



the Swamp Scene

friends of great swamp national wildlife refuge

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Highlights

Annual Photo Contest Winners	1
President's Message	2
Behind the Scenes: Used Books	3
Oaks of the Great Swamp	4
In Praise of Turkey Vultures	5
Evolution of the Scent Garden	6
Camouflage Challenge	10
Do Evergreens Lose Their Leaves	11
A Trip Down the Passaic River	12
Swamp Diary	14
Do Animals Get Poison Ivy?	14

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ANNUAL PHOTOGRAPHY CONTEST WINNERS

On September 13, the winners of the 2025 Friends Photo Contest were announced. The winners were given an opportunity to talk about the photo and the circumstances in which it was taken. One of the three judges, Bill Koch, retired Great Swamp NWR manager, explained some of the reasons photographs won. The audience in the Guadagno Pavilion was very appreciative.

The other judges were Jim Gilbert, professional photographer and Bonnie O'Connor, artist and retired art teacher. John Dekens is the chairperson of the Photography Contest Committee. Over 200 photos were submitted.

The winning photographs will be added to the Friends website and displayed on the video screen in the Helen Fenske Visitor Center library. They will also be used by the Friends and the U.S. Fish and Wildlife Service.

Enjoy some of the photographs here and on pages 8 and 9.



1st Place-All Other Animals: Eyes in the Understory by Lyndon Llanes.

Lyndon took the photo by the bridge on Pleasant Plains Road. He said the bobcat's camouflage was so effective he didn't see the animal until it moved. Then he thought it was just a fox.

PRESIDENT’S MESSAGE: SHUTDOWN, CORPORATE WORKDAYS, & 10TH ANNIVERSARY OF THE WHITE OAK TRAIL, *By Tom Gula, President, Friends of Great Swamp National Wildlife Refuge*

The cool winds of late autumn are a reminder that winter is coming, along with the end of another year. The government shutdown will hopefully be over by the time you read this, but the pause in volunteer work by our Friends group members has given all of us time to reflect on how much has been accomplished during the year.

Work on the Visitor Center expansion continues during the shutdown, as we all look forward to the building’s completion in early 2026 (fingers crossed). Second Sunday presentations will be back, volunteers will return to greet visitors to the Visitor Center and WOC, group and guided walks will commence again, Outreach programs will return, Trail Blazers will get back to work, Nest Box monitors will begin in April - that and so much more.

Warmer weather will also bring the return of a series of Corporate workdays that have done so much to help maintain the Refuge. Walter Willwerth, board member and volun-

a welcoming place for the thousands of visitors who come each year to walk the trails throughout the Refuge. Thank you Walter!

Speaking of trails, I'd like to make note of one other cause for celebration. This year marks the 10th anniversary of the formal opening of the White Oak Trail on October 10, 2015. Friends volunteer, Laurel Gould, was instrumental in planning and supporting the new trail across the street from the Fenske Visitor Center, and she no doubt would be



Walter Willwerth, center of circle, organizing GAF Corporate Workday at WOC. Photo by Dave Katz



GAF employees spreading stone dust at WOC. Photo by Tom Gula.



White Oak Trail boardwalk. Photo by Tom Gula.

pleased to see it now. Recently a three-year construction program funded by the Friends, and led by volunteer George Solovay, constructed new boardwalks and bridges, created a beautiful vernal pool, and improved sections of the stone dust path. Volunteer Tom Cartwright now leads the construction volunteers (and several corporate groups during workdays) that maintain the trails, repair areas when needed, and recently installed 10 tree tag signs along the trail. Friends member and artist Elena Caravela designed the signs for each tree, and QR codes on each sign created by volunteer Dave Katz allow visitors with a smart phone to quickly gather information about each tree species. As a friend said to me recently after walking the trail: “The tree ID plaques on the White Oak Trail are great. The more explanatory info the better.”



New tree marker on White Oak Trail

BEHIND THE SCENES: THERE'S MORE TO USED BOOKS THAN SELLING BOOKS

By Barry Bowman, *Used Book Sales for Friends of Great Swamp NWR*, Photo by Dave Katz

Over the years the Friends has established relationships with local libraries, AAUW branches and the Visiting Nurses Association (Far Hills Sale) that have used books or rummage sales each year. These organizations allow certain charities to collect books and rummage sale items that are unsold at the end of their sales. Our Friends Group collects nature books that we resell on our Used Book Table and Rack in the Visitors Center and give the children's books to Josephine's Place, a women's support organization in Elizabeth. Board member, Randi Emmer, is a liaison to our activities with Josephine's Place.

Most of the unsold used books and rummage sale items are taken by book dealers and charities for resale. A few charities, like the Friends and Books for Taiwan, give the books to children who have little access to them. The charity collects stuffed animals and has arranged with a train to throw the toys from the train to children in a remote area of Appalachia where the train passes nearby but does not stop.

The Somerset Hills AAUW branch uses the funds from its sale to provide fellowships and grants to empower women scholars to advance their research, careers and leadership. They have taken a special interest in Josephine's Place and, as seen in the excerpt from their *December 2024 AAUW Newsletter*, have been a strong supporter of our efforts.

AAUW's Huge IMPACT! Helping mothers and children!!

For the past several years AAUW Somerset Hills has given the Friends of the Great Swamp the opportunity to collect used children's books that don't sell at the annual book sales. The Friends is in partnership with Josephine's Place, a women's shelter in Elizabeth, NJ. Volunteers from our Outreach group visit the shelter and read to the children, who have little access to books, while

their mothers learn English, computer skills and take exercise classes. If a child likes a book, it is given to them. I am told that the smile on the face of a child that has been given a book to keep as his/her very own is priceless. The children speak English, but many of the mothers do not. The children take the books home and read to their mothers. So it is a win-win situation.

Thank you AAUW Somerset Hills for making the lives of these mothers and children a little happier. Again, many thanks.

Barry Bowman
Volunteer, Friends of Great Swamp



54 mothers & children attended the Great Swamp Fall Festival in September 2024

ANNUAL AMAZING FEET RUNNING CLUB CLEANUP DAY

Every year the Amazing Feet Running Club, Friends volunteers and Refuge staff spend a Saturday morning clearing the public roads in the Refuge of trash. Every year there are extraordinary finds—things people seem to believe will simply disintegrate and disappear. They don't disintegrate, but the Roadside Cleanup Crew do make them disappear. This year the winners of the Most Audacious Dumping Award were a slide from a swing set and a basketball backboard. Really people! Ever heard of a dump?



OAKS OF THE GREAT SWAMP

By Jack Donohue, Volunteer; Photos by Jack Donohue

Red oak, pin oak, white oak and swamp white oak are four of the oak species found at the Great Swamp National Wildlife Refuge. Following are a few hints to help in their field identification.

White Oak vs. Swamp White Oak

The trunks of both oaks have a similar white to light gray coloration and both have round-lobed leaves. As the name suggests swamp white oak prefers a wetter habitat than the white oak. Branches may grow out of



White oak bark and leaves

the trunk of a swamp white oak when young. The swamp white oak leaf is full-bodied while the White Oak has clefts or notches in the leaf.



Swamp white oak bark and leaves

Red Oak vs. Pin Oak

Both of these oaks have pointed-lobed leaves. However, the cleft or notch in the leaf is more pronounced in the pin oak.

The pin oak prefers a wetter habitat than the Red Oak.

The trunk of the red oak, the NJ State, tree darkens and develops deep furrows with vertical silver colored stripes as it ages sometimes giving it a “ski trails in the snow” appearance.



Red oak bark with “ski trails”

The trunk of the pin oak is gray to dark brown in color and often has dead branches growing on the lower trunk. In addition, the lower branches of a pin oak droop downward.



Pin oak with downward hanging skirt of branches

IN PRAISE OF THE TURKEY VULTURE

By Pat Wells, Co-Editor, *Swamp Scene*

The vulture seems to have been chosen to possess the ugliest features and behaviors in the bird kingdom. Turkey vultures (*Cathartes aura*) are particularly unappealing with their naked red heads and hunched pose when perching. But I, for one, love these glorious birds. This love affair started the day I came upon four of them sitting atop a high-tension line tower, their wings spread like Egyptian gods and their chests facing the morning sun. Who could resist such grandeur?



Red-Headed Vultures
By John James Audubon

Though their bodies are plain dark brown, the trailing edges of their wings are pale grey and readily seen when the birds are in flight. They have bald, red heads and naked necks so debris from their carrion feasts is readily cleaned from their heads. They are elegant in flight because of their six-foot wingspan, fingered wingtips, long tail and soaring habit. They hold their wings in a low V (dihedral) when in flight, making them easy to identify without binoculars.

Vultures are morning bums, waiting for the sun to warm the land creating thermal updrafts that they use for their leisurely flights. Only flapping on occasion, the vulture soars until the odor of carrion draws it into a glide for a better look. Their huge nostril and extremely heightened sense of smell give the vulture the most sensitive nose in the animal kingdom. They could far outperform sniffer dogs in airports, but would probably be rather off-putting for the passengers.

John James Audubon did an experiment to test their odor-detecting capacity by placing the carcass of a well-rotted hog out of sight of the birds. When he found they didn't consume it, he concluded, "the power of smelling in these birds has been grossly exaggerated". He was wrong because his experiment was poorly designed. Although vultures eat carrion (dead things), they won't eat just any dead thing. They want it fairly fresh, unless it is an animal with tough skin, then they'll wait bit until the skin starts to rot and they can access the innards of the creature.

In 1938, the Union Oil Company took advantage of the turkey vulture's nasal skills to detect leaks in their newly constructed pipelines. The company injected mercaptans into the lines. The mercaptans smelled like the chemicals released from decaying carrion. Circling vultures indicated a

leak in the pipeline.

Turkey vultures are known to go dumpster diving for rotted fruit and vegetables. Pumpkins left to rot in the field are also attractive to them. To add to the "ew factor", vultures have been seen eating coyote and domestic animal dung. [Yeah, but butterflies do this too!] They will also eat insects, reptiles, and nestling birds. They have been blamed for killing young livestock, chickens, and small pets, but this is a black vulture behavior.



Vulture Eating Live Snake by Steve Weiner
[Snake's head is raised and mouth is open.]
Honorable Mention, 2025 Photography Contest

Courtship occurs March to June and mostly involves hanging around together, with the male performing some aerial flapping and diving for his intended.

Both male and female tend to the nest of one to two eggs which hatch in 30-40 days. For 70-80 days the parents feed the chicks regurgitated, well-digested food.

Regurgitation (actually projectile vomiting) is also used as a defense mechanism when the nest is threatened by a raccoon or owl. They can hit a target at ten feet. The parent may also flee the nest or play dead. [Personally, I think puking stomach acid and partially digested carrion on your assailant is probably pretty effective.]

Turkey vultures have potent stomach enzymes that can kill the harmful microbes they consume with rotting foods. Some have been found to have "flesh-eating" bacteria in their guts, that probably help digest carrion.

Vultures will eat dead birds. If the bird had died of or carries the "bird flu" virus, the vulture can contract it and die.

Vultures are essential to the wellbeing of our environment. Without them, we would be walking around and driving over mounds of dead creatures. The ancient Egyptians considered them divine. They are certainly divinely designed for their niche in this world.

EVOLUTION OF THE SCENT GARDEN, NATURE DETECTIVE TRAIL

By Lisa Florio with Lori Sorensen

In 2022, I was asked by Kathy Woodward to undertake maintenance on the Scent Garden of the Nature Detective Trail (NDT). It was unlike other garden projects I'd undertaken because the area is not intended to be designed, or to carefully balance textures, colors and seasonal interest. Rather, the aim of the NDT is to engage the senses and curiosity of walkers – particularly children – to their surroundings.

Signage on the trail directs walkers to look at tree bark or cavities and imagine the creatures that hide within them. Among several other areas is one devoted to scent which asks walkers to consider not only plant appearance but also touch and smell by rubbing leaves and inhaling.

The garden had a healthy patch of mountain mint (*Pycnanthemum muticum*) that was the highlighted scent feature. Beyond that was an impenetrable tangle of invasive weeds, poison ivy (*Toxicodendron pubescens*), trees big and small, overgrown dogwood bushes and more poison ivy. It looked daunting. So, of course, I decided to recruit a friend to help. Lori Sorensen agreed to assist although I am not sure



Mountain mint (*Pycnanthemum muticum*) with honey bees.
Photo by Loisa Florio

she fully grasped what she signed up for. Well, neither had I.

Kathy, Dorothy Smullen and Matt Heiss graciously gave us a tour of the NDT, along the way commenting on the purpose of each area and encouraging us to make the scent garden our own.

One of our earliest tasks was simply assessing the space and what we had. We gingerly climbed in and in some cases cut our way in while trying to identify invasive species versus native plants and figure out what tree species were growing and what we could trim to get more sunlight. One of the nice surprises we uncovered under the weeds was a red osier dogwood (*Cornus sericea*) which we have shaped to allow more sunlight for emerging mint, goldenrod, grasses and ferns.

I decided to cut some paths so that we could move around

without fear of contracting a rash from poison ivy or getting clothes and gloves snagged on mile-a-minute vine (*Persicaria perfoliate*). In order to clear the ground, we used flattened cardboard boxes and most of the vintage newspaper bundles that Walter Willwerth brought into the Riding Arena ages ago. Once laid down, I covered all with mulch and for the most part, it was quite effective in discouraging plant growth in those areas. It has also allowed us to access the area beyond the mountain mint and begin to rescue the vernal pool area adjacent to the path's bridge from the choking weeds that have obscured it from view.



Swamp azalea (*Rhododendron vicosum*) Photo by Albert Vick, Wildflower.org, public domain

That first year of 2022, I couldn't resist fall sales at the Great Swamp Nursery and purchased three anise hyssop (*Agastache foeniculum*) plants and three wild bergamot (*Monarda fistulosa*) plants, mindful of only buying straight species. These were planted amid the mountain mint and in front.

Spring 2023 came and we eagerly awaited to see what would emerge from the ground. Along with abundant mountain mint, we did not see the anise hyssop or wild bergamot. Still, we determined that we wanted to expand the selection of shrubs and trees and, after consideration and research, decided on sweetbay magnolia (*Magnolia virginiana*), swamp azalea (*Rhododendron vicosum*) and fragrant sumac (*Rhus aromatica*) to start.

It's appropriate to mention a word about plants and plant sourcing here. Because we are working in a National Wildlife Refuge, we have been careful and cautious about what we are introducing, preferring to stick with plants that we already see in the Swamp or on the plant list compiled by US Fish and Wildlife Service personnel in 2003. We would not use 'nativars' or cultivars of native plants such as the popular Rudbeckia 'Goldsturm'. We are also careful about where we source plants, preferring local native nurseries to larger garden centers. This differs from our practice in our home gardens where I for one have large patches of 'Goldsturm'.

My initial experiments with wild bergamot and anise hyssop taught us to be more careful and reminded us that we are not trying to impose control over this space. Rather we aim to highlight plants that are native to the Swamp and introduce others into the space that may not have already landed there by natural means. We are also looking for plants that have a scent component.

So far, our additions have had mixed results. Two sweetbay magnolias are coming along. We initially had to cage them in because they were nibbled probably by passing deer. The caging has been a challenge as falling branches, animals and perhaps volunteers have pulled off and removed cages.

The sweetbay magnolias were purchased as small plants so it will take several years before they have a presence. One of them is already growing quite tall.

The swamp azalea has bloomed the three springs it has been in place although it does get overwhelmed by mountain mint so a better placement may be in order.



Obedient plant (Physostegia virginiana), fragrant member of the mint family. Photo by Judi DiMaio

We have not had much luck with fragrant sumacs. One has vanished and the other is currently overwhelmed by a combination of mountain mint and stilt grass (*Microstegium vimineum*). It's not clear whether it doesn't get enough light or whether it just doesn't like Swamp conditions as much as we thought it would. This fall, I plan to dig it up and find a different spot.

As we gain more experience and our ideas about the space develop, we have begun to carefully introduce more plants from our own gardens to experiment with what can thrive. Lori is introducing giant yellow hyssop (*Agastache nepetoides*) under the direction of Chelsea Di Antonio and I have brought jumpseed (*Persicaria virginiana*). Note that jumpseed does not appear on the 2003 list but it is native to NJ and there are plants here and there in the adjacent shaded area so it is not a new introduction of a plant not found in the surrounding area.

In addition to gaining a better understanding of which plants will thrive, we have also found our niches in terms of work. Lori enjoys pruning if it will make a big impact while I am better at digging holes for larger plants.

So far, Lori has spread cardinal flower (*Lobelia cardinalis*) and New York ironweed (*Vernonia noveboracensis*) seeds that we harvested from plants in the pollinator garden by the Visitor Center (VC) on the banks of the vernal pool. Nothing sprouted this year but we will keep at it because it can take time for native seeds to emerge. I am thrilled to see an obedient plant (*Physostegia virginiana*) has sprung up in the sunny area adjacent to the scent garden. Last fall, after pulling out monster stilt grass weeds, I sprinkled seeds harvested from the VC pollinator garden and this hardy little plant has appeared.

Ostrich ferns (*Matteuccia struthiopteris*) have begun to make inroads into the garden and while they are a welcome addition, we are being careful to confine them to one area so they don't overrun other plants. We have also uncovered spicebush (*Lindera benzoin*) under the spreading red osier dogwood.

I tried a few native ginger (*Asarum canadense*) plants in the area to the left of the scent garden among the trees, but haven't seen any emerge. Instead, I have decided to add to the little stand of jumpseeds. This is an example of working with the environment and not trying to impose order. It should be mentioned that the Pervasive Invasives Team did a wonderful job last year of clearing that area of twigs, stumps and weeds and that makes our planting efforts easier and allows new seedlings to emerge.

Invasive species are, of course, abundant and Lori has tackled them by concentrating on one invasive species at a time. The first year, we were able to get rid of garlic mustard (*Alliaria petiolata*). The following year, Lori concentrated on rugosa rose (*Rosa rugosa*) which required digging deeply to get at the roots. This year and every year we have tackled stilt grass which no longer threatens to choke out the mint and cardinal flower seedlings but has made major inroads into



*The Scent Garden: A Work in Progress
Photo by Lisa Florio*

the sunny area to the right of the Scent Garden.

Lori has found a few free apps that are useful in identifying plants, particularly invasive weeds. She takes photographs and then uses PictureThis, PlantNet, LeafSnap and Google Lens. She has found PictureThis to be the most accurate.

Our project is a slow process as we learn, try and plant. We hope to continue to expand our wildlife reach in the future. It is gratifying to see pollinators enjoying the garden, especially bees enjoying the mountain mint. We invite you to come, rub leaves and listen to the bees.



ANNUAL PHOTOGRAPHY CONTEST WINNERS *(continued from page 1)*

*1st Place Pollinators, Insects, & Spiders, :
Monarch's Lunch by Susan Hunt*

Susan entered this photo because it showed such detail in the wings. The judges agreed. Bill said you could actually see the scales that cover the wings. The off-center placement of the butterfly adds interest to the image.



*1st Place Birds, Not Raptors:
Bittern Hiding. Not! by Robert Lin*

Robert said another birder told him and several others that a bittern was at the bend in Pleasant Plains Road. When they got there, Robert said he couldn't see it. Someone finally pointed it out to him. He was so close to it, he had to back up to be able to use his telephoto lens.

Bill said the photo is not only beautifully detailed, but shows a distinctive behavior of the species. They spend most of their time in areas of tall reeds. When the bird wants to disappear, it points its bill upward and all the stripes created by its feathers blend in with the tall, curvy reeds.

Bill also told this story about when he was working in Brigantine NWF in 1971. "There are dikes between impoundments. The dikes were freshly mowed and I was driving along. There was nobody else around. There was a bittern. There were no reeds, nothing. I stopped. When the bittern saw me. It straightened up, head up, to blend in with the reeds that weren't there."



1st place Plants & Fungi: Mushroom Trio by Susan Neufeld

Bill stated the textures of the mushroom caps and the surrounding wood debris are outstanding. The framing of the mushrooms by the grey makes the pale mushrooms stand out. The grouping looks like a hen with her chicks.



*1st Place Raptor by Mitchell Tung
Great Swamp Male Raptor*

Mitchell said he had to wait for this harrier to work its way from the far side of the field over to him, then he took a whole lot of pictures. He likes how you can see the eyes and where he is looking.

Bill said this photo was the clear winner because of the detail and the colors.

Lessons from the winners and the judges for creating great pictures:

- You have to be there...often early in the morning or at dusk.
- You have to have your camera with you, although sometimes a phone camera might do it.
- You have to be patient. Wait until they are within range, the light is right, or they are doing something interesting.
- Compose it—balance of subject and background, position of the subject in the frame, where the light strikes.
- Keep taking pictures.

1st Place Youth: Lunchtime by Colin Scott

Bill pointed out the juniper framing the parent cedar waxwing. The spot of light behind the parent's beak brings out the pink of the nestling's mouth drawing your eye to the action in the photo.



(continued on page 10)

ANNUAL PHOTOGRAPHY CONTEST WINNERS *(continued from page 9)**1st Place Landscapes: Approaching Storm by David Kaplan*

Bill, “Stupendous clouds. What else can I say?”

*Photo by Pat Wells***CAMOUFLAGE CHALLENGE**

Can you find the green frog?

They are plentiful in the Great Swamp because of its moist environment. They breed from May to the end of July. This is when they are heard the most. Their call is a throaty “boink”, that sounds like the plunk of a stretched rubber band or a banjo string.

Green frogs go into torpor during winter, burrowing deep under leaf litter or in ponds that do not freeze solid and have enough oxygen to support life.

Answer on page 14.

RARE VIEWING OF MINKS

By Pat Wells, Co-Editor of *Swamp Scene*

The Photography Contest judges got a surprise this year—photos of minks. They are known to inhabit the Great Swamp, but are rarely seen. Both Steve Weiner and Robert Lin, who carry around cameras with lenses as long as your arm, often spend early mornings in GSNWR. The bridge over Great Brook on Pleasant Plains Road is a favorite haunt.

Robert reported, “We saw mink at the bridge almost every day for one month, maybe two. The whole river froze.” Steve said, “There was a little open water by the beaver dam where the mink was fishing. He was running across the ice with a carp when we saw him.”



2nd Place All Other Animals: Male American Mink in Winter with a Carp by Steve Weiner



Robert's photo shows the mink playing in the snow. Robert said, “It would push snow up the bank, then slide back down. It did it over and over. It was definitely playing.”

Judge Bill Koch pointed out the snow on the mink's face. He mentioned that the mink was playing like otters are seen to do. They prey on muskrats, which are often bigger than they are.

Steve said it was the first time he had ever seen a mink. “I've had many firsts in the Great Swamp.”

3rd Place All Other Animals: Mink Sliding on Snow by Robert Lin

WHY DON'T EVERGREENS LOSE THEIR LEAVES?

By Judi DiMaio, Board of Directors, Friends of GSNWR

Do evergreens ever lose their leaves? Yes, they do. On average they lose them every 3 to 5 years, just not all at once and only if they dry out, get diseased or just get old. So then, why do they keep them all winter unlike deciduous trees? The needles are actually leaves, just sort of rolled up tightly and have a waxy coating called cutin. There is more to it, though. There is actually a chemical process that occurs that helps the tree survive through the winter. The trees collect and store cyroprotectant substances (terpenes and sugars) that lower the freezing point of water in their cells. The stomata (tiny holes in the needles that help the tree “breathe”) close up for the winter to avoid any frost damage, then will reopen in the warmth of the spring.

The trees use a special process, called nonphoto-

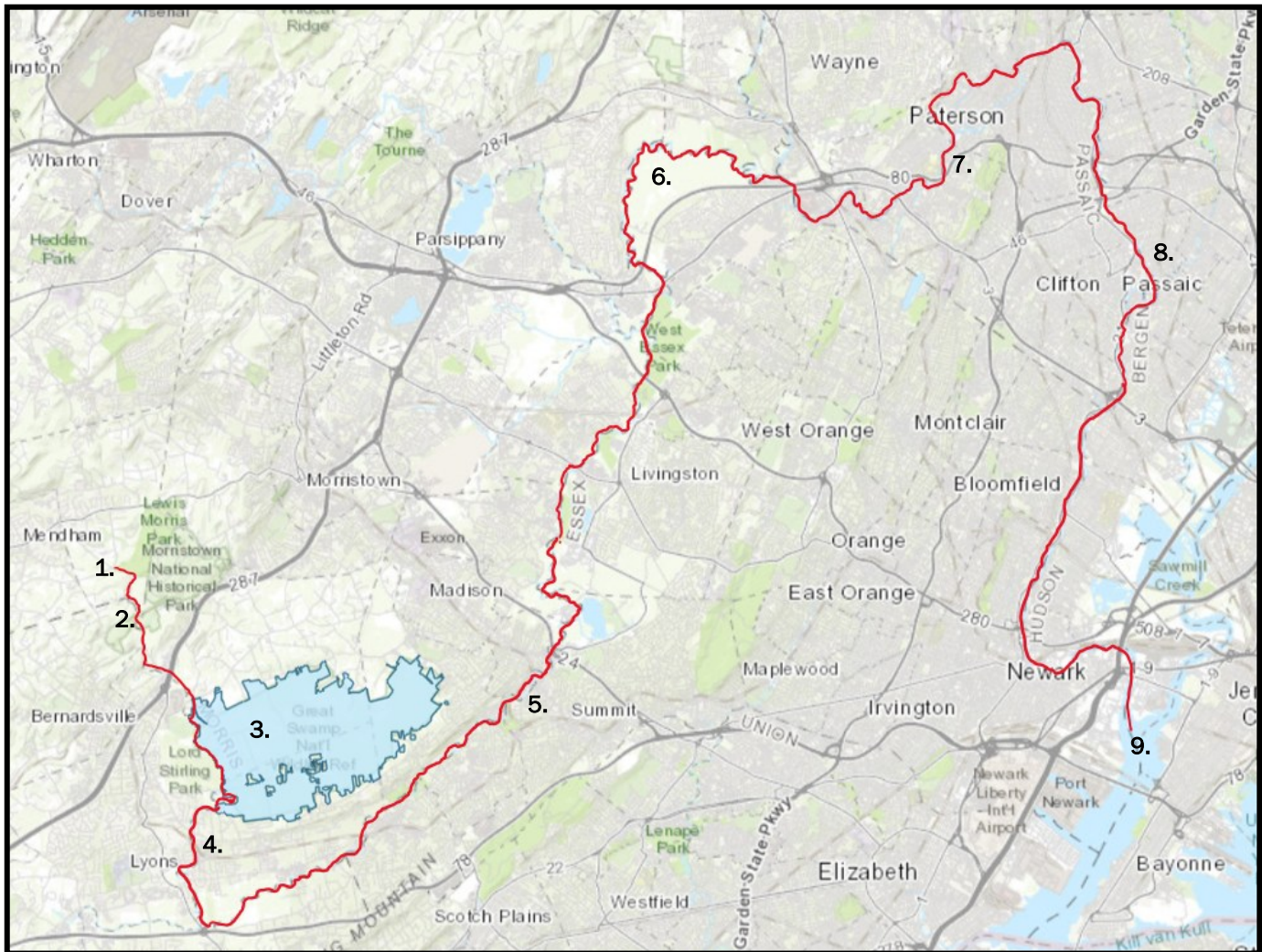
chemical quenching (NPQ) to slow down photosynthesis and help hold on to the water already in their systems.

There are deciduous conifers that lose their needles every year but they are only in tropical locations, except for larches, and there are only a small percentage of others.

The trees are adapted to colder climates and snow. Since the needles are there all winter and some can be long (like white pine), the trees have devised a way that usually works to prevent snow damage from broken branches. The branches are more flexible than other trees and when the snow piles up on the branches, they bend down until the snow slides off. If there is a lot of snow, however, the branches can break under the load.

A TRIP DOWN THE PASSAIC RIVER

By Martha Wells, Co-Editor of *Swamp Scene*



USGS and US Fish & Wildlife

As the crow flies, the distance from the beginning of the Passaic River in Morris County to its mouth in Newark Bay is about 22.5 miles. However, with a change in elevation of 540 feet and interesting topography, it takes about 85 miles, aiming in every direction on the compass, and passing through 44 towns, for the river to make its circuitous journey.

The Passaic River rises in Mendham (1.) and flows south to Leddell Pond (2.). There it falls over the dam where the ruins of the old mill can still be seen. It continues on through an amazingly preserved countryside: Morris County's Lewis Morris Park, the Jockey Hollow area of the Morristown National Historical Park, and New Jersey Audubon's Scherman Hoffman Wildlife Sanctuary. From there it isn't far to Great Swamp National Wildlife Refuge (3.).

Now covering 8000 acres of diverse habitats, it is home to multitudes of species of flora and fauna, as well as a stop-over for migrating birds that may overwinter or continue on

their way.

At the end of the last ice age, some 19,000 years ago, the retreating Wisconsin Glacier formed the Glacial Lake Passaic. After about five millennia of the lake releasing water through various gaps, the final part of Glacial Lake Passaic poured through a gap in Long Hill forming the Millington Gorge (4.) The lowering of the level of lake created the Great Swamp.

Time marches on: the year is 1781, the American patriots and their French allies are on their way to lay siege to Yorktown. As they enter New Jersey from the north, George Washington divides his troops into two separate columns, and the French into a third. They fan out and head south. Washington's column encamps in Chatham (5.) To deceive the British into thinking he is preparing to attack New York, he has large brick ovens built along the river. They'll think the Americans are settling in with enough bread to feed an army.

Great Piece Meadows Preserve (6.) is located in Fairfield Township, Essex County, and Lincoln Park Borough and Montville Township in Morris County. Covering 1170 acres, it is an open meadow wetland, and like Great Swamp, also on the bottom of the Glacial Lake Passaic.

Back in the 1960s, the statewide conservation organization, Wildlife Preserves Inc., along with the New Jersey Green Acres Program started to purchase parcels of land, looking to preserve land for flood storage to help protect the river communities and for wildlife habitat. Interestingly, the changes in hydrology meant to help prevent local flooding has caused succession in much of the wet meadow habitat, turning it into a forest of red maple and sweet gum trees.

It has been deemed a Natural Heritage Priority Site and still has a large variety of rare plants.

The Paterson Great Falls (7.) are also a result of the Glacial Lake Passaic and the receding glacier. At 77 feet the falls are the second highest east of the Mississippi River. After the American Revolution, Alexander Hamilton was appointed the Secretary of the Treasury of the new nation. He had visited the Great Falls earlier and had seen the power of the water in the Passaic River Gorge and the potential for manufacturing mills. In 1791, he was part of founding the Society for the Establishment of Useful Manufactures (S.U.M.), a state-chartered private corporation.

Paterson became the first planned industrial city. Civil engineer Pierre Charles L'Enfant, designer of the layout of the new capital in Washington, D.C., was commissioned to arrange the raceway canals that would power the water-mills for the new town. In the 19th century huge brick buildings were built for the manufacture of locomotives, Colt fire-arms, Holland Submarines, and a large variety of fabrics.

Paterson became known as the "Silk City".

In 2011, the falls and the surrounding historic districts and parks officially became the Paterson Great Falls National Historical Park.

The Dundee Dam (8.) was built across the Passaic in 1833 by the Dundee Manufacturing Company of Garfield to provide power to local mills. It was replaced in 1859 by the 20 foot tall stone structure that still stands.

The dam serves as

a barrier between the mid Passaic River and the lower Passaic River. In the past the river was navigable and tidal up to Paterson. Now only the 17 miles from Newark Bay to the Dundee Dam are. Above the dam there is fresh water, while below the dam it becomes brackish and closer to Newark Bay becomes saltier. The dam also keeps fish from going any farther up the river.

The 17 miles from the dam to Newark Bay (9.) are quite different than those in the upper Passaic River. Starting with the end of the American Revolution, with Paterson becoming the first planned industrial city, and on into the Industrial Revolution of the 19th century, the river was used to dispose of manufacturing waste. By the early 20th century Newark had become one of the twenty most populated cities in the country, and a very industrial city.



Topography of the Passaic River; PassaicRiverBasin.com

But the worst was yet to come. As industry grew, so did the pollution and the damage. By the second half of the 20th century the water and the riverbed were contaminated with toxins and carcinogens. The worst of this is dioxin, a byproduct of the manufacture of Agent Orange, primarily made by Diamond Alkali Company (now OxyChem.). Dioxin was illegally dumped into the river for decades, resulting in the former plant property and adjoining portions of the Lower Passaic River being declared a Superfund site in 1984.

The U.S. Environmental Protection Agency began cleanup of the site in 1987. The sixth five-year review report, a summary of the cleanup activities and protectiveness of the plan is due to be completed in December 2025.

Available online see **American River**— a film by Scott Morris, based on the book **An American River: From Paradise to Superfund, Afloat on New Jersey's Passaic** by Mary Bruno.



*Where is this? Tree species?
Photo by Martha Wells*

SWAMP DIARY

Our 3 granddaughters Allie, Carrie and KC, were here from Texas, and we went for a walk at WOC, as was our custom when they visited. We were headed back from the Garden Club Blind when Carrie said she heard music. Sure enough, there were flute-like sounds among the bird songs that summer morning. As we walked on, by one of the benches, a man was playing a small wooden recorder. The notes were clear and beautiful. We stopped and listened. When the man paused, he noticed us, smiled, and motioned us to come. The girls quickly told him they liked his music. He showed them the 4 different recorders he had with him and played a short tune on each instrument. He said it was the first time he ever played in the Refuge, but he was really enjoying it. Allie said she thought the birds were enjoying his music, too. We were all charmed with this unique use of Great Swamp NWR.

Kathy Woodward

At Christmastime several years ago, an elderly lady came into the Nature shop at the Visitor Center. When she brought the items she wanted to purchase to the front desk, she said that her husband had died twenty years ago and they have stayed in close touch ever since. Then she said that she comes to our Nature shop once a year to buy gifts that she and her husband can give each other on Christmas morning. Not a dry eye in the house.

Barry Bowman

CAMOUFLAGE CHALLENGE ANSWER



DO ANIMALS GET POISON IVY?

By Judi DiMaio, Board of Directors, Friends GSNWR

Do animals get poison ivy? Some can, like humans and other primates. Most animals have fur, so the oils don't come into direct contact with their skin. Cats and dogs, though, can get the oil on their fur and while it won't bother them, it can rub off on their owners. Non-primate animals seem totally



*"Just Seeing It Makes Me Itch" photo of poison ivy
by Susan Hunt*

3rd Place Winner Plants & Fungi, 2025 Photography Contest

immune to it; deer and others eat the berries, leaves and even the entire plant. It is an important food source for many woodland creatures. They are a high-fat source of food for some overwintering birds.

So why are we the lucky ones? The active oil that causes the rash is urushiol. It works by making your immune system think that your skin cells are foreign bodies attacking you. When your immune system responds and attacks your skin cells it causes the all too well known rash. Why primates? Because only we have the CD1a skin protein which triggers the response.

And, by the way, poison ivy is in the same family as mangoes, pistachios and cashews.



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

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(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 .
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- Satisfaction in knowing you are helping protect wildlife and wild places while safeguarding a national treasure for future generations.

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THE SWAMP SCENE NOVEMBER 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.



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