 start)

Great Hollow Nature Preserve, New Fairfield, CT.

October 19, Saturday (9:30 – Noon) Akin Library, Pawling. Prior registration is required.

Note: Sharon Nakazato is the host for all three events: 845-612-1046. Prior registration is required for all Plein Air events on private land or at the Library. Please contact Sharon if you plan to attend.

Audubon Deer Pond Farm Events (Sherman, CT)

October 15, Thursday (10:00 – Noon) Adaptive Nature Hike for persons with limited mobility

November 6, Friday (9:00 – 11:00) First Friday Hike

November 14, (10:00 – Noon) Stonewall History Hike

For details, see: <https://www.ctaudubon.org/deer-pond-farm-programs-classes/>

**Birds are Migrating
Minimize light pollution:
Turn off your outdoor lights!
Close your blinds!**