The Swamp Scene

friends of great swamp national wildlife refuge

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Highlights

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NEW JERSEY'S ENDANGERED SPECIES: THE GOOD, THE BAD, AND SOME REALLY GREAT NEWS!

By Paul Lauber, Friends Board of Directors

On January 12, 2025, the Sunday Star-Ledger published an article that explained the recent changes by the NJ Department of Environmental Protection (NJDEP) regarding the classification of endangered species in NJ. In summary, the NJDEP has developed a revised "New Jersey Endangered Species List" that combines the previous "endangered" and "threatened" categories. The reclassified 2025 NJ Endangered Species List now stands at a total of 103 species.

Little brown bats by Robert Lin

On the federal level, one of the core missions of the National Wildlife Refuge System is the protection of at-risk species. Having reviewed the revised NJDEP list in detail, it's eye-opening to learn that GSNWR provides habitat and protection for a significant number of NJ's endangered wildlife species.

Bobcat by Steve Weiner

GSNWR mammals that make the list include several species of bats, specifically little brown bat, Indiana bat, tricolored bat, eastern small-footed myotis, and the northern myotis. Another endangered mammal that makes the list is the bobcat, a stealth

Continued on page 8.

FRIENDS PRESIDENT'S MESSAGE

By Tom Gula, President, Friends of Great Swamp National Wildlife Refuge

No doubt everyone is aware of the far-reaching effects of cuts to funding and personnel taking place at all levels of the federal government. Our own Great Swamp NWR is one of over 570 National Wildlife Refuges in the United States managed by the U.S. Fish and Wildlife Service, a federal agency within the Department of the Interior.

We are very aware of the importance of our Refuge, and the Refuge System, in preserving habitat for America's often unique wildlife. Everyone who visits Great Swamp NWR, or any Refuge, knows the vital role of these Refuges, not just for the plants and animals they protect, but for the ability for visitors to connect in a real way with the wonders of the natural world.

Tom Gula, photo by Richard Hiserodt

In February, The National Wildlife Refuge Association released this message:

> *Right now, the National Wildlife Refuge System is under attack. More than 350 U.S. Fish and Wildlife Service employees—many of them biologists on the frontlines of conservation—were fired in a move that guts science and wildlife protection.*
>
> *The Refuge System is already operating with just 2,353 employees, a 30% staffing decline over 15 years, yet they manage 95 million land acres and 750 million marine acres—more than any other federal land agency with far fewer resources. Now, these dedicated professionals are being pushed out, leaving refuges and wildlife more vulnerable than ever.*
>
> *We will not stand by and watch. We are Refuge Strong, and we are calling on Congress, Refuge Friends groups, and the public to protect the people who safeguard our nation's wild places. Join us.*

Here is a link where you can make your voices known, to let your representatives in Congress know how important you believe the entire Refuge System is to our country: https://www.refugeassociation.org/advocacy-refuge-employees.

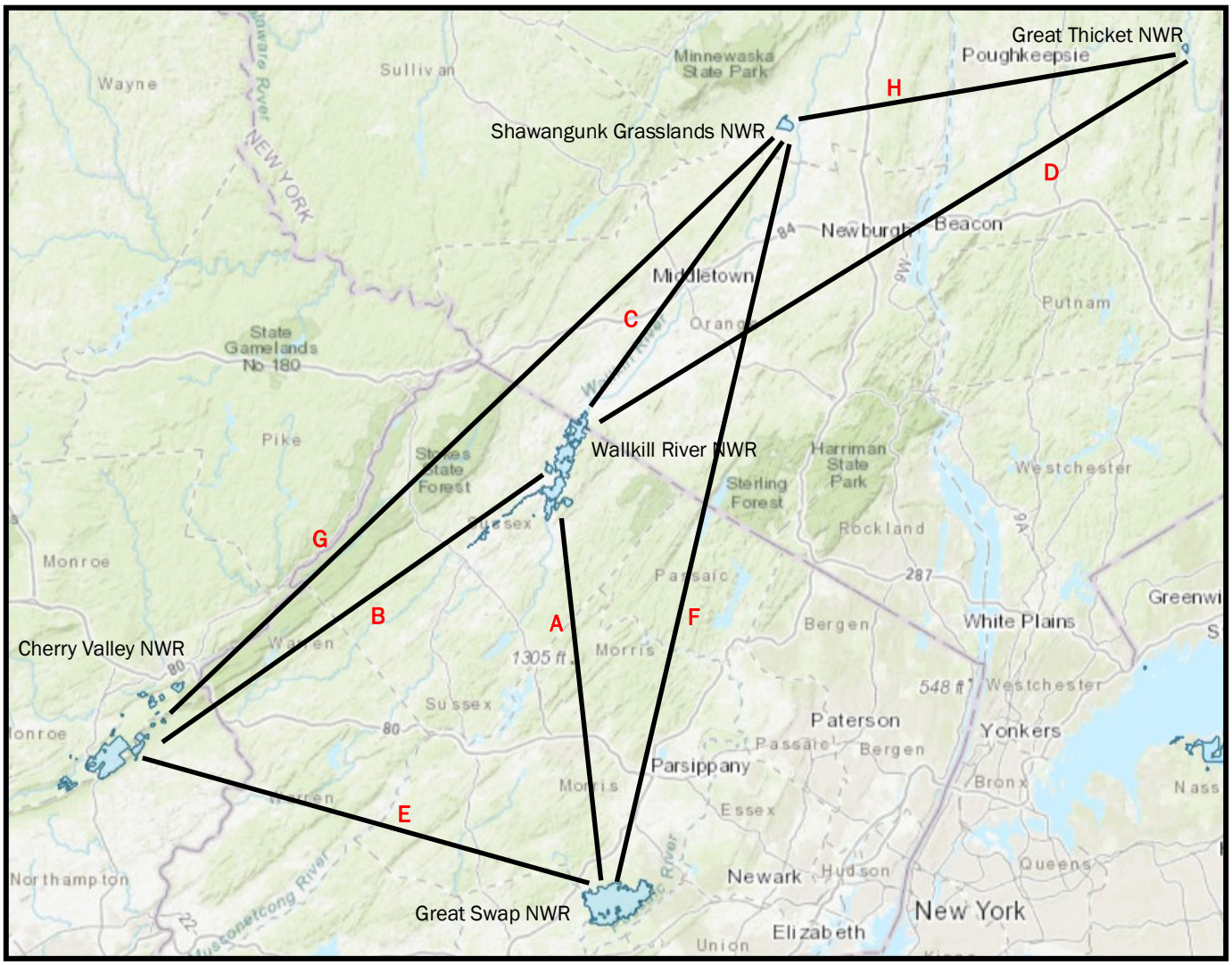
A NOTE OF THANKS TO THE REFUGE STAFF

By Tom Gula

Both our group of volunteers, and the general public who visit the Refuge, all owe a great deal of thanks to the Refuge staff. These individuals work together to protect the habitats and wildlife of this wonderful place we call the Great Swamp NWR, as well as the other Refuges that are part of the Lenape National Wildlife Refuge Complex. On behalf of the Friends of Great Swamp NWR, we want all Refuge staff to know how much we appreciate and support the dedication and effort you put into preserving these special places for us now, as well as for future generations.

THE LENAPE NATIONAL WILDLIFE REFUGE COMPLEX

The Lenape National Wildlife Complex is a four-refuge system that is overseen by a single group of staff members who work in all four of the refuges. Shawangunk Grasslands NWR is located in Wallkill, NY. Cherry Valley NWR is located in Stroudsburg, PA. Wallkill River NWR is in Sussex, NJ. Great Swamp NWR is in Harding Township, NJ. In addition to The Lenape Complex, the staff is also responsible for the New York section of the Nellie Hill Preserve section of Great Thicket NWR, which is located in Dover Plains, NY.



The distances between refuges and the travel times listed here are approximate, as there are various routes in each case.

A. Wallkill to Great Swamp: 50 miles, 1.25 hours
B. Wallkill to Cherry Valley: 50 miles, 1.25 hours
C. Wallkill to Shawangunk: 45 miles, 1.25 hours
D. Wallkill to Great Thicket: 80 miles, 1.75-2 hours
E. Great Swamp to Cherry Valley: 60 miles, 1.25 hours
F. Great Swamp to Shawangunk: 85 miles, 1.5—2 hours
G. Cherry Valley to Shawangunk: 80 miles, 2 hours
H. Shawangunk to Great Thicket: 45-50 miles, 1.25 hours

ANTLERS AND HORNS: IS THERE A DIFFERENCE?

By Judi DiMaio, Friends Board of Directors; Photos by Steve Weiner, Friends Volunteer

Horns and antlers have been around for a long time – about 15 million years, first showing up in the Miocene Era. They reached their peak with the Irish Elk (Megalocerus giganteus), whose antlers spanned an incredible 12 feet from tip to tip and weighed about 90 pounds!

So, deer have antlers. What about cows? Giraffes? Pronghorn antelope? We'll get to that. First let's see what the difference is.

Antlers are found in the deer family (Cervidae) and are a male accessory, except for reindeer, where both sexes have antlers. Antlers are pronged (having tines), made of bone, and are shed and regrown every year. They start from a bony bump called a pedicle. As they grow, they are covered with a thin layer of fuzzy skin, called "velvet". There are blood vessels running through it to assist with growth of the antlers.

If you see a buck in the summer, you'll notice his antlers look furry and rounded rather than pointed. Think about this…if all this growth happens in one year, how fast do large male elk antlers have to grow? They are among the fastest growing tissues in the world,

Young buck growing new antlers. Notice the velvet covering the bud. His slender neck is a sign of his youth.

growing about an inch per day. White tailed deer antlers grow about ¼ inch per day, but a moose can grow a pound of antler per day!

What causes all this growth? The change of seasons and lengthening days cause a male to produce more testosterone, which signals antler growth. They start as cartilage and eventually turn to bone. If an animal should damage the antler in this phase, the bony antler will be deformed.

When the antlers have calcified, the velvet can get itchy and the deer will rub his antlers against trees to take the velvet off.

Mature buck with hardened, velvet-free antlers. His heavy neck and shoulders are characteristic of a mature buck.

Once the breeding season is over and he no longer needs the antlers, the shortening days cause a reduction in testosterone production and the connection of the antlers to the skull weakens and the antlers eventually fall off. They don't go to waste; all the mineral nutrients are used by other animals that gnaw on or eat the antlers.

What about horns? Horns are not shed annually but remain attached to the skull of the animal by a hollow bony core and are covered by a layer of keratin, the same stuff our fingernails are made of. Horns are found in the family Bovidae which includes cows, bison, sheep and goats. Unlike antlers, both males and females usually have horns.

What about the pronghorn antelope? Well, there's always one in the crowd that has to be different. The pronghorn antelope has horns with the same bony core and keratin covering as other horns, but they are also pronged (hence its name) and shed every year, unlike other horns. Horns have no branches or tines, like antlers do.

Don't giraffes have horns? They have something that look like horns, but are not. They are called ossicones and are covered with fur. They start as cartilage then harden to bone and fuse with the giraffe's skull. Lest we forget, the rhinoceros is different too. The rhino's horn is not bony or connected to its skull, but is made of keratin and grows throughout its life.

HOW CAN SUCH SMALL BIRDS BE SO LOUD?

By Judi DiMaio, Friends Board of Directors; Photos by Robert Lin, Friends Board of Directors

I have a Carolina wren in my yard that is the loudest little bird I have ever heard!! He is so tiny, but so LOUD! How is that possible? It's all because of his anatomy.

Humans have a larynx (voicebox) that helps us produce sound; birds have a syrinx. Our single larynx is located at the top of our windpipe while a bird's two syrinxes are at the bottom, with one at the top of each bronchus. The syrinx is surrounded by an air sac that amplifies the sound like a resonating chamber.

Wood Thrush Vocalizing

Another difference between humans and birds is that birds use 100% of the air passing through their windpipe to produce sound, while we only use about 2%. Although they sound like they are singing uninterrupted for so long, the air sac of the syrinx allows them to take "micro-breaths" between each syllable of their song, We just don't notice the pause.

Carolina Wren Belting

Birds will also sing louder and higher in pitch if the background noise is louder. For example, birds will get louder to be heard over traffic noise just as we raise our voice to be heard in a crowded room.

Some birds are more masterful. The wood thrush is known for its metallic, multi-note song. Birds can control the air flowing through each syrinx which lets them make two sounds at once. The wood thrush can also sing notes that rise and fall at the same time. And, if you like loud, the white bellbird of the Brazilian Amazon is your bird. Its call has been measured at nearly 130 decibels, the sound of a jet taking off or a very loud rock concert. I'll stick with my wren; he's not that loud!

Camouflage Challenge

Answers on page 10.

How many barred owls below? How many northern water snakes on right?

IMPORTANT TERMS IN NATURE

By Jack Donohue, Volunteer

Symbiosis – interaction between two organisms living in close physical association, typically to the advantage of both. A primary example is lichen where fungi provide the mass and structure in which the algae reside. The algae photosynthesize to provide sugar for the fungi.

Lichen on a tree trunk

Flora & Fauna
T. C. Chiang

Flora – plants of a particular region.

Fauna – animals of a particular region.

Vernal Pool by Caitlin Moy

Vernal Pool – seasonal ponds usually devoid of fish that allow for the safe development of distinctive amphibian and insect species, which begin their life cycle in spring as the pool fills with rainwater and melting snow. Pools are dry by summer's end.

Deciduous – characterized by trees that seasonally shed their leaves such as maple, oak, and ash.

Coniferous – characterized by needle-leaved, cone bearing trees or shrubs such as pine, spruce and fir.

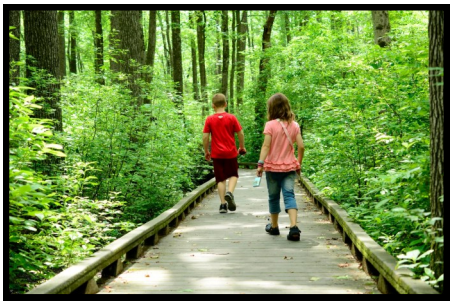
Native Yellow Loosestrife
By Pat Wells

Invasive Purple Loosestrife by Todd Harless

Native – plants, animals or insects that are indigenous to the region.

Invasive – non-native species that reproduce rapidly, crowd out native species or change the soil chemistry on which native species rely.

Marsh by Caitlin Moy

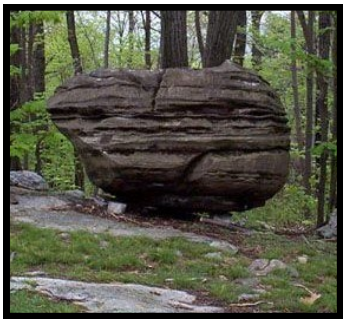


Swamp by Wendy Moynihan

Marsh – a wetland dominated by non-woody plants.

Swamp – a wetland dominated by woody vegetation.

Browse Line – the height reached by the feeding of large browsers such as deer. The deer browse line in NJ is usually five feet above the ground.



Glacial Erratic – large rocks sometimes as big as a house that have been deposited by retreating glaciers.

GARLIC MUSTARD: EAT IT!

By Martha Wells, Co-editor; Images in the public domain

Garlic mustard (Alliaria petiolata) is a highly invasive, biennial non-native that spreads extremely fast. It is a native of Europe and Asia and was purposefully introduced to the United States from the mid to late 1800s. It was used historically in Europe as a green vegetable, and is high in vitamins A and C. It was also used as a medicinal herb.

Garlic mustard seedlings emerge in early spring when there is plenty of light in the woodland understory, and just before or at the same time as the germination of native ephemerals. It often grows faster than the natives.

First year rosettes.

The first season the plant is a short rosette with round or heart-shaped leaves with scalloped edges. It is not always easy to find. The second year, the plant sends up a stalk up to four feet tall with sharply toothed, triangular leaves. Small white flowers grow at the top of the stalk, and from the leaf axils, blooming from April to June. Siliques, which are four-sided seedpods develop in May as the flowers fade. With an average of 22 siliques per plant, averaging 28 seeds per silique, that's about 600 seeds per plant. Seeds are dispersed July to August by animals and humans brushing up against the plants.

Second year plants.

Garlic mustard produces allelopathic chemicals that suppress the growth of other plants. With all these assets, it is easy for garlic mustard to out compete native plants.

Pulling by hand can be very easy in April through June before seeds begin to fall from the siliques. This is also the time to gather garlic mustard to make pesto. Be sure to use plants that have not been sprayed, or grow by roadsides, in the dog park, etc. You'll need to take the leaves off the stalk, and wash and dry them.

There are many garlic mustard pesto recipes online. Some of them add garlic, basil, lemon, or garlic mustard root. But the simplest recipe is garlic mustard leaves, nuts, cheese, oil, and lemon juice.

Note the upper leaves on the second year plants are more pointed and more sharply serrated than the lower leaves and the rosette leaves of the first year .

The basic recipe:

- 4 cups of garlic mustard leaves
- ½ cup grated Parmesan or Romano cheese
- ½ cup pine nuts, or walnuts, or roasted almonds, or pepitas
- ¼ cup olive oil
- ½ tablespoon lemon juice

Using a food processor chop up the leaves. Add the cheese and nuts, and process to combine. You may need to scrape down the sides. Slowly add the olive oil. Add the lemon juice. Taste to see if it needs more of anything. Remember, recipes are suggestions, not rules. Enjoy.

NEW JERSEY ENDANGERED SPECIES *(continued from page 1)*

Blue-spotted salamander by Blaine Rothauser

and the small bridle shiner makes the list for fish. With the reptiles, the Refuge's bog turtle and wood turtle make the NJ Endangered Species List. As many readers know, teamwork and long-term support have greatly enhanced the wood turtle population at GSNWR.

The birds on the NJ Endangered Species List include hawks often seen at GSNWR, including northern harrier, red-shouldered hawk, peregrine falcon, and American kestrel. In addition, Refuge owls that make the list include barn owl, barred owl, and both short

Red-shouldered hawk by Robert Lin

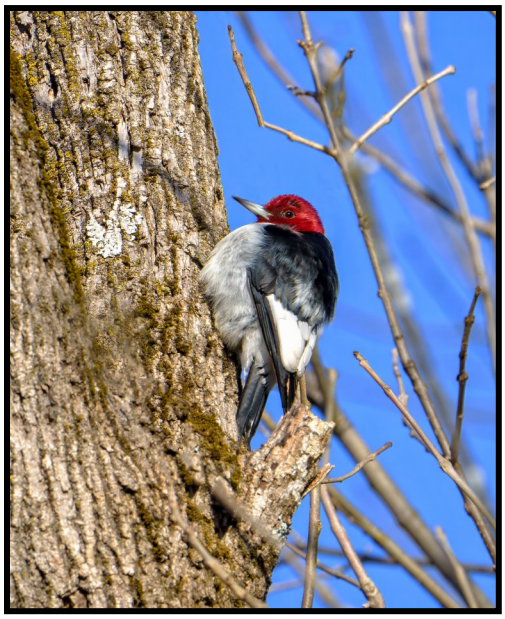
predator whose nocturnal activity has recently been captured on Refuge trail cams.

GSNWR's secretive Blue-spotted Salamander makes the NJ endangered list for amphibians,

Male northern harrier (AKA Grey ghost) by Robert Lin

and long-eared owls. Primarily due to statewide habitat loss, grassland birds are numerous on the Endangered Species List, and include bobolink, horned lark, eastern meadowlark, and grasshopper, vesper, and savannah sparrows. With a large area dedicated to managed fields and grasslands, these bird species have all been recorded at GSNWR.

The only NJ woodpecker to make the Endangered Species List is the red-headed woodpecker; Great Swamp birders know that the floodplains and dead snags along the Passaic River offer ideal habitat for this elusive bird. And Refuge



Red-headed woodpecker by Steve Weiner

marshes offer excellent habitat for the water birds that make the Endangered Species List, including American bittern, pied-billed grebe, and both black-crowned and yellow-crowned night herons.

In the "really great news" department, the bald eagle and osprey have been removed from the NJ Endangered Species List, a well-deserved "victory lap" for dedicated conservationists. The recovery of these mighty raptors is a tribute to scientists and educators like Rachel Carson (Silent Spring, published 1962), as well as the work of countless NJ environmentalists and volunteers. At Great Swamp, ospreys are now commonly seen during spring and fall migration. In addition, our bald eagles built their first nest on the refuge in 2012, and have been breeding since 2016. Nestled in the heart of NJ's suburban sprawl, Great Swamp NWR's 7853 protected acres are a treasured oasis for both flora and fauna. It's even more satisfying to learn that many wildlife species on NJ's Endangered Species List continue to benefit from the hard work of Refuge staff and volunteers, important work that now spans over six decades!

Female American kestrel by Steve Weiner

Very old wood turtle by Colin Osborn

American bittern by Jim Mulvey

Green emerging from gray,
and yellow from green.
Slate turns to sapphire,
cold to gold.
The season of sleeping awakens,
melting into newness.
Old friends return:
we begin again.

Carol Weingaertner
Friends member

Trout Lily By Judy Gorab

Camouflage Challenge

Did you have to get your magnifying glass out?

There are two barred owls in Robert Lin's photo. They are commonly seen in the woods between the Visitor Center and the bridge over Great Brook on the northern side of Pleasant Plains Road. They are spotted on most Friday morning walks.

Barred owls spend the day dozing close to the trunk of a tree. Because of their coloring and the patterns on their

feathers they can be very difficult to locate. It helps to go walking with people who have good "bird watching" eyes.

Being opportunistic hunters, they enjoy crawfish that live in the stream that flows through the woods. The also eat small mammals and birds, amphibians, and reptiles.

There are two northern water snakes basking in Pat Wells' photo that was taken March 15, 2024 from the WOC boardwalk farthest to the left that goes to the Garden Club blind. There were many basking water snakes on that sunny day.

Young northern water snakes are gray to brown with reddish-brown to black bands, Older snakes eventually turn almost completely black. Since the snake's scales are keeled (ridged), they are not shiny.

The females give birth to 12 to 36 live young from late August into October.

NATIVE EPHEMERALS AT THE GREAT SWAMP AND AT HOME

By Lori Sorensen, Volunteeer

In early spring there are beautiful ephemeral flowers at the Great Swamp. These can also be grown in the home garden to give a boost to wildlife and the environment.

Trillium grandiflorum
By Dr. Thomas Barnes, USFWS

The word "ephemeral" is used because these plants usually disappear until the next spring, leaves and all, early in the gardening season. The ephemerals often disappear once they have finished their reproduction cycle, which is usually before the deciduous trees have fully leafed out .

Spring ephemerals can be used in the garden in a way similar to how bulbs such as tulips or daffodils are used. One difference is that bulbs or other underground sections of the plants such as rhizomes are less widely available for native spring ephemerals -- you may only find entire plants for sale. Among the spring ephemerals at the Great Swamp are bluebells (*Mertensia virginica*), trout lilies (*Erythronium americanum*), and spring beauties (*Claytonia virginica*),

The spring ephemerals mentioned in the list below all help bees. Generalist bees can use many different plants while specialist bees are dependent upon a narrower range of species to feed their young. Trout lilies and spring beauties are the most important sources of pollen for the young fspring beauty bees (*Andrena erigeniae*) and trout lilies bees (*Andrena erythronii*), respectively. Spring beauty is also visited by early season butterflies.

Most spring ephemerals require rich, moist soil. Based on data from The Missouri Botanical Garden website (mobot.org), spring beauties and eastern columbine grow in full sun to partial shade. The other spring ephemerals listed grow in full to partial shade.

As with many typical garden plants, some spring ephemerals have toxic parts, so be careful with them around children and pets.

Virginia Bluebell
By Eileen Hornbaker, USFWS

Some great spring ephemerals for the home garden which are at the Great Swamp are:

- Bluebells (*Mertensia virginica*) have beautiful pink and/or blue flowers.
- Trout lilies (*Erythronium americanum*) have interesting speckled leaves with small yellow lily-like flowers.
- Spring beauties (*Claytonia virginica*) have dainty pink or white flowers.

Spring Beauty
By Ryan Hagerty, USFWS

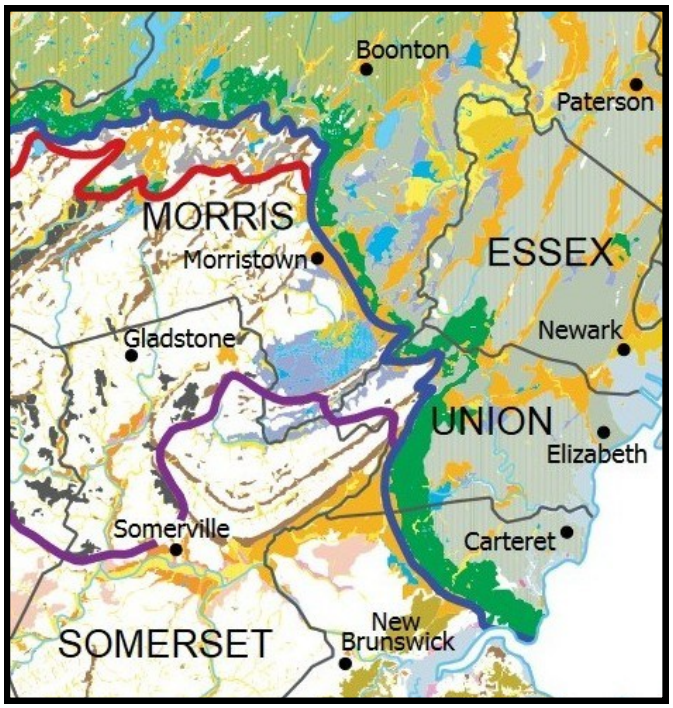
- Trillium species (*Trillium spp*) have three whorled leaves and pretty flowers with three petals. The species have different colors including deep red and white.
- Bloodroots (*Sanguinaria canadensis*) have interesting lobed leaves, and beautiful white flowers.
- Jack-in-the-pulpits (*Arasaema triphyllum*) have a unique look. Their flowers are partly covered by a hood, and they develop attractive red berries.

Eastern columbines (*Aquilegia canadensis)*, although not included in the Great Swamp flower list, are beautiful natives with delicate leaves and red and yellow flowers. Many people love them, and they're an early season nectar source that can attract hummingbirds to the home garden.

GREAT SWAMP CLAY

By Pat Wells, Co-Editor

The last ice age ended with the Wisconsin Glacier stopping at the western edge of the area that would one day become the Great Swamp. As the glacier melted, the water formed the giant Glacial Lake Passaic that stretched from south of Liberty Corner to Pompton Plains. The lake partially drained and refilled several times over several thousand years. During that time, clay, silt, and fine sand precipitated out of the lake water and covered the lake floor. Later, wetland deposits accumulated in the eastern part of the swamp. This soil is composed of peat, organic clay, and a minor amount of sand.



Blue line—Maximum intrusion of Wisconsonian glacier
Green areas—Glacial moraine
Lavender area—Lake clay deposits
Turquoise areas– Freshwater wetland deposits

Surficial Geologic Map of New Jersey, NJDEP, 2016

Clay deposits at the western side of the swamp proved to be useful for making bricks and pottery drain pipes.

Archibald Baird (1822-1915) was born and died in the family home at the junction of Pleasant Plains Road and Lees Hill Road. He worked as a charcoal burner in the Swamp, then established a brickyard close to the farmstead (see the 1853 map). The dates Baird started and ceased burning bricks are not yet identified.

In 1839, he was experienced enough to be selected to produce the bricks for the new Presbyterian church in Basking Ridge. The original log church had been built around 1717. It was replaced by a frame building when the congregation got too big for the church, This happened again in 1839. This time the congregation decided on the brick Greek Revival building that graces the center of town.

Old postcard of the Presbyterian Church, Basking Ridge.. The great white oak to the right of the building had to be removed from the cemetery in 2017 after it died. Ii was more than 600 years old.

Brickmaking involved a lot of hard labor at that time. Baird probably hired laborers as needed.

First the clay had to be dug and seasoned. Baird had a ready source of clay, so the materials didn't have to be hauled very far. The clay was dug in the fall before the ground froze. It was set out in piles so the water would drain out over the winter. When summer brought good drying weather, the clay was mixed with a prescribed amount of sand and just enough water to make it malleable.

The clay was pushed into wooden forms than were lightly sprinkled with sand to keep the clay from sticking. The

Horse-powered ring-pit for mixing clay for bricks or pottery manufacturing. England.

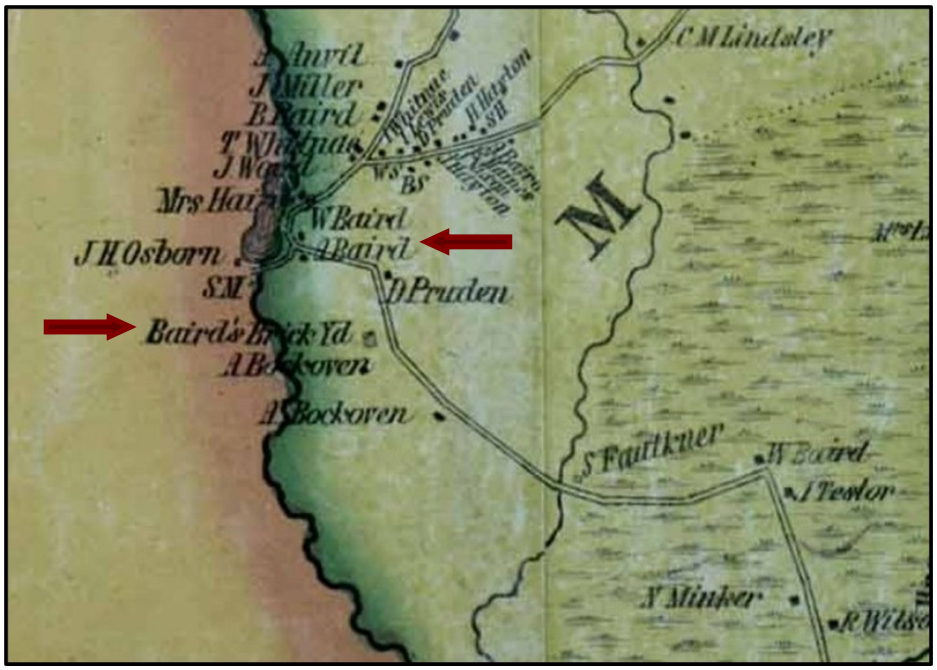
bricks were then popped out of the molds and set out in rows on flat ground to be sundried until most of the water had evaporated, usually a few days to a couple of weeks.

When the brickmaker determined the bricks were ready, then they were used to build the kiln where they would be burned (fired), They were stacked so there were gaps between the bricks that let the heat from the fire move around all the bricks.

A low fire was built first. This fire forced the last of the water out of the clay. If a hot fire was set right away, the water would boil out of the bricks and break them.

When the pile stopped steaming, the water had all evaporated. The hot fire was then built in the kiln. How long the bricks had to be burned depended on the size of the pile, usually one to two weeks. The pile was then allowed to cool completely before the kiln was disassembled.

The bricks were then examined and graded. Bricks at the center of the pile were subjected to the greatest heat and developed a glaze. These were used for interior walls. If they were severely over burned or warped, they were called clinkers and were rejected. They could still be used for walkways. The outermost bricks might be too soft and would need to go through a second burn. The best bricks would be used for exterior walls.



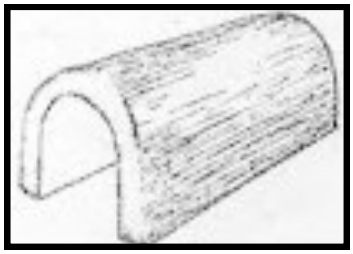
Baird's Brickyard and Archibald Baird's house are indicated by arrows. Map of Morris County, New Jersey from Original Surveys By J. Lightfoot and Saml. Geil, J.B. Shields Publisher, Morristown, NJ, 1853.

In addition to brickmaking, Archibald Baird also farmed. There are a number of related Bairds in the area as can be seen on the map. Several of them were also farmers.

In 1867 Amzi Leonard started the Logansville Pottery. It was located on Bailey's Mill Road close to the junction with Lees Hill Road. It was situated near northern end of Osborn Pond so a water source was close at hand.

Clay drain tiles

Leonard had come up from Rahway where he had learned his trade. At his pottery, he made drain tiles, horseshoe tiles, and some flowerpots. Drain tiles were used to drain wetlands and horseshoe tiles were used for French drains to keep farmyards dry.



Horseshoe tile

The clay was mixed in a horse-powered ring pit. The tiles were made in molds, but the flowerpots were hand thrown on a kick-wheel.

More of the Leonard family settled around the Great Swamp, especially along White Bridge Road. Amzi was married twice, and outlived both wives. He had no children. When Leonard was 83, he retired and sold the business to P. Eugene Hoffman in 1923. Hoffman put his son, Perry, to work as manager. Newly graduated from Colgate University, Perry modernized the business by installing labor-saving machinery.

The business shifted to producing primarily flower pots of all sizes, selling wholesale to nurseries and greenhouses. At one point, while running the business, Eugene claimed to have produced more than 100 million flower pots. It is doubtful that all this clay came from the Great Swamp, but the alternate source has not been identified.

Eugene died in 1956, leaving the business to Perry. Sadly, Perry died only two years later at age 59. At that point, the pottery disappears from the records.

IN PRAISE OF SHADBUSH AND ELDERBERRY

By Martha Wells, Co-Editor

SHADBUSH (AMELANCHIER CANADENSIS)

Shadbush is one of the earliest spring bloomers. Its profusion of flowers provide a nectar-rich food source for bees and butterflies. It is a host plant for red-spotted purple and viceroy butterflies, and its foliage feeds striped hairstreak and eastern tiger swallowtails.

It grows as a shrub or small tree up to 25 feet and is found near water and in moist woods. The distinctive flowers have five long white petals. As the blossoms fade in mid-June to mid-July, pomes (a fruit similar to berries) mature. They are dark purple to black, juicy and sweet. This is why shadbush is also known as Juneberry, as well as serviceberry.

The fruit is eaten by birds, including chickadees, grosbeaks, nuthatches, thrushes, and woodpeckers. They can also be enjoyed by humans the same way as blueberries: out of hand, baked in muffins, pies, pancakes, or jam.

Long ago, shadbush blooming from late April to late May was a signal to the indigenous people that the shad were returning to streams and rivers to spawn. Hence the name, shadbush. After years of decline in the shad population that had been so important to the Lenape, New Jersey Fish and Wildlife has reported that, due to removal of dams on the Raritan and Millstone Rivers, and Paulins Kill, shad are now found in those waterways for the first time in well over a century!

Shadbush

Elderberry

ELDERBERRY (SAMBUCUS CANADENSIS)

Like shadbush berries, American elderberry is also popular with many animal species. It is a fast-growing shrub that can reach a height of 12 feet and live for 20 to 30 years. They help improve soil health by promoting microbial diversity in the rhizosphere.

Elderberry blooms in early June to July with small white flowers in large clusters that provide nectar for pollinators such as swallowtails, fritillaries, and painted ladies. The dense foliage and branching canopy provide good nesting sites for small birds. Elderberries are also a host plant for a variety of butterflies and moths, including cecropia, polyphemus, and white-lined sphinx caterpillars.

The berries are produced in late June and August. They ripen in late summer and early fall, providing food for migrating birds, including robins, bluebirds, cedar waxwings, and orioles. The berries are also eaten by mammals such as raccoons, squirrels, and foxes.

Humans should not eat the berries raw, but they can be cooked into syrup, baked into pies or crisps on their own or combined with other summer fruit, like peaches or plums.

(In Praise of Elderberry at the request of John Croot.)

FRIENDS OF GREAT SWAMP NATIONAL WILDLIFE REFUGE
MEMBERSHIP APPLICATION

The Friends of Great Swamp is an independent, non-profit organization organized in 1999. Our operations and activities are managed by an all-volunteer Board of Directors. As our mission statement indicates, our focus is Refuge-centric — we support the goals, projects, and mission of the Great Swamp National Wildlife Refuge.

To become a member of the Friends of Great Swamp, fill out the information on this form, and mail with your check to:

Friends of Great Swamp National Wildlife Refuge
32 Pleasant Plains Road, Basking Ridge, New Jersey 07920

ANNUAL MEMBERSHIP APPLICATION

❒ EASTERN BLUEBIRD—$15-$49 ❒ PAINTED TURTLE—$50—$99 ❒ RIVER OTTER—$100—$249

❒ MONARCH BUTTERFLY—$250—$499 ❒ WOOD DUCK—$500 + ❒ New Member?

TOTAL ENCLOSED $ _____

You may also join online at www.friendsofgreatswamp.org

Name _____

Address _____

City _____

State, Zip Code _____

Phone Number _____

E-Mail Address _____

Gift Membership From: _____

(If this is a gift, please include your full name on the line above so we may notify the recipient)

We need more Friends ...

Become a Friend Today—or,

Give a gift membership to a friend.

Thank you

Memberships help support the projects and programs at Great Swamp National Wildlife Refuge.

Membership Benefits

- The Swamp Scene Newsletter.
- A 10% discount in Friends Nature Shop .
- Notifications of upcoming events.
- Satisfaction in knowing you are helping protect wildlife and wild places while safeguarding a national treasure for future generations.

Friends of Great Swamp NWR
32 Pleasant Plains Road
Basking Ridge NJ 07920

Non-Profit Org.
PrSrt Std.
US Postage Paid
Permit No. 407
Chester NJ 07930

Friends of Great Swamp
National Wildlife Refuge

THE SWAMP SCENE MARCH 2025

Friends of Great Swamp National Wildlife Refuge
Is an independent, volunteer, non-profit organization
dedicated to

Promoting stewardship of the natural resources of the Refuge,

Inspiring an appreciation of nature through education and outreach,

Engaging in partnership activities that support and enhance the Great Swamp National Wildlife Refuge and the National Wildlife Refuge System.