



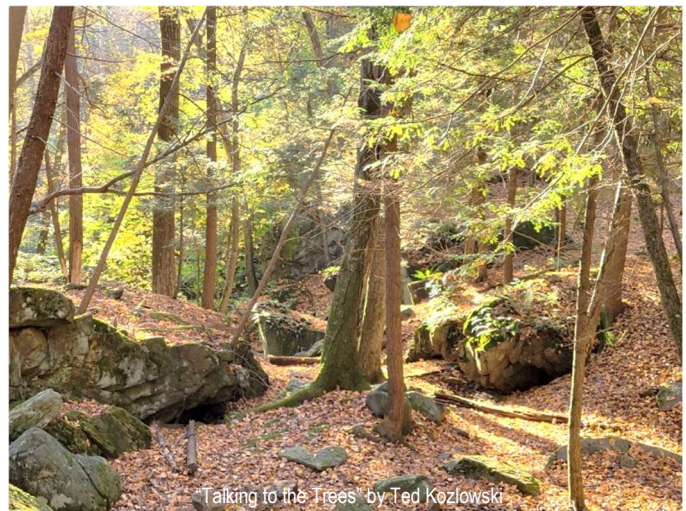
THE GREAT SWAMP NEWSLETTER

RESEARCH • EDUCATION • CONSERVATION

WINTER MUSICAL



Dark-eyed Junco by Frank Matheis



"Talking to the Trees" by Ted Kozlowski



"Down by the River" by Paul Andrews



"Moonshadow" by Paul Andrews

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**Contributors: Paul Andrews, Kathryn Jaliman, Judy Kelley-Moberg,
Ted Kozlowski, Ken Luhman, Frank Matheis, Melanie Taverner, Sharon Nakazato**

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

Winter Celebration by Ken Luhman

This winter has been unforgettable, echoing the magic of seasons long ago with its brisk air, gentle snowfall, and persistent chill. For The Great Swamp, these wintry days hint at a spring filled with high waters, perfect for adventurous paddlers. It also allows us to venture out onto the frozen swamp and explore areas that aren't normally accessible by foot. But be careful, you never know where there could be thin ice and never go alone. It is beautiful out there. More than that, a true winter gives the wetland a chance to rest and recharge for the burst of life that comes with spring.

Beneath the ice, the ecosystem quietly cycles nutrients, purifies water, and offers safe havens for wildlife. Even when the ice is thin, it helps move nutrients and filter out pollutants, so the water emerges cleaner by springtime. The frozen landscape and sleeping plants protect amphibians, fish, and turtles as they wait out the cold in mud and water. Perennial plants like arrowhead tuck away nutrients in their tubers, providing a crucial feast for muskrats, beavers, and migrating waterbirds when the season turns. As the wetlands freeze or lie dormant, they soak up snowmelt, slowing the flow of water and helping guard against floods and erosion downstream. The cold also locks away carbon, keeping organic matter safely stored. Each freeze-thaw cycle gently releases water, nourishing rivers and underground aquifers.

These are just a few of the gifts a true winter brings to The Great Swamp and its neighboring watersheds. So, pull on your warmest layers or settle in by the fire — the groundhog missed his shadow, and we are in for six more weeks of genuine winter. Enjoy!



"Winter Sunset" by Ken Luhman

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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.

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



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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: _____

SIGHTINGS IN THE SWAMP

Dark-eyed Juncos

By Kathryn Jaliman

The scientific name of the Dark-eyed Junco is *Junco hyemalis*, the latter word from Latin meaning “of the winter.” In the 1800s, John James Audubon fondly labeled them “snow birds,” a nickname that is still used for juncos today. It’s also used to describe a group of seasonal human travelers who migrate to areas with warmer climates during the winter months. The name fits this common backyard visitor, because there seems to be an increase in numbers under our birdfeeders and along the roadside in the autumn and winter months. A flock of juncos is commonly referred to as a blizzard. Juncos often travel in flocks, and those flocks can have complex social hierarchies. To avoid competition from males, females tend to migrate in their own groups and overwinter farther south. Migrating males, on the other hand, stick closer to their northern breeding grounds to ensure they lock down a good spot before any potential mates arrive.

The *Stokes Field Guide to the Birds of North America* describes the Dark-eyed Junco as follows: a large, deep-chested, broad-



Dark-eyed Junco by Frank Matheis

necked sparrow with a short, pinkish conical bill, high-rounded crown, slate-gray color and white underside, and medium-length slightly-notched tail with variable white outer feathers, easily noticed when they fly. The bird is roughly six inches long with bright, jet-black eyes with no eye ring. Juveniles are streaky brown at first. Being heavily insulated with fluffy feathers helps these diminutive birds retain critical body heat to survive harsh weather. The short bill allows cracking seeds and their strong legs are well suited for foraging in brushy thickets or weedy fields.

My backyard is home to juncos in all seasons. I often wonder in winter, if they are the same birds staying all year round, or if they are visitors from Canada. They are one of my favorite birds to watch with their “jump ahead, jump back” seed foraging technique. I also appreciate the great job they do of cleaning up after the seed-scattering Black-capped Chickadees and Tufted Titmice. I never see them on any of my feeders, but when I began placing seeds on the deck railings, I did notice a junco or two perched next to the other birds. However, their preferred place still seems to be on the ground and deck floor. Dark-eyed Juncos will typically hop along the ground, foraging or pecking through leaf litter and snow to find

food. According to Project Feeder Watch, juncos are sighted at more feeding areas across North America than any other bird. Over 80% percent of those responding report juncos at their feeders.

On an annual basis, a junco’s diet is made up of approximately three parts seeds to one part insects. But in the winter, they feed heavily on seeds of weeds and grasses, and some berries. Juncos are known to burrow through snow in search of seeds that have been covered over. Juncos, along with some other members of the sparrow family, practice an interesting foraging method called “riding.” They fly up to a seed cluster on the top of a grass stem and “ride” it to the ground where they pick off the seeds while standing on it. You may not like these weeds in your yard, but the seeds of chickweed, ragweed, knotweed, pigweed, lamb’s quarters and crabgrass are some of the juncos’ favorites. You can attract juncos to your yard by feeding a seed blend containing millet and hulled sunflower seeds.



Scientists consider the Dark-eyed Junco a species of least concern, with estimated numbers in North America over 600 million. While their numbers are currently healthy, the juncos will suffer from continued habitat loss, pollution, and extreme weather events caused by climate change. The Dark-eyed Junco was the top bird in this year’s Christmas Bird Count (CBC) in our area. However, drawing on more than a century of community science from the CBC, this species’ relative abundance has declined in recent decades.

The Dark-eyed Junco is a powerful symbol in Native American cultures, representing hope, strength, and balance. It is often seen as a messenger of new beginnings and rejuvenation. The junco is believed to guide individuals through times of change, especially as the seasons transition from winter to spring, marking a time of rebirth and renewal. The bird’s adaptability and ability to survive harsh conditions remind us of the flexibility needed in life.

IT'S WRITTEN IN THE ROCKS

By Judy Kelley-Moberg

The Great Swamp lies at the bottom of a 20-mile long, north to south valley surrounded by steep, rocky hillsides. Route 22 runs along its eastern edge from the Town of Dover in Dutchess County to the Town of Southeast in Putnam. What can the rocks you see tell us about the geologic events that created The Great Swamp?

The earth's crust is composed of sections or plates that move about on heat-driven, semi-fluid convection currents in the mantle. Their interaction can build mountains, fuel volcanoes, produce earthquakes, even form and break apart continents and open and close oceans. Southeastern New York is located near the edge of the ancient North American plate and its bedrock contains a record of the major events that formed the valley of The Great Swamp.

The western edge of The Great Swamp abuts the east to west ridge of the Hudson Highlands, the remains of the 1.3 billion year old Grenville Mountains that formed along the plate edge. Remnants of their tough metamorphic gneiss with mineral bands of quartz, feldspar, mica, and hornblende remain and are amongst the oldest rocks in the state.

Around 450 million years ago New York was part of the continental shelf at the edge of an ocean. The heat and pressure created by ocean crust diving beneath the continental crust changed the shelf sediments and calcium-rich sea bottom into metamorphic banded gneiss, quartzite, schist and marble. They were pushed and folded up against the eastern end of the Hudson Highlands to form the northeast to southwest peaks and valleys of the



Banded gneiss showing result of ancient folding.

Taconic Mountains that contain The Great Swamp. Tough erosion-resistant gneiss can be found on the ridge tops, softer mica schist in the lower hillsides, and the calcium-rich marble formed from the remains of the ancient sea is the bed of The Great Swamp wetlands.



Mica schist, a metamorphic rock typically formed from shale, containing garnet – a silicate mineral.

The metamorphic rocks found in the valley of The Great Swamp have commercial value. The gneiss has been used for foundations, dams and road beds, the schist crushed as a cement base. In the past, some marble was fine enough for the fancy facades of buildings in Manhattan. Today, the Peckham Quarry in Patterson still produces truckloads of the crushed marble used in roadbeds and retention ponds. As you drive along Route 22 or “Rock Around the Clock” on the hillside trails, see if you can spot these storyteller rocks.



Peckham Marble Quarry in Patterson showing the scale of local deposits from ancient seas.

The crust is still moving and changing!

COMMUNICATION BREAKDOWN

DO TREES “COMMUNICATE”?

By Ted Kozlowski, Forester and Patterson Environmental Conservation Inspector

Communication Breakdown is not only a great Rock song from Led Zeppelin but it is an actual term for failure to communicate an idea, which then becomes misunderstood and confusing. Aside from all the environmental and economic values trees provide, most people enjoy, if not love trees, as they have become intertwined in our culture through art, song, children’s books, folklore, movies, and religion. With that, we inherently want to regard trees in human terms and desire a more personal relationship with them as we may have with animals.

Over the past decade some research has suggested that trees do indeed communicate with each other and some of that work indicates trees can function with a form of conscious behavior. Dr. Suzanne Simard gave a compelling presentation on the program TED (Technology, Entertainment, Design) Talks where she made her case that trees communicate via several avenues by intent and design. A German Forester, Peter Wohlleben wrote a best-selling book *The Hidden Life of Trees* further implying that trees communicate, cooperate and support each other, written in human terms and not as scientific study. Both authors imply trees can and do share resources in ways that resemble a form of parenting. They claim that there is a “World-Wood-Web” where the limited research shows the network of mycorrhizal fungi found in forest soils are connecting forest tree root systems, where energy, nutrients, and “information” are shared. Now, while there are some interesting things presented here, I am suspicious of their conclusions because there needs to be more evidence via other independent research that isn’t there yet. Google this subject and almost all of the references refer to these two individuals. Some other researchers are skeptical. Trees are not animals, nor do they have brains or nervous systems which are required for conscious behavior.



Photograph by Ted Kozlowski

So, let’s look at what we confidently know. Trees have been around for over 400 million years and survived five massive extinction events. All that time they have been evolving and doing some incredible things like harnessing the sun’s energy and providing trillions of dollars in environmental and economic benefits. We know that trees coexist with each other in the forest and their root systems entangle, giving them better support against storms. When these root systems entangle, they inevitably graft and can exchange nutrients (as well as diseases). Their root systems also have a positive relationship with the mycorrhizal fungi abundant in forest soils that are critical for the absorption of water and nutrients in the soil. The fungi consume a portion of the sugars that trees produce in exchange for water and minerals. This is known as mutualism. There is some questionable evidence that the fungi chemically send signals to their host tree about impending threats such as drought and insect or disease attacks. Trees do emit various volatile organic compounds (VOCs) and pheromones into the air to inhibit insect attacks, and neighboring trees seem to respond accordingly where they absorb these VOCs through their stomata cells under their leaves. It is arguable that these facts represent a form of communication, but it does not prove that trees are actively communicating in a way that would indicate conscious intent. It just may be the 400-million years of evolution that allowed trees to survive by natural selection. We have much more to study to make a final determination. Too bad the trees cannot tell us!



Sharon Nakazato

SUPER SQUIRRELS

By Melanie Taverner

It's a bird, it's a plane, it's a... flying squirrel? Did you know that flying squirrels are native to The Great Swamp? Flying Squirrels belong to the tribe called *Pteromyini* or *Petauristini* and encompass over 50 species in the family *Sciuridae*, which also includes the backyard squirrels we more generally see. In New York, you may find the Southern Flying Squirrel (*Glaucomys volans*) or the Northern Flying Squirrel (*Glaucomys sabrinus*). While neither of these species are rare, they are nocturnal and spend their lives in trees so they are less commonly seen than their daytime relatives. Flying squirrels thrive in mature forests and make their homes particularly in nut-producing trees such as oak, hickory, and beech trees. In addition to acorns, nuts, seeds, and berries, flying squirrels also consume mushrooms, flower blossoms, and even moths, beetles, small birds, and bird eggs.

Incredibly, these creatures glide through the air rather than fly. They catch flight using a membrane called a patagium that sits along their forearms and torso. The patagium attaches to a



Sharon Nakazato



structure called the styliform cartilage on the squirrels' wrists that allows them to control their flight path. Flying

squirrels can glide short distances between trees and have been recorded to travel well over 150 feet in one trip. They can initiate their journey by running or by propelling themselves from a surface. When in the air, their membrane and their outstretched limbs appear square-shaped. Flying squirrels are able to negotiate obstacles in the air and turn 90-degrees. When they are ready to land, they will raise their tails up, creating a parachute to soften their landing.

Southern flying squirrels span Canada to Florida on the eastern half of the country. They build their nests in tree holes and also create secondary homebases out of leaves in warmer months. They will nest with one another and even with other animals such as owls and bats. During very cold

periods, southern flying squirrels may enter torpor, a period of decreased activity, for short periods of time, though they remain active year round.

Northern flying squirrels are a bit larger, longer, and darker than their southern counterparts. They traditionally inhabit Canada, New England, the Pacific Northwest, and some scattered regions where there are high-elevation, coniferous forests, such as along the southern Appalachian Mountains. Northern flying squirrels are rarer than southern, and even endangered in some areas, due to their more specific habitat needs and diet. They prefer to eat subterranean fungi, particularly one that grows under red spruce and hemlock trees. The loss of forest density due to development and invasive insects has led to less fungi for



their diet. In turn, without these squirrels, fungal spores are not as readily dispersed in

"Thanks to flaps of skin they go base jumping
Up in the air, soaring with eagles
Covered in hair, dive bombing your beagle"
Lyrics from "Flying Squirrel" by Mr. Weebl.

the forest and the overall health of the ecosystem declines. Another contribution to the northern squirrel's decline is that southern flying squirrels are moving into previously northern territory and bringing with them a parasite from which they are immune but northern flying squirrels are not.

Flying squirrels remind us of the extensive biodiversity that exists here in The Great Swamp. Even though we may not often see them, flying squirrels soar around each night engaging with and giving to their environment, in true superhero fashion. The next time you find yourself beneath a canopy of rustling nighttime trees, see if you can catch sight of one of these cool creatures.



How can I catch a glimpse?

- Around dusk, check the tops of trees and listen for squeaking noises
- With a low light, scan for nests in tree cavities or bird boxes
- Consider leaving out a bird feeder near trees
- Hopefully not in your home! Prevent squirrels in your attic by closing up small holes and trimming tree limbs and other overhanging vegetation.

LET IT BE

By Paul Andrews

As I gaze out my window, enjoying the arctic landscape and finally a cold winter reminiscent of the good old days (when times were bad!) – cue the Merle Haggard song – I can't help starting to dream of the coming spring and my plans for this year's vegetable garden, which for many includes thoughts of digging and rototilling. Laying under the snow on my vegetable plots is a thick layer of leaves that I deposited in the fall. Let me share some thoughts with you about your leaves and your dirt.

Leaving Leaves

I am always bewildered in the fall by all the effort exerted to remove fallen leaves from lawns. Buzzing blowers and hand-raking abound. But consider this: raking up and bagging or burning those leaves is bad for soil health and takes away habitat for important wildlife, like insects and birds. We've been indoctrinated by society, our homeowner's associations, our parents, our obsessions, and our landscapers to keep our yards clean and tidy. Ecologists say we need to rethink our preconceived notions of beautiful, well-maintained yards. A perfectly-manicured green lawn may be visually satisfying to some, but it's an ecological dead zone that doesn't support any of the essential functions such as pollination, carbon sequestration, and nutrient recycling that sustain our ability to live on this planet.

Consider that the vast majority of butterflies and moths don't migrate. Instead, they overwinter in the leaf litter as an egg, caterpillar, chrysalis, or adult. For example, luna moths and swallowtail butterflies disguise their cocoons and chrysalises as dried leaves, blending in with the real leaves. In addition to providing food and shelter ("Gimme Shelter!") for insects, leaf debris helps build healthy soil that holds moisture. Leaves are nature's fertilizer: free, nutrient-dense organic matter that breaks down and feeds the soil. It's ironic that so many suburbanites sweep their yards clear of them and then run to the store to buy chemical fertilizers.

Although I do rake up some of my leaves, I don't dispose of them, but merely move them to my veggie garden to serve as mulch and fertilizer for the coming year. In late spring, I will take a weed whacker to them (hopefully after the insects have hatched) and

spread the choppings as mulch between the new rows of plantings. There, they will continue to break down and release nutrients into the soil throughout the season.

No-till Gardening

No-till gardening is an approach that avoids annually turning or digging the soil. Instead of using a shovel or mechanical tiller to break up the ground each season, compost and organic matter is added to the surface and natural processes such as earthworm activity, root growth, and microbial life incorporate those materials into the soil. This method mimics how soil builds in ecosystems. No-till gardening comes with both advantages and drawbacks.

One of the biggest benefits of no-till gardening is improved soil health. Tilling disrupts soil structure, breaking apart the networks of fungi and microorganisms that help plants access nutrients and water. By leaving the soil undisturbed, these living systems remain intact. Over time, this creates a loamy soil that drains well yet retains moisture, reducing the need for frequent watering. Healthier soil also supports a wider diversity of beneficial organisms, from bacteria to earthworms, which naturally aerate the ground and recycle nutrients. The no-till approach can save time and physical effort as well as eliminate the need for gas-powered tillers, reducing noise, expense, and greenhouse emissions.

Tilling has some advantages such as burying surface weed seeds, uprooting weeds, and warming the soil quicker. However, tilling compost and surface debris into the soil can lead to a burst of nutrient release that is not ideal for plant growth over the season. It can also expose already buried weed seeds. There is a certain satisfaction in turning over your soil whether by hand or with an expensive rototiller – the smell of musty earth, viewing all the wriggling worms, ridding the surface of weeds, and seeing an expanse of loose brown seed-ready dirt. Tilling is a difficult habit to break, but give it a try!

When it comes to your leaves in the fall and managing your garden soil in the spring, give the Beatles advice a try: "Speaking words of wisdom, let it be..." These backyard practices will support biodiversity in your backyard and consequently the overall health of The Great Swamp.



CALENDAR OF EVENTS

Gordon Douglas Reserve – East Hike (FrOGS)

February 15, Sunday (9:30 – Noon)

An easy 1.5-mile hike with amazing views of The Great Swamp and an opportunity to do some winter birding in a private reserve. Bring your binoculars and cameras! Dress for the weather and wear good hiking shoes/boots. Since trails could be icy, slip-on ice-traction cleats and hiking poles are recommended. Park in the vacant lot at 1143 Route 22.

“Save Energy, Save Dollars” talk

February 28, Saturday (Noon – 2:00 pm)

At the Patterson Library. Sean Seary of the Mid-Hudson Clean Energy Hub will discuss practical ways to make our homes more energy-efficient, lower utility bills, and take advantage of local energy-saving programs. Learn how to decrease your carbon footprint and fight global warming. Please register on the library website.

For all FrOGS events, please contact Ken Luhman at frogspaddle22@gmail.com.

FrOGS Road Cleanup

March 14, Saturday (9:00 – noon)

Help us cleanup the woods along Haviland Hollow Brook and Rt 22 – an impactful and rewarding volunteer activity. Bring your family! Meet at Putnam Diner parking lot.

Audubon Deer Pond Events (Sherman, CT)

February 21, Saturday (10:00 am – Noon), Wildlife in Nature Class & Walk

March 6, Friday (10:00 am – Noon), First Friday Hike

March 21, Saturday (10:00 – Noon) Bird ID apps Class & Walk

March 26, Thursday (7:00 – 8:00 pm), Bird Anatomy Basics Zoom

April 1, Wednesday, (10:00 am – Noon) Spring Bird Behaviors Class & Walk

April 3, Friday (10:00 – Noon), First Friday Hike

April 9, Thursday (10:00 am – Noon), Early Spring Bird & Nature Hike

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

Dutchess Land Conservancy

March 4, Wednesday (6:00 – 7:30 pm) State of the Estuary: Environmental Trends in the Hudson-Raritan Estuary. Online webinar.

April 1, Wednesday (6:00 – 7:30 pm), Aldo Leopold – Land Health, and the Evolution of Conservation. Online webinar.

For details, see: <https://www.dutchessland.org/get-involved/events-and-programs>

FrOGS Annual Meeting

April 4, Saturday (11:00 am – 2:00 pm)

At the Patterson Library. FrOGS's Members only. New memberships accepted at the meeting.