

# New Jersey Natural Lands



## 2019 Annual Report



*Preserving New Jersey's Natural Diversity*



# NEW JERSEY NATURAL LANDS TRUST

## 2019 ANNUAL REPORT

### STATEMENT OF PURPOSE

The New Jersey Natural Lands Trust was created in 1968 by legislation which became effective on January 23, 1969 making the Trust 50 years old in 2019. The intent of this legislation was to create an independent agency with the mission to preserve land in its natural state for enjoyment by the public and to protect natural diversity through the acquisition of open space. The Trust preserves land primarily by donations of open space through acquisition of title in fee simple or of conservation easements, and manages its properties to conserve endangered species habitat, rare natural features, and significant ecosystems. The Trust invites passive use by the public for recreational or educational purposes wherever such use will not adversely affect ecological communities and biological diversity.

The Trust also recognizes that ownership and management alone are not enough to achieve its mission. Public education is an integral function of protecting natural diversity. The Trust distributes information designed to convey a conservation ethic for the protection of open space and its natural values.



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A beautiful fall day at the Hirst Ponds Preserve.

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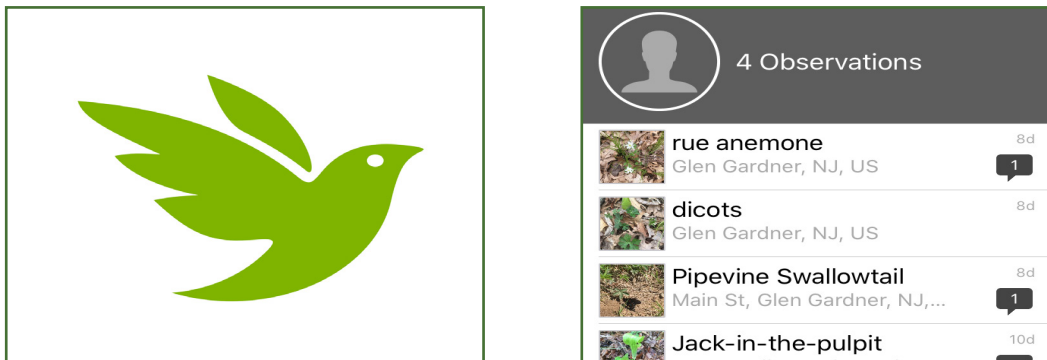
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## In 2019...

The New Jersey Natural Lands Trust brought approximately 600 new acres under Trust stewardship adding to its system of more than 120 preserves throughout the state. Of the new acquisitions, three were donations to the Trust.

Two of this year's acquisitions created new Trust preserves: **Mackenzie's Bog and Montague Woods** preserves. The remaining acquisitions built upon the **Bear Creek, Bearshead, Bear Swamp at Red Lion, Buttermilk Bridge, Gravel Hill, Mankiller, Quarryville Brook, Reinhardt, Sweet Hollow, and Milford Bluffs** preserves.

## NEW: iNaturalist at Trust Preserves: njnltrapp



iNaturalist logo and screen shot.

Since learning about the iNaturalist app from Jason Hafstad, youthful botanist for the New Jersey Department of Environmental Protection, Division of Land Use Regulation, the elder Trust preserve manager Martin Rapp has managed to take advantage of this technology. Martin has established his own iNaturalist “handle,” njnltrapp. He has recorded over 250 observations of 210 species. You can follow his preserve monitoring trip discoveries at [iNaturalist.org](https://www.inaturalist.org/users/njnltrapp).

In his musings as an old-timey field biologist, Martin came to realize that iNaturalist has rendered his natural history field book library--collected over his 40-year career--somewhat obsolete, along with his map and compass skills and much of his other Boy Scout and farm hand wisdom. Martin has said, “Perhaps it’s time to either step into the new ecology that apps such as iNaturalist brings, or step aside.” Since Martin has totally embraced iNaturalist, it seems it’s not yet time for him to step aside.

- \* iNaturalist app is free.
- \* Information about iNaturalist may be found at [inaturalist.org](https://www.inaturalist.org).
- \* Primary goal is to connect people to nature.
- \* Secondary goal is to generate scientifically valuable biodiversity data.
- \* iNaturalist is not a mapping tool.
- \* iNaturalist is not a way to collect secret information.
- \* iNaturalist is fundamentally about sharing information.
- \* iNaturalist helps you identify the plants and animals around you.
- \* iNaturalist is an online social network of people sharing biodiversity information to help each other learn about nature.
- \* iNaturalist is for recording observations of individual living things and sharing them with a community of over a million scientists and naturalists.

# Trust Wins Best New Jersey Website Award!



Trust staff receiving the Best New Jersey Website Award at the DANJ Ceremony.

At a ceremony on October 25th at Thomas Edison State University in Trenton, the Documents Association of New Jersey (DANJ) awarded the Trust for having the best government website in New Jersey for 2019. DANJ started giving this award in 1998 with the aim of promoting government information.

The Trust created and continuously updates its website to further the goal of providing useful and interesting information to the public. According to DANJ, the final selection committee decided to give the award to the Trust based on the following criteria:

- \* The site contributes to the expansion of knowledge, gives evidence of innovation in presentation, or demonstrates a creative approach in its treatment.
- \* The site has relevance for New Jersey's citizens.
- \* The site contributes to enhancing the quality of life for New Jersey's citizens.
- \* The site contributes to an understanding of state or local government processes or functions.
- \* The title reflects actual contents, the site achieves its intended purpose, and the format is appropriate to the contents.
- \* The information available is written in a lucid style comprehensible to non-specialists.
- \* The site is easy to navigate and/or provides a search engine.
- \* The site makes use of electronic enhancements such as hypertext links, thumbnail graphics, etc.
- \* The site is generally pleasant to access due to physical appearance, layout, organization, use of color, or ease of use.

The Trust's website was totally revamped in 2019 as part of the Trust's 50th Anniversary. To commemorate the Trust's 50-year commitment to the protection of New Jersey's biodiversity, the New Jersey Natural Heritage Program created an interactive Story Map for the website profiling the world's largest known population of spreading globeflower, *Trollius laxus* ssp. *laxus*, a stunning state endangered and globally rare plant species, which also happens to be found on a Trust preserve. In addition to a couple of other new and nifty features, the website now includes links to all of the Trust's Annual Reports going back to 1984, the first year an annual report was produced. In 2018, DANJ recognized the Trust's 2018 Annual Report as best official New Jersey publication or document. While there appear to be no additional DANJ award categories for the Trust to win, it will continue delivering award-winning caliber content to New Jerseyans through its Annual Report and website.



# Petty's Island Update:

## A Journey Back to Nature

While 2017 and 2018 were years of great transformation from industrial to natural conditions on the Trust's Petty's Island Preserve, 2019 marked a real beginning in public accessibility.

The Trust owns an easement at Petty's Island Preserve that authorizes 12 environmental education programs on Petty's Island annually. CITGO Petroleum Corporation has always been open to more generous access. But, while Crowley Maritime was operating on the island, truck traffic was an impediment to expanded programming. Now that Crowley has relocated off of the island, CITGO has allowed the Trust to go well beyond 12 programs.

As part of its partnership with Discover the Delaware, almost 150 people visited Petty's Island last year. And more than another hundred visited through the Trust's direct partnership with Upstream Alliance.



Discover the Delaware expedition to Petty's Island.

Discover the Delaware is a partnership of nine organizations working to promote education on and access to the Delaware River: NJ Natural Lands Trust, Camden County, UrbanPromise, Center for Aquatic Sciences at Adventure Aquarium, New Jersey Conservation Foundation, Independence Seaport Museum, Cooper's Ferry Partnership, Camden County Utilities Authority, and Upstream Alliance. Discover the Delaware was awarded a two-year grant in 2018 by the National Fish and Wildlife Foundation (NFWF) to fund educational opportunities on the Delaware River in the Camden/Philadelphia area. Under this grant, the goal is to engage area students to “maximize environmental learning, stewardship identity and conservation behaviors through different developmental stages and offer a pathway into conservation careers.” Upstream Alliance's mission is “to provide significant outdoor environmental education experiences to prepare the next generation to be leaders and stewards of a sustainable environment.”

Through its Discover the Delaware partnership, the Trust was privileged to host the Blue Sky Funders Forum on Petty's Island. Blue Sky is a national collaborative of more than 30 philanthropic organizations that "helps members learn, connect, and grow philanthropy that supports the many benefits of environmental literacy and stronger connections to nature." Blue Sky members are "united in the belief that when people have meaningful experiences outdoors their quality of life, health and social wellbeing improve, and in turn, their communities become stronger and more sustainable ... by making these essential learning opportunities more accessible, we grow and strengthen the constituency that makes well-informed choices, balancing the needs of today with the needs of future generations."

**"...when people have meaningful experiences outdoors their quality of life, health and social wellbeing improve, and in turn their communities become stronger and more sustainable..."**

In addition to these programs with Discover the Delaware and Upstream Alliance, the Trust provided access to more than 520 people through its contracted programming with the New Jersey Audubon Society. Complementing its bird and history hikes and clean ups, Audubon has also offered new art programs and a bat program. Hopefully we'll be able to offer even more new and interesting programs in the future. For information about upcoming programs, please check the Audubon program page at: <http://www.njaudubon.org/Go/Petty>.

While access to the island is only permitted through a structured program, anyone can enjoy a kayak or canoe paddle in the Delaware River Back Channel or along the shoreline of Petty's Island. While paddling around the island, visitors can access the TravelStorys app to listen to ten different stories about the island and its history. TravelStorys is a free downloadable app that plays stories at GPS-triggered locations along Petty's shoreline if the TravelStorys app has been downloaded and is open. To download the app, hear



Cooper River Expedition with Discover the Delaware and Upstream Alliance.

the stories online or get more information, please visit: <https://www.travelstorys.com/tours/158/Petty's%20Island%20Paddle>.



Blue Sky Funders celebrate the Delaware River.

For the third consecutive year, the Trust participated in River Days, a series of events sponsored by Alliance for Watershed Education (AWE) centers throughout September. Through River Days, AWE aims to raise awareness about the 13,500-square mile Delaware River watershed which provides clean drinking water for 15 million people. The 23 AWE centers are located along the major Circuit Trails or connecting trails throughout the Delaware River watershed in Pennsylvania, New Jersey and Delaware. These centers share a mission to collectively increase and enhance constituent appreciation and stewardship of the Delaware River watershed. AWE is funded by the William Penn Foundation.



Although it hosted some of its own River Days events at Petty's Island, the Trust also participated in the Delaware River Festival located along both the Camden and Penn's Landing waterfronts. This year, the Delaware River Festival co-occurred with the Camden Jam Festival, allowing thousands of people to learn about opportunities to explore and enjoy the Delaware River. Attendees were able to visit both sides of the river by riding the RiverLink Ferry for free or by joining in a morning bike ride over the Ben Franklin Bridge. Planning for Delaware River Festival 2020 is underway. Activities will be free and family friendly. Hope you can join us.



The Trust also participated in other Camden community events throughout 2019, including National Night Out. At National Night Out, the Center for Aquatic Sciences brought turtles and other critters while the Trust offered bilingual information (en Español e Inglés) about Petty's Island programming and its future.

During the summer of 2019, the William Penn Foundation sponsored each of the AWE centers to host a summer fellowship. The Trust shared its fellow, Taylor Melodick-Robinson, with the Center for Aquatic Sciences. Taylor worked to develop stewardship and conservation projects and programs at Petty's Island and the Center for Aquatic Sciences. Taylor and a few of the other fellows got together on Petty's Island one day to paint and prepare American kestrel bird boxes for use at Petty's and other locations. Once the Trust's second documentary, *Petty's Island: A Journey Back to Nature*, was finalized by the Camden County Historical Society and its producer, Adin Mickle, in the late fall, Taylor scheduled and represented the Trust at numerous film screenings throughout Camden County at libraries and community meetings.



William Penn Foundation fellows, Taylor Melodick-Robinson, left, and Ivana Quinones, at National Night Out.



Trust's new documentary about the history of Petty's Island.

We are excited to announce that the documentary *Petty's Island: A Journey Back to Nature* has been accepted into the 2020 Philadelphia Environmental Film Festival! And it will also be shown at special screening events sponsored by the Camden County Historical Society and Duke Farms.

While waiting for the New Jersey Department of Environmental Protection to complete its review of proposed site remediation activities at Petty's Island, the Trust continues to look for ways to expand public access and opportunities because, as is so well said above by the Blue Sky folks, "when people have meaningful experiences outdoors their quality of life, health and social wellbeing improve, and in turn, their communities become stronger and more sustainable." That is exactly what is hoped for when Petty's Island is fully owned by the Trust and fully open to the public.

# Trust Celebrates its 50th Anniversary!



Chair Michael Catania congratulating the Trust on 50 years!

Throughout 2019, the Trust enjoyed many opportunities to celebrate its milestone anniversary of 50 years of conservation. As mentioned earlier, the Trust updated its website to be more modern and user-friendly. The best website award was, of course, the icing on our Trust anniversary cake.

The Trust had a big bash at Petty’s Island for its June Board of Trustees meeting. Some former trustees were able to join us including Dave Moore, former Executive Director of the NJ Conservation Foundation, who was the brain-child for the Trust. He spoke about the genesis of his idea for the Trust and how proud he is that, 50 years later, the Trust is still a reality and still a success. NJDEP Commissioner Catherine R. McCabe, NJ Parks and Forestry Director Olivia Glenn, CITGO Manager Jack McCrossin, and Trust Chair Michael Catania all shared their thoughts about the Trust. It was truly a special occasion with everyone enjoying the fabulous weather and panoramic views from the envisioned location of the future Petty’s Island Environmental Education and Cultural Center.



Dave Moore describing his inspiration for the Trust.

In honor of its 50-year commitment to the protection of New Jersey’s natural diversity, the Trust marked the anniversary with the listing of the Trust’s Bennett Bogs and Hirst Pond preserves on the Natural Areas Register. With designation studies already completed and signed by DEP Commissioner McCabe, it is our hope that both preserves are designated to the New Jersey Natural Areas System in 2020. The Natural Areas System is composed of specially designated portions of state parks, forests, wildlife management areas, and Trust preserves that support exceptional biodiversity.

In what was quite an honor, in 2019 the New Jersey Legislature passed a Joint Legislative Resolution in which the Legislature “congratulates the New Jersey Natural Lands Trust upon the auspicious occasion of its Fiftieth Anniversary, pays tribute to its meritorious record of service, leadership, and commitment, and extends sincere best wishes for continued success and vigor in all the years to come.” Hear, hear, and thank you to all who in person or in spirit helped the Trust to mark this important milestone.



Joint Legislative Resolution in honor of the Trust’s 50th Anniversary.





*Because the Trust's mission is to preserve land in its natural state and protect New Jersey's natural diversity, our annual report profiles a selected rare plant each year. This year we profile **Panicum hirstii**.*

## Hirst Brothers' Panic Grass



Watercolor by Terry Lee Schmidt of Hirst Brothers' panic grass inflorescence.

It is easy to profile a wildflower and include lots of pretty pictures. So why has the Trust decided to profile a grass this year? Well, grasses don't get the attention they deserve. We are surrounded by grasses and probably can't distinguish one from the other. Yet, grasses are the third largest plant family, grass species are more broadly represented around the world than any other species, and grasses are a staple of our diet in the form of wheat, corn, rice, oats, barley, and rye. Clearly, we should all know more about our grasses.

So, let's get started. Grasses are classified as "monocots," which means that their seeds contain only one cotyledon, or embryonic leaf. Their tissue does not form wood and their stems do not increase in girth as they grow. Monocots have root systems that tend to form a dense, fibrous mat. This rooting structure made it possible for early settlers to cut out blocks of grass with its dense roots and soil to build sod houses.

Remember, it's easy to profile a pretty plant that flowers. Well, grasses have flowers, too. Because most grasses are wind-pollinated, their need to attract pollinators with bright and showy blossoms is minimal, making their flowers so small and inconspicuous that most people do not believe that grasses have flowers. Grass flowers or clusters of flowers, known as inflorescences, may be arranged in tightly packed vertical clusters called spikes, or more branched and spreading clusters called panicles. The most obvious flower part is often the pollen-filled anthers protruding from the flower.

Now that we know a little about grasses, let's focus on this specific grass, Hirst Brothers' panic grass (*Panicum* or *Dichanthelium hirstii*). This perennial plant is a member of the grass genera called *Dichanthelium* ("dichante" means twice flowering, and "thelia" means to blossom). Upright (erect) leafy flowering stems (culms) are produced in June, and there are two distinctive autumnal phases of flowering from August through October. The clustered culms grow 8 to 23 inches high. The flower cluster is a panicle that is 1 to 3.5 inches long and sparsely flowered. The panicles sometimes stay hidden among the densely branched stems. The narrow leaf blades are 1 to 4.5 inches long and are smooth. This rare grass overwinters as a leafy basal rosette under shallow water.



Hirst Brothers' panic grass in the pond.

To better understand the habitat of Hirst Brothers' panic grass, imagine, if you will, that it is 10,000 B.C. The Atlantic Ocean coastline is many miles offshore to the south of where you are standing on the edge of what is now called Labounsky Pond within the Trust's Hirst Ponds Preserve. It is really cold; in fact, it is -40 degrees Fahrenheit. The ground is frozen, and the wind is howling. There is no vegetation, just sand and gravel forming an ice-heaved Arctic landscape. The one mile thick ice glaciers are well north of you, above Route 78 in central NJ. Here on the coastal plain in Galloway Township is a barren landscape of sandy ridges, dunes and plains, relic river valleys, and elongate depressions formed by wind with permanent ice glistening in the sun. It is hard to imagine, but this is what formed the land underneath the Trust's Hirst Ponds Preserve.

Gradually, over the millenia the climate warmed, the glaciers retreated, the continent rebounded, and the Atlantic Ocean moved inland to its present-day location. Tidal marshes formed on the fringe of the coast and tidal rivers flowed in and out twice daily. The enormous Cohansey-Kirkwood aquifer thawed at the surface and formed thousands of ponds known as coastal plain intermittent ponds. Water levels in these ponds rise and fall with the seasons. Aquatic plants first colonized the ponds, then eventually terrestrial plants. Grasses were some of the first plants to grow after glaciers retreated and the Arctic landscape became a warmer temperate home to the remarkable diversity of plants that we see today.

Indeed, Hirst Brothers' panic grass occurs in coastal plain intermittent ponds, usually in pine barren habitats. It is part of a group of grasses, called "panic grass" or "rosette grass" or even "witch grass," that are adaptable and can grow in dry sand as well as wet mucky soil. Some panic grass seeds may even need smoke from wildfires to germinate. Although adaptable, the species requires habitats that are at least intermittently wet (flooded during the winter and spring and dry in summer and fall), receiving full sun to light shade, and substrates that are organic but firm (muck over sand). It occurs in flat-bottomed depressions with substantial water level fluctuations dependent on rainfall but relies on periods of standing water to keep competing species at a minimum.

This grass is named for two brothers, Frank and Robert Hirst, who first discovered the species in 1958.

The brothers enjoyed exploring the coastal plain intermittent ponds of the New Jersey Pine Barrens and were known to say to each other, "Let's go pondin' today!" Their pondin' adventures led to many plant discoveries. In 1961, the Hirst Brothers' panic grass was formally recognized as a plant new to science. It is now known from three sites in New Jersey in Burlington and Atlantic counties, one site in Delaware, two sites in North Carolina, and one site in Georgia. Fortunately, two of the three sites in New Jersey are in public ownership including the original location of its discovery.

In 1984, The Nature Conservancy (TNC) acquired the two ponds where Frank and Robert Hirst made their initial discovery. TNC transferred the property to the Trust in 2014. The smaller of the two ponds, known as Barkwoods Pond (so named for an adjacent pet kennel), contains occurrences of the Hirst Brothers' panic grass as well as other rare plants. It is also known for a historic occurrence of the state endangered slender arrowhead (*Sagittaria teres*). The larger pond, known as Labounsky Pond, sits at the southern end of the preserve and contains Hirst Brothers' panic grass among other rare plants.



Overlooking Labounsky Pond at the end of the summer.



Surveying for Hirst Brothers' Panic Grass is like looking for a needle in a haystack!



The pond habitats supporting Hirst Brothers' panic grass may have historically burned during dry cycles, which may also help maintain early successional conditions by preventing encroachment of trees. Individual populations can vary dramatically in size from year to year. The plants may not even make an appearance for years.

In fact, Hirst Brothers panic grass has not been observed at Barkwoods Pond since 1992 and at Labounsky Pond since 2003. This is not surprising, however, given that coastal plain intermittent ponds are inherently variable, with plants responding to hydrologic changes so that many years, or even decades, may elapse before conditions are again suitable. It is hard to know which hydrologic changes will become favorable for the grass, and which changes threaten the grass' survivability. Habitat loss and hydrologic alterations resulting from development or climate change (increased rainfall and temperatures) as well as natural competition and encroachment by other species, especially woody vegetation, are all thought to be factors that impact the species' survival. And then there is always the threat of disturbance to habitat from off-road vehicles.

Hirst Brothers' panic grass is ranked as globally imperiled and state endangered. Because of the potential threats to survivability and the fact that there are only eight populations worldwide, Hirst Brothers' panic grass was recognized as a federal candidate for listing under the Endangered Species Act from 1998 through the fall of 2016. On October 6, 2016, the U.S. Fish and Wildlife Service (USFWS) published a Federal Register notice that the Hirst Brothers' panic grass does not warrant listing due to questions about its taxonomic status. The decision was reached as part of a litigation settlement between the USFWS and the Center for Biological Diversity, which required the USFWS to decide on the status of this species.

As the basis for its decision, the USFWS relied upon the Flora of North America Project as the authority on

plant taxonomy and accepted their determination that Hirst Brothers' panic grass is synonymous with another grass, Roanoke witch grass (*Dichanthelium dichotomum* ssp. *roanokense*). At the time the USFWS made their determination, three studies identified it as a distinct species and specifically differentiating it from Roanoke witch grass. Most significantly, since the USFWS made its determination, a peer-reviewed 2017 publication unequivocally determined that Hirst Brothers' panic grass deserves species status. The loss of candidate status has resulted in a loss of federal research funding, making it harder to determine whether the plant's lengthy absence from the few ponds it calls home is truly a decline in the population or whether it's just a result of cyclical, hydrological fluctuations. The Trust is hopeful that the USFWS will eventually reconsider its decision on the taxonomic status of Hirst Brothers' panic grass.

Grasses are important to Planet Earth for ecological and other reasons. So, make time to stop, smell, and hopefully appreciate the grasses in our world, as well as the teeny tiny flowers that are part of them.



Watercolor of the Hirst Brothers' panic grass by Terry Lee Schmidt.

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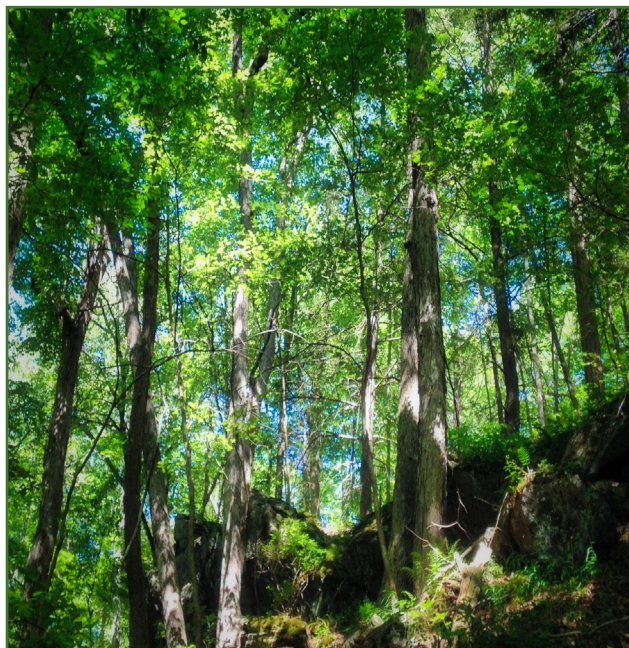
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# Mackenzie's Bog:

## A New Trust Preserve

Mackenzie's Bog is a new Trust preserve named for Kenneth Kent Mackenzie, the botanist who first discovered its botanical splendor in 1914. A New York City attorney, Mackenzie became one of the most knowledgeable field botanists in New Jersey while he was a state resident from approximately 1902 until his death in 1934. In addition to discovering hundreds of rare plants, he also discovered some of the state's most important botanical sites, including Andover Junction (now part of Kittatinny Valley State Park), Mashipacong Bogs (now a preserve of The Nature Conservancy (TNC)), Dunnfield Creek (now part of Worthington State Forest) and Johnsonburg (also now a TNC preserve).



Rock Outcrops at Mackenzie's Bog

Mackenzie's Bog was formerly owned by TNC and under its ownership was called the Sussex Swamp Preserve. In 2019, the entirety of TNC's preserve was generously transferred to the Trust along with a stewardship endowment.

The preserve is approximately 270 acres. It was once farmland but now protects one of New Jersey's best and largest limestone fens. Limestone fens are groundwater-fed wetlands underlain by calcareous limestone and are often rich in biodiversity. Surrounded by stunning limestone ridges and mixed-hardwood forest, the preserve includes a portion of the Stickle Pond watershed. Numerous rare plant species occur with Mackenzie's Bog Preserve including the state endangered pale-laurel (*Kalmia polifolia*), bog willow (*Salix pedicellaris*), rush aster (*Aster borealis*), bog rosemary (*Andromeda polifolia* var. *glaucophylla*) and Labrador marsh bedstraw (*Galium labradoricum*), most of which were discovered by Mackenzie. The preserve is also habitat for rare animal species such as federally and state endangered Indiana bat, state endangered bobcat, and state threatened barred owl and Kennedy's emerald. The Mitchell's satyr butterfly was first discovered in New Jersey at this site in the mid-1960s. However, the butterfly disappeared from the state shortly thereafter, perhaps as a result of butterfly collecting.



Mitchell's satyr butterfly

In addition to runoff from an adjacent neighborhood and off-road vehicle use, recent threats to the preserve's habitat include succession of woody vegetation and spread of non-native invasive plants. Before the property was transferred to the Trust, the Trust and TNC's land managers worked together to control the woody vegetation and invasive plants. The Trust will continue these efforts as well as others designed to improve the habitat for rare plants and insects such as lepidoptera (butterflies and moths) and odonates (dragonflies and damselflies). Maybe someday we'll see the return of Mitchell's satyr.

This and other Trust preserves are open for passive recreation from dawn to dusk. We hope that visitors will enjoy this preserve and appreciate and respect its special habitat for plants. Maybe you can hone your skills as an amateur botanist at Mackenzie's Bog Preserve and become the next Kenneth Kent Mackenzie.



# Biodiversity Inventory Updates:

## Few Rare Species Despite Extra Fieldwork



Virginia bunchflower

Three Trust preserves were checked off the long list in the queue for biodiversity inventories this year. Based on years of on-the-ground monitoring, these preserves inspired high expectations for new finds of rare and endangered species. Each represented quality habitats, were fairly large in size, and were representative of key regionally important ecological community types. Review of information gathered from the New Jersey Natural Heritage Program's Biotics database suggested a likely bounty of discoveries.

In north Jersey, a 365-acre study site which combined two Sussex County parcels, Wallkill Preserve and nearby Sterling Hill Preserve, was selected for research. Wallkill Preserve follows the river valley for which it was named. Along the winds and bends of this northward flowing river are remnant pockets of ancient prairie fens, bogs, and swamp forests which are home to numerous herptiles and diverse wetland plants. The adjoining limestone forest uplands were considered potential holdouts for rare plants. What's more is the extremely unique bedrock geology of the Sterling Hill Preserve known around the world for its rare Franklinite and Ogdensburgite minerals, not to mention the spectacular assembly of florescent minerals glowing in shades of orange, red and blue when viewed under black lights. These features would seem to lend a high probability for new species discoveries.

Likewise, central to the south Jersey Pine Barrens is the Trust's Sooy Place Preserve. Spanning over 1,300 acres in Burlington County, Sooy Place has wetlands described in old school terms such as spungs and bourns, and supporting coastal plain ponds and acre upon acre of pitch pine trees. The Pine Barrens have long been known for plants found nowhere else, and Sooy Place would seem to typify such a unique area worthy of inventory.

Qualified consultants having the needed combined skill-sets in botany, herpetology and entomology were hired and included first time ecological consultants for the Trust. February thaws got the two consultant teams out stalking the woodlands and compiling lists of nature's elements.

EcolSciences, Inc. was awarded the job to survey Wallkill and Sterling Hill preserves. The consultants systematically examined all corners of the preserve, performing surveys for plants and butterflies by day and moths and bats by night. Determined to deliver a quality product, the 15 days required for the job stretched to more than 30 days, just to be thorough. Some new Natural Heritage reports of rare plants including Virginia bunchflower (*Melanthium virginicum*) and Devil's-bit (*Chamaelirium luteum*) resulted from this endeavor.



Devil's-bit



Indiana and northern long-eared bats



In addition, recordings confirmed sonar notes of Indiana and northern long-eared bats darting through the sky to catch nighttime flying bugs.

The EcolSciences team, however, met with some disappointment when, even after diligent searching of hopeful habitats, they discovered only a few salamanders of just two species. The team prepared management recommendations designed to improve and direct future conservation actions.

To the south, the Sooy Place inventory was directed by Dr. Walter F. Bien of BN Applied Ecological & Biological Sciences (BN). Dr. Bien and his investigators are well respected and highly qualified in all aspects of Pine Barrens ecology and introduced innovative methods into their fieldwork. Of note was the use of aerial drones to conduct reconnaissance flights in search of key habitats worthy of ground truthing. Such sites might have been easily overlooked by walking through the tangles, swamps and smilax tickets of the preserve. The technique paid off, with updated reports of the iconic Pine Barrens treefrog and Pine Barrens reedgrass (*Calamovilfa brevipilis*), and discovery of massive heritage trees and delicate damselflies. Once again, days and days of work beyond that required for the job made certain that no spung or bourn went unvisited. Dr. Bien's team welcomed other botany colleagues to join them in establishing long-term vegetation research plots in wetlands and upland habitats. BN compiled all data into a concise report of what was done, how it was done, as well as their valued recommendations to improve the ecological communities.

Overall, although much time, work and skills were employed in this year's inventories, reports of endangered and threatened species discoveries were somewhat underwhelming. But certainly not for lack of time or energy. It's important to consider that all species, whether common or rare, make their unique contribution to a natural and functioning ecosystem. The Trust continues to learn from the data collected each year, and new surveys are already in the queue for next year.



Pine Barrens treefrog



# Successful Setback to Succession at Bennett Bogs

For a decade or more Bennett Bogs have been reverting into woods, a setback for plant diversity and conservation.

Since they (the ponds, that is) were discovered to be one of New Jersey's premier botanical hot spots in 1907 by Bayard Long and others, they've been best remembered as an open, wet meadow. The North, South and Woods ponds make up the Natural Lands Trust's Bennett Bogs Preserve in Cape May County. Each pond had a meadow-like quality, and in some years, they were even cut and baled for hay. Maintained as such, these prime meadow conditions supported an unparalleled diversity of some of the most spectacular wildflowers in south Jersey. It was and still remains a popular destination for botanists and naturalists throughout the blooming seasons for firsthand observations of colorful orange milkwort (*Polygala lutea*), rattlesnake-master (*Eryngium aquaticum*), and white fringed orchid (*Platanthera blephariglottis*). Some of these favorites of the botanically inclined, such as the snowy orchid (*Platanthera nivea*), were found in few other places in New Jersey. The bogs were of such notoriety and importance that by 1950 the New Jersey Audubon Society acquired and established its first nature sanctuary here and for the conservation of plants.



Meadows are being restored after mowing.

But, over time, would come a setback. The routine mowing that had kept the meadow-like bog open and grassy had come to be forgotten, resulting in more than a decade without needed management and a switch in vegetation from grassy to woody. A decline in the blooming splendor at Bennett Bogs ponds soon followed.

When the Trust gained ownership of the ponds in 2018 through land donations from The Nature Conservancy and the New Jersey Audubon Society, another setback for the bogs was put into motion. This was to set back years of woody tree growth that was now shadowing out sunlight to the ponds. Advancing conservation required mowing the three ponds and reverting them to the grassy, wet meadow most favored by the rare flora.

After a three-year pursuit to set back vegetation succession, the ponds are once again ready to bloom. David Snyder, State Botanist, has been most encouraged by the tree removal work. After a recent visit to review the finished work he commented with an email to the Trust, "Stopped by the bogs yesterday. They look fantastic—best I have seen since 2002 when the last deep mow was done...The ponds were essentially dry although a puddle or two could be found if searched for. If low water levels continue through year, it should be a great year for the herbaceous plants."



View of restored north pond from parking area.

So, while a pause in meadow mowing dealt a setback to Bennett Bogs' botanical bounty, recent mowing by the Trust has set back succession of unwanted woody vegetation--moving conservation forward.

"They look fantastic--  
best I have seen since  
2002"

# Hunting News

During the 2019-2020 hunting season approximately 3,398 hunters registered at Trust preserves through its website: [www.njnlt.org](http://www.njnlt.org). The Trust allows deer hunting only at many of its preserves to maintain biodiversity. The deer population in New Jersey is far greater than the ecosystem can sustain. Over-browsing by deer depletes native vegetation resulting in impacts to animal and plant habitat, such as decreased food sources and increased invasive plants.

To hunt deer at selected Trust preserves, hunters access the Trust's website, electronically submit information to the Trust, and print their own hunter registration letter with the required accompanying preserve map. The Trust can use this information to sort hunter registrations by preserve. Trust staff may reach out to hunters registered at a specific preserve to determine their interest in volunteering for clean-ups and maintenance projects. In 2018 the Trust eliminated its "lottery" system for the ever-popular Limestone Ridge Preserve and Thomas F. Breden Preserve at Milford Bluffs. One reason for this decision was that it was impossible to figure out a fair way to implement the lottery. As soon as the Trust would tinker with the technology to eliminate redundant submissions, or false submissions, it seemed that a technical work around to our fix was discovered. Therefore, the fairest approach seemed to open these preserves to everyone equally. Admittedly, we weren't sure how well this was going to work but it turned out just fine. Since this approach is fairer and seems to work, the lottery is officially a thing of the past.

It is important to note that the Trust does not allow hunting for waterfowl, small game, turkey or bear, as it maintains that only over-browsing by deer poses a threat to biodiversity. In addition, Sunday bow hunting is not authorized on Trust preserves as it is on state wildlife management areas and private property during deer season.

While hunting on Trust preserves, all rules and regulations in the New Jersey Division of Fish and Wildlife game code must be followed. Hunting deer by bow and arrow, shotgun or muzzleloader are acceptable, depending on the preserve. No target shooting or discharge of weapons other than for deer hunting purposes is permitted. Permanent deer stands are not allowed, and portable deer stands, while permitted, must be removed after the hunting season is completed or are subject to confiscation by the Trust.



Deer hunting is permitted at the Blair Creek Preserve.





## Thanks to Our Volunteers

The Trust would like to acknowledge and thank its many volunteers for their invaluable contributions to the maintenance of Trust preserves. If you are interested in becoming a Trust volunteer monitor or attending a workday, please contact the New Jersey Natural Lands Trust at 609-984-1339, or email [NatLands@dep.state.nj.us](mailto:NatLands@dep.state.nj.us).



Members of the Center for Aquatic Sciences and Urban Promise seining for fish at Petty's Island as part of educational programming.

# Contribute to the Delaware Bay Shorebird Fund

Each spring in Delaware Bay, from about the first week in May to the second week in June, the largest concentration of horseshoe crabs in the world comes onshore to spawn. At the same time, tens of thousands of shorebirds arrive at the Bay en route from southern wintering grounds to Arctic breeding territory, and Delaware Bay is their most critical stopover. The shorebirds need to quickly double their weight to complete their migration north and breed successfully. To refuel at such capacities and in only a 10-day window, high-energy horseshoe crab eggs provide essential nourishment. But since the early 1990s, there have been major declines in both the number of adult horseshoe crabs and their eggs. With the decline of their critical food source, shorebird numbers also plummeted. For the past 35 years, the Trust has funded scientific research and conservation efforts through the Delaware Bay Shorebird Fund with the goal that someday Delaware Bay's skies will be once again filled with shorebirds.

The Delaware Bay Shorebird Fund was initially created in 1985 through an Agreement between the Department of Environmental Protection and Public Service Electric and Gas Company (PSEG). The agreement provided that \$600,000 would be transferred to the Trust, as a fiduciary, to invest and administer solely for protection and management of shorebird habitat. After funding critical shorebird research for the past 35 years, the Delaware Bay Shorebird Fund is now nearing depletion. With contributions, the Delaware Bay Shorebird Fund could continue critical long-term shorebird and horseshoe crab research.

In order to protect these shorebirds, please consider making a donation to the Trust's Delaware Bay Shorebird Fund. Donations can be made online through PayPal:

Donate with PayPal button:



Please note that the donation is being made to the Delaware Bay Shorebird Fund.



Delaware Bay Shorebirds  
Photo Credit:  
William Culp



# Donations



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Julio Munoz

*For more information about how you can donate to further the Trust’s mission to acquire, preserve and manage natural lands for the protection of natural diversity, please visit [www.njnlt.org](http://www.njnlt.org).*



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The Trust is governed by an eleven-member Board of Trustees. The Board is comprised of six representatives from the private sector and five representatives from State government. The State government members include the Commissioner of DEP and two DEP staff members designated by the Commissioner; the State Treasurer; and a member of the State House Commission. Employees of the Office of Natural Lands Management, Division of Parks & Forestry, serve as staff to the Trust and implement the policy set by the Board.

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