



2018 Annual Report
50 Years of Conservation

NEW JERSEY NATURAL LANDS TRUST
Preserving New Jersey's Natural Diversity

NEW JERSEY NATURAL LANDS TRUST

2018 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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In the 1970s rattlesnake master filled the open fields at Bennett Bogs.

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In 2018...

The New Jersey Natural Lands Trust brought approximately 300 new acres under Trust stewardship adding to its system of more than 120 preserves throughout the state. Of the 12 new acquisitions, two were donations to the Trust.

This year's acquisitions built upon the existing **Bear Creek, Bear Swamp at Red Lion, Bennett Bogs, Clarks Landing, Great Piece Meadows, Hainesville Woods, High Rock, Papakating Creek, Reinhardt, Richard J. Buhlman and Sterling Hill** preserves.

Annual Report is Awarded Best New Jersey Publication!



It takes a Village - Annual Report team from left to right:
Darin Oliver, Bob Cartica, Terry Schmidt, Martin Rapp, Cari Wild and Roman Senyk.

At a ceremony on October 26th at Thomas Edison State University in Trenton, the Documents Association of New Jersey (DANJ) recognized the Trust's annual report as the best official New Jersey publication or document. This award recognizes a department or agency publication that documents librarians feel is especially useful or informative.

The Trust has always produced its report with the goal of providing useful and interesting information to the public. According to DANJ, the Trust received several nominations and the final selection committee decided to give the award to the Trust based on the following criteria:

- * The document contributes to the expansion of knowledge, gives evidence of innovation in presentation, or demonstrates a creative approach in its treatment.
- * The document has relevance for New Jerseyans.
- * The document contributes to enhancing the quality of life for New Jerseyans.
- * The document contributes to an understanding of federal, state, or local government processes or functions.
- * The title reflects actual contents, the document achieves its intended purpose, and the format is appropriate to the contents.
- * The document is written in a lucid style comprehensible to non-specialists.
- * The document provides for reference use.
- * The document is printed on recycled and/or permanent paper (if printed).
- * The document is generally pleasant to browse through, because of physical appearance, printing, binding, use of color, or ease of use.

The 2017 Annual Report was especially eye-catching as it featured original watercolor artwork of the globally rare plant bog asphodel by Terri Lee Schmidt on the cover and in an article. While we may not be able to top the cover of last year's report, the Trust intends to continue to deliver award-winning content to New Jerseyans through its Annual Report and website.

Petty's Island Update:

A Journey Back to Nature

Throughout 2018 the island continued its journey back to nature. To recap from last year's report, by the end of 2017 the former oil storage tanks and ancillary oil storage and refining equipment were demolished and removed from the island by the CITGO Petroleum Corporation, resulting in a landscape of freshwater wetland impoundments and grasslands offering open vistas of the Philadelphia skyline. This was followed in May 2018 by the termination of Crowley Maritime Corporation's roll on-roll off barge operation. By the fall 2018 one would never know that Crowley's 50-acre asphalt parking lot and numerous structures had ever been there. Without hundreds of trucks traversing Camden's Cramer Hill neighborhood and the island each week, there is a real serenity about the island now. The only vestige of the former maritime operation is the triple-deck terminal structure, which is expected to be refurbished as the Petty's Island Cultural and Environmental Education Center.



Camden County Historical Society Treasurer Bob Shinn taking a history hike group out to the southern point of Petty's Island.

Now that the island has been completely visually transformed, the real work of remediation and restoration for a full return to nature begins. CITGO is fully responsible for undertaking the remediation of the island under the terms of an administrative consent order with the New Jersey Department of Environmental Protection's Office of Site Remediation. While it is hard to predict the timing of full remediation and the transfer of full ownership to the Trust, we are hopeful that it will happen within the next three years.

In the meantime, the Trust, through its contractor New Jersey Audubon Society (Audubon), will continue to offer many fun and interesting public programs and school field trips at Petty's Island. For information about upcoming programs, please check the Audubon program page at: <https://njudubon.org/centers/pettys-island-preserve/>. To help visitors hiking on or paddling around Petty's Island better appreciate the island's historical significance, the Trust has worked with TravelStorys and Bob Shinn of the Camden County Historical Society to produce a free downloadable app that tells 10 engaging stories about the island. This is available online or while on site at GPS-triggered locations. To hear the stories or hear more about the app, please visit <https://www.travelstorys.com/explore-tours/>.

Beyond the programs it offers through Audubon, the Trust continues to partner with 22 other environmental education centers within the Delaware River watershed that have aligned as the Alliance for Watershed Education (AWE). The Trust is working with its AWE partners and a new group, Discover the Delaware, to bring additional programs and people to Petty's Island. Discover the Delaware is a partnership that promotes education on and access to the Delaware River. Discover the Delaware was awarded a grant in 2018 by the National Fish and Wildlife Foundation (NFWF) to fund educational opportunities on the Delaware River in the Camden/Philadelphia area. Through the grant, Discover the Delaware and NFWF hope to engage more than 550 students to “*maximize environmental learning, stewardship identity and conservation behaviors through different developmental stages and offer a pathway into conservation careers.*”

Through the grant, Discover the Delaware and NFWF hope to engage more than 550 students...

Hoping to bring awareness of the Delaware River Watershed to new audiences, AWE played a big part in the William Penn Foundation-sponsored special exhibit “Windows on the Watershed” at the Philadelphia Horticultural Society’s 2018 Flower Show. When the William Penn Foundation learned the theme of the 2018 Flower Show was focused on water, they knew it was an opportunity to highlight AWE and its work across the Delaware River watershed. Windows on the Watershed created an immersive visitor experience in the complex natural web of local ecosystems that rely on rain to replenish our freshwater system over and over again. In addition to a spectacular sculptural element designed by Stacy Levy and entitled *Inventory: Rain & the River*, the exhibit highlighted habitats found across the Delaware River watershed: mountains, wetlands, urban riverbanks, and tidal marshes. Representatives from the Trust and other AWE centers were on hand as docents to help interpret the exhibit and how each type of land cover plays a role in keeping water clean as well as to talk about the variety or conservation



Pockets of freshwater wetlands dispersed on the island’s landscape that formerly served as impoundments for the former oil storage tanks.



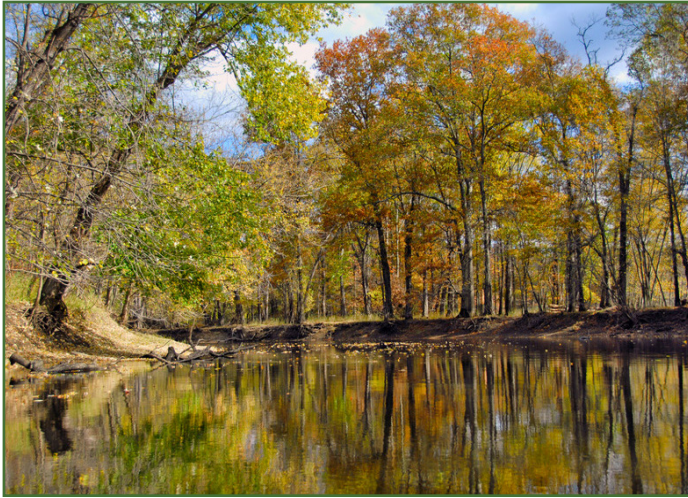
Stacy Levy’s *Inventory: Rain & the River* at the Philadelphia Flower Show.

and recreation opportunities on trails and waterways throughout the watershed.

Another great way to engage new constituents and get people excited about the many opportunities that exist to explore and enjoy the Delaware River is River Days, a series of events beginning in September at most of the AWE centers throughout Pennsylvania, New Jersey and Delaware. Although it hosted three of its own events at Petty’s Island, the Trust also participated in the Camden River Days festival at the Camden Waterfront at Adventure Aquarium, which just keeps getting bigger each year with thousands of participants.

This year Camden River Days joined forces with PA Coast Days at the Independence Seaport Museum for a huge event that straddled both sides of the Delaware and had free ferry service connecting them. And in 2019 Camden River Days is also joining with the 2019 Camden Jam, so come out to what should be a jammin’ good time.

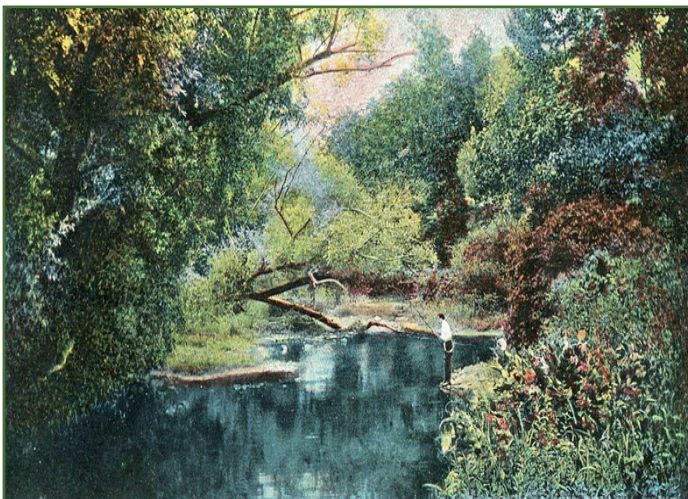
Great Memories of Good Times at Great Piece Meadows



Peaceful Passaic River near the donation

One of the land donations to the Trust this year was itty bitty in size, at less than a tenth of an acre, but big in terms of heart.

The daughter of the property owner, Ms. Dorothy O'Donnell, contacted the Trust with the offer to donate the property as an addition to its Great Piece Meadows Preserve. As Ms. O'Donnell's daughter, Alice Fitzpatrick, explained, "This property has great sentimental value to my Mother, as it was purchased by her young newlywed parents [Joseph and Mae Swit] who had fond memories of get-togethers along the Passaic River with their friends. It's nice to know that it will continue to be appreciated and enjoyed."

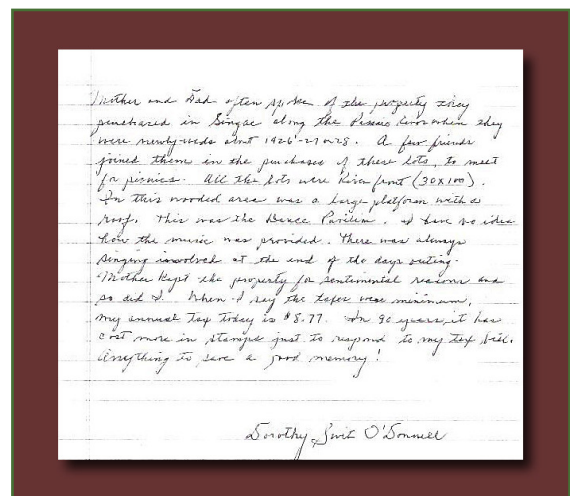


Passaic River in the 30s

The Fairfield Township property fronts the Passaic River off Deer Park Road, which in that area is a paper street north of Marginal Road and Route 80. Apparently, the stretch of the Passaic River in that area was popular for picnicking back in the 1920s and 30s.

At the beginning of the Great Depression, the Swits and their friends purchased adjoining small lots in the Great Piece Meadows and created a picnic area complete with a roofed wooden platform known to the revelers as the "Dance Pavilion." And there was always lots of singing involved at the end of the day. Although most of the lots were sold off ages ago, Ms. Swit, and Ms. O'Donnell after her, kept the property for sentimental reasons while diligently paying their property tax bill each year--this year a whopping \$8.77. Ms. O'Donnell reckons that over the 90 years the family has held the property it has cost them more in stamps for correspondence with the tax office than in actual taxes. But, she adds, "Anything to save a good memory!"

The Trust hopes you will visit the preserve to hike, bird watch, boat and more to make your own good memories at Great Piece Meadows! And as you are enjoying the beauty and great peace of the meadows, imagine the sounds of revelers singing and dancing from a dance pavilion of a bygone era.



Ms. O'Donnell's handwritten reflections



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

SPREADING GLOBEFLOWER

This year the Trust continues its tradition of profiling a rare plant species with yellow flowers. Spreading globeflower (*Trollius laxus* ssp. *laxus*), is a particularly appropriate choice for 2019 as the Trust celebrates its 50th anniversary. That's because the largest known population in the world of this globally rare species is found on a Trust preserve. Globeflowers are part of the buttercup family. The globeflower, or *Trollius* genus, consists of approximately 30 species scattered throughout the northern hemisphere in Asia, Europe and North America. Most globeflowers are perennial, herbaceous plants with large, bright yellow flowers. The attractive flowers have motivated horticulturists to create cultivars of some of the Asian and European species for sale and garden display.

North America is home to one species of globeflower with different subspecies found in the western and eastern United States. *Trollius laxus* ssp. *albiflorus* tends to have white flowers and is found in states and Canadian provinces west of the Rocky Mountains. In contrast, *Trollius laxus* ssp. *laxus* is most often observed with bright yellow flowers. The yellow-flowered subspecies is much rarer and is now found only in a handful of eastern states. In fact, some experts believe that the life history and habitat requirements of the two subspecies are sufficiently different to warrant treating these two plants as entirely different species.

Spreading globeflower has historically been known from Pennsylvania, Connecticut, New York, Ohio and New Jersey (Jones, 2001). The species was first collected in Pennsylvania by Gotthilf Heinrich Ernst Muhlenberg, a Lutheran clergyman and botanist. He called the plant *Trollius americanus* in his 1793 catalog of plants of the Lancaster County region (Rhoads et al., 2012). However, the earliest published species description was by Richard Anthony Salisbury who assigned its current name, *Trollius laxus*, in 1807. Interestingly, Muhlenberg was also credited with first finding the bog turtle, which was later named after him (*Glyptemys muhlenbergii*) while conducting his plant surveys in Lancaster County.



Jill Dodds and Liz Johnson of Biostar Associates, Inc.



Roman Senyk, Office of Natural Lands Management

The number of extant globeflower populations has been declining over the years and the species is now ranked by NatureServe, the international network of natural heritage programs, as G5T3, meaning that the subspecies is globally rare and is now known from fewer than 80 remaining populations in the world. In New Jersey the species is listed as State Endangered. Although the New Jersey Department of Environmental Protection (DEP) has records for a total of 37 globeflower occurrences documented from Bergen, Passaic, Morris, Sussex and Warren counties, the species is currently known from 14 locations and is now found only in Sussex and Warren counties.

Experts theorize that there are a number of reasons why spreading globeflower has always been uncommon and is now becoming rarer throughout its range. The primary factor appears to be the loss or alteration of the specialized wetland habitat in which it is found. In most cases, the species is found in wetlands such as fens or the edges of swamps which are fed by highly alkaline groundwater. Fens are wetlands in which the high-water table is usually maintained by a constant flow of mineral-rich groundwater. In contrast with the woody vegetation that is commonly found in swamps, most fens are characterized by herbaceous vegetation which may be succeeded in later stages by shrubs. Spreading globeflower also appears to be an early- to mid-successional species that declines as woody and shrubby species become more prevalent (Jones, 2001).

For these reasons, it is fortunate that what is believed to be the largest population of spreading globeflower in the world is found on a Trust preserve. The species was first observed at the site in 2002 by New Jersey State Botanist David Snyder. In the spring of 2010 he and DEP ecologist Kathleen Walz returned to the site with Trust preserve manager Martin Rapp. They accessed the site from a different route and discovered that the globeflower population was much larger than previously known. An estimated 15,000 clumps were observed in multiple colonies throughout the wetlands. Since that time, Trust staff has continued to monitor the population.

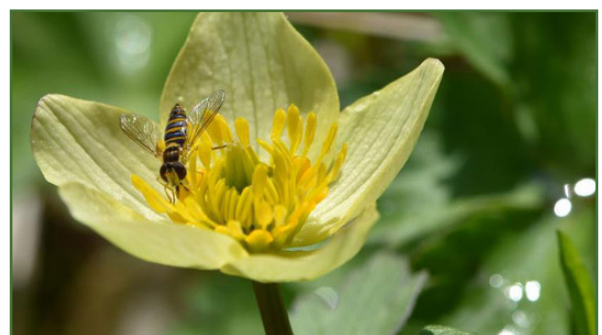
In 2018, the Trust hired Jill Dodds and Liz Johnson of Biostar Associates, Inc. to survey the globeflower population and prepare a management plan for the species. Additionally, Biostar was contracted to search the property and complete reporting forms for any other rare plants or animals observed at the site. In her report, Jill Dodds noted that native cedars and invasive shrubs were encroaching on the habitat occupied by the globeflower. Shrubby honeysuckle, multiflora rose, and barberry were the most commonly observed non-native species. Jill and Liz installed a series of transects to enable consistent counts and monitoring

of the globeflower colonies in the future. Jill reported that there appeared to be fewer flowering plants in 2018 compared with the 2010 estimates, and that the areas of densest globeflower plants were shifting from the locations of the 2010 observations. She speculated that this was a result of the rapid growth of woody shrubs and trees since 2010.

Martin Rapp and staff of the DEP's Office of Natural Lands Management (Roman Senyk, Mark Wong and Elena Williams) conducted two workdays at the site to begin to address the management issues highlighted in the Biostar report. In the winter of 2018-2019, at a time when the globeflower had died back and its wetland habitat was unlikely to be disturbed, the transect markers were relocated and the densest areas of invasive shrubs were cut and removed. Later visits in the spring of 2019 will determine if the vegetation removal encouraged more flowering and growth in the globeflower colonies. Maybe the 50th anniversary of the Trust will coincide with the renewal of one of the rarest plants of New Jersey!



Martin Rapp and Mark Wong removing invasive woody vegetation to restore *Trollius* habitat.



The flower fly is a pollinator that is critical to biodiversity in North America.

SOURCES

Jones, K. N. 2001. *Trollius laxus* (Spreading Globeflower) Conservation and Research Plan. New England Plant Conservation Program, Framingham, Massachusetts, USA (<http://www.newfs.org>).

NatureServe Explorer website: (<http://explorer.natureserve.org/>)

Rhoads, A. F., T. A. Block and M. Burgess. 2012. Resource Recovery Plan for Spreading globeflower *Trollius laxus* Salisbury in Pennsylvania. Submitted to the Wild Resources Conservation Fund, Pennsylvania Department of Conservation and Natural Resources, Harrisburg, PA.

Saving Bennett Bogs: A New Chapter

For over a century, Bennett Bogs has been recognized as one of New Jersey's premier botanical sites. The ponds there are home to more than 90 species of rare plants--some showy orchids, others underappreciated grasses and sedges, but all very important. And, if the ponds could talk, they would tell of visits by some of America's most prominent botanists. In honor of the Trust's most recent acquisition at Bennett Bogs, the donation by the New Jersey Audubon Society (Audubon) of its portion of the Bogs, the Trust would like to share part of the Bennett Bogs story. It is deserving of a much, much longer tale, which is being recounted by David Snyder, New Jersey State Botanist, in an upcoming publication. But to celebrate the recent donation, here's a little piece of the fascinating history of Bennett Bogs.

Over a century ago, Bennett Bogs was discovered by botanists Bayard Long and Samuel Van Pelt. David Snyder describes their discovery:

On Wednesday, 24 July 1907, Bayard Long and Samuel Van Pelt set off on their Cape May botanical excursion. Through a close examination of their topographical map, they had noted the presence of a small pond located approximately 0.60 miles northwest of Bennett Station. As far as they were aware, the pond had never been botanically explored.... Reaching the edge of the low, wet woods of sweet gum, red maple and scattered persimmon that encircled the pond, Long and Van Pelt paused momentarily. From their shaded vantage point they saw before them not a pond but what looked to be a very wet meadow. Bayard called it a bog. Whatever it was, it was covered from edge to edge, with what at first glance appeared to be the green of grass and sedge. But here and there they saw yellow, orange, pink and white spotty blotches. There was also just the faintest hint of a blue mist that seemingly hovered just above the meadow. Long and Van Pelt dodged the trees and excitedly pushed their way through the open thicket of blueberry, buttonbush and soapwort shrubs. They sought the owners of the colors.

Much of the green did belong to grasses and sedges.



In the 1970s rattlesnake master filled the open fields at Bennett Bogs.

*But not all of it. Some of the tallest vegetation bore the quarter-sized daisy-like flowers of Coastal Plain doll's daisy (*Boltonia asteroides* var. *glastifolia*); the first report for New Jersey. The source of the mysterious blue mist was quickly solved. This was rattlesnake master (*Eryngium aquaticum*), a rare member of the parsley family. The spiny-heads of this tall plant produce tiny pale blue flowers which begin to bloom in mid-summer. In some years this species is a near dominant and covers the meadow-like landscape with its misty blue blooms. Rattlesnake master, along with doll's daisy, are the two plants that define the characteristic visual charm of this Cape May wetland.*

*Other colors belonged to common plants. There were the yellow flowers of Small's yellow-eyed grass (*Xyris smalliana*); the yellow-orange flowers of coppery St. John's-wort (*Hypericum denticulatum*) and orange milkwort (*Polygala lutea*); pink flowers of meadow beauties (*Rhexia mariana*, *R. virginica*) and wild cranberry (*Vaccinium macrocarpon*); and the whites belonged to white-bract boneset (*Eupatorium leucolepis*), lance-leaf marsh-pink (*Sabatia difformis*) and the shaggy-lipped flowers of white fringed orchid (*Platanthera blephariglottis*). All these colors were overwashed by the green sea of grasses and sedges. There were species of bentgrass, beardgrass, manna*

grass, reed-grass and panic grass. Among the sedges there were spike-rushes, flat-sedges, three-way sedges, umbrella-sedges and just plain old sedges. And, hidden in the depth of this green sea of tangled taxonomic complexity, was a plant that would soon become emblematic of the as yet unnamed botanical site. It was the young Bayard Long who discovered it.



Snowy orchids last seen at Bennett Bogs in 2002.

What Long discovered was the snowy orchid, known then by the Latin name *Gymnadeniopsis nivea*, but subsequently renamed *Platanthera nivea*. It was Bayard Long's first outstanding addition to the flora of New Jersey. In the coming years Long would add some 25 additional rare plants to the list of New Jersey's native plants. The discovery of snowy orchid in southern New Jersey was truly a spectacular find—it was only the second collection of the species north of North Carolina.

Over the years, many a botanist made the trek, perhaps pilgrimage, to take in the botanical splendors at Bennett Bogs. David Snyder recounts his first visit to Bennett Bogs on September 10, 1978:

I was excited. I was finally on my way to explore this botanical wonderland. A large part of my excitement came from Dr. David Fairbrothers [professor of botany at Rutgers University]. Dr. Fairbrothers was really excited about the flora of Bennett Bogs. He gave me a short botanical history of the bogs that were not bogs. He told me stories about the times he had spent at Bennett Bogs with his graduate student Jim Montgomery searching for all the rare plants. "It is an absolutely fantastic place! David, you must go see it." It was more an order than a suggestion. Dr. Fairbrothers gave me

copies of his and Dr. Montgomery's paper. He told me what plants to look for and where to look for them.... About 250 feet into the meadow, I found my first notable Bennett Bogs plant—rattlesnake master. It was not a dominant species, but I could see many scattered plants. The next discovery was Coastal Plain doll's daisy. It was much less abundant, but it was in full flower. There were also three different species of white boneset that grew mixed together. Although all were common to New Jersey's Coastal Plain, they were new to me. I was still in my salad days of botany. Just an amateur. No Ph.D. or M.S. in botany. Not even a B.S. My degrees were in fine arts and philosophy. Like Otway Brown [an early chronicler of the flora of the preserve], I had taught myself botany. It was just a hobby, but I really enjoyed searching for New Jersey plants....



Spectacular show of rattlesnake master blooming in the Bennett Bogs' North Pond.

*The clearing in the woods that I stepped out into was classic Bennett Bogs. Thousands upon thousands of rattlesnake master plants covered the surface of the meadow-like opening. From a short distance away, the surface looked near impervious—a solid cover of rattlesnake master and nothing else. But the view from the distance was deceptive. Only by wading through the pale blue sea of spiny-headed flowers was its botanical diversity revealed. Plants of the doll's daisy were everywhere. There were scattered patches of fuzzy-headed bog buttons (*Sclerolepis uniflora*), their cotton candy-pink blooms perched singly atop their densely matted pin cushion-like stems. Next to the bog buttons I found what looked to be little chimneys or steeples formed out of the grayish-white clay that some creature had excavated from the soil that underlay all of the Bennett Bogs. (I later learned that these chimneys had been built by crayfish.) But it was the snowy orchids that captured my attention. The plants were by no means abundant, but they did grow pretty much*

throughout the eastern half of the opening. They were, just as Dr. Fairbrothers had predicted, in full and perfect bloom. Thirty plants? Seventy plants? I don't know—I didn't count. These orchids were the survivors. I would have been satisfied with a single plant.



Rattlesnake master

The individual flowers of this orchid are small, and inconspicuous, but each flowering spike contains 30 or more flowers and the overall impression is striking. But it is the color of the flowers that is so memorable. They are whiter than white.... As the day drew to its close, I learned something else about these orchids. In the gathering dusk, I saw that the orchids had lost none of their brilliance and they seemed to glow even brighter. I experienced firsthand why the snowy orchid is also called bog torch.

From that day forward, I would visit Bennett Bogs at least once every year for the next forty years. I would locate, rediscover or be shown thirty-seven species of Bennett Bogs' ninety-two rare plants, even adding three of my own discoveries to its long list of rarities (*Hydrocotyle prolifera* in 1988; *Carex jorii* in 1991, *Juncus coriaceous* in 2009). Bennett Bogs was surely a botanist's paradise and one of the many natural wonders of New Jersey.

Given its botanical significance, there was

enthusiasm in the relatively early days of land conservation to acquire Bennett Bogs for preservation. In 1950, Audubon led the way and acquired the western half of the main bog and nearly all the smaller pond to its south, both located along the eastern side of Shunpike Road. The initial acquisition was 3.2 acres. Five years later more land was purchased and Audubon's holdings more than doubled to 6.5 acres. In October of 1955, Audubon held a ceremony announcing the establishment of their first land preserve: the Bennett Bogs Wildlife Sanctuary. Although there may have been relatively little in the way of wildlife, and despite the ecological misnomer, the sometimes ponds finally had a name – Bennett Bogs.

There's a notion that once habitat has been legally preserved the species that depend on it are now protected and will be just fine if left alone. Unfortunately, that's not always true. Ironically many natural places need a little nudge or help from humankind to maintain their place in this world. Bennett Bogs is one of those places. And the nudge that works at Bennett Bogs is mowing, which had been happening there for more than a century with no obvious damage to the rarer plants.



The north pond at Bennett Bogs is wet through most of the year.

“From that day forward, I would visit Bennett Bogs at least once every year for the next forty years. I would locate, rediscover or be shown thirty-seven species of Bennett Bogs' ninety-two rare plants, even adding three of my own discoveries to its long list of rarities.”

Witmer Stone, prominent American ornithologist, botanist, and mammologist, reported that farmers were mowing the ponds as early as 1910. According to Robert Alexander (all-around naturalist, local historian, former president of Cape May Geographic Society), “farmers [had] cut hay in the bogs, the three with the greatest variety of plant life in them, almost every year for at least twenty years [i.e., since the early 1930s].” Indeed, Alexander observed that in the summer of 1950, “Flowers bloomed more abundantly in the half of [Bennett Bogs] where hay was cut than in the half that has never been mowed.” Despite (or perhaps because of) the mowing, snowy orchids continued to bloom each late summer with consistent vigor and abundance. At least they did until a hundred or so plants were dug up by vandals in the early 1960s; followed in the 1980s by habitat destruction caused by ATVs.

According to David Snyder: *Keith Seager was, and continues to be, the preserve’s greatest champion. No one has worked harder to protect, manage and promote Bennett Bogs as one of New Jersey’s most important botanical preserves than Keith Seager. Keith took over the responsibility of managing and scheduling the mowing at Audubon’s Bennett Bogs preserve in 1979 and continued until 1985, at which time The Nature Conservancy (TNC) assumed control of the mowing. In 1984 The Nature Conservancy purchased 8.62 acres of land of Bennett Bogs [which] the Conservancy called “the most important unprotected” tract of land at Bennett Bogs. The land contained not only the eastern half of the North Pond but all the Woods Pond. More land was purchased in*



The NJ Natural Lands Trust’s Bennett Bogs Preserve was restored to open meadow in 2018 with the help of these two heroes: Keith Seager and John King.

1985 and acquisitions continued into 2000.

TNC ultimately purchased a total of 25 acres at Bennett Bogs. Their increased presence resulted in an agreement with Audubon to manage the site, including mowing.

In 1985, TNC appointed Keith as the preserve’s caretaker; a volunteer position which Keith held until the early 2000s when TNC began discouraging his efforts. For inexplicable reasons, mowing Bennett Bogs was apparently no longer a priority for TNC. With the abandonment of mowing as the primary management tool, Bennett Bogs’ rare and unusual plant species began to suffer as the once open ponds were transformed into wooded swampland. As Snyder describes it:

Nature then took its unyielding course. Young trees and shrubs moved in and took hold. As the years rolled by, woody vegetation came to dominate much of the North and South ponds. Button bush replaced bog buttons. Persimmons pushed out Pine Barren gentians. Sweet gums and red maples threatened to overtake everything else. Between 2002 and 2015 the preserve had been mowed only once, and that was in the late summer of 2007--the one-hundred-year anniversary of the discovery of Bennett Bogs by Bayard Long and Samuel Van Pelt.



Woody vegetation such as red maple threatening to overtake the meadow habitat of many rare plants.

In 2015, TNC transferred its 25 acres to the Trust and restoration of the bogs to their former glory began in earnest, in part with a generous \$25,000 endowment provided by TNC. But an essential piece to complete restoration at Bennett Bogs, the original piece owned by Audubon, was missing.

Restoration of Bennett Bogs' North Pond began in October 2016, with the assistance of volunteers Emile DeVito and Russell Juelg (New Jersey Conservation Foundation), Ryan Rebozo (Pinelands Preservation Alliance), and Keith Seager, who was reinstated as the preserve's volunteer caretaker. The work that year was limited to the Trust's half of the pond. Invading trees and shrubs were cut, stands of the invasive phragmites were treated with herbicide, and the

pond was brush hogged. In 2018, after obtaining Audubon's permission, the Trust and its volunteers finally were able to begin work on their half of the pond to clear woody vegetation and herbicide phragmites. Restoration of the preserve's South Pond will begin in 2019.

That day in 2016 marked the beginning of a new chapter, one which the Trust hopes is propitious and ultimately successful in returning Bennett Bogs to its former glory. And the extra bonus in this new chapter is that the Bennett Bogs Preserve is now fully owned by the Trust thanks to the generosity of Audubon's December 2018 donation.

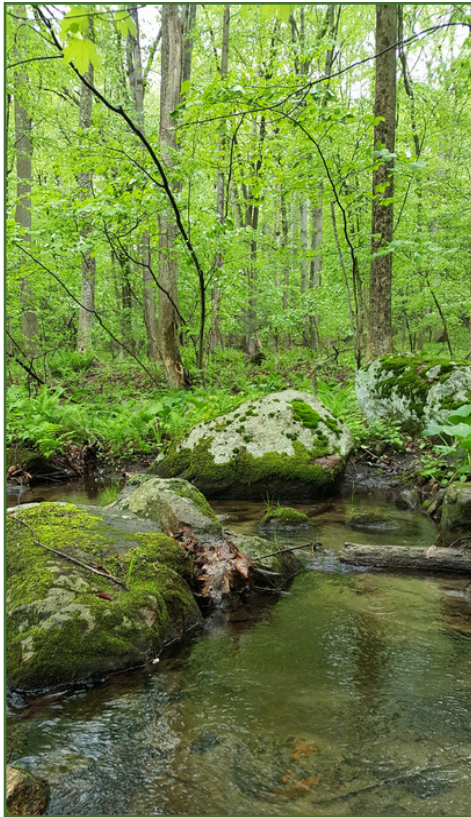
Photos in article by Martin Rapp, David Snyder and Cari Wild.



Before (top) and after restoration of the North Pond.

Biodiversity Inventory Updates:

Stepping Up the Pace of Biodiversity Inventories



Rare mussel habitat along Bear Creek.

Over the last several years, the Trust has been carrying on an effort to inventory the diversity of species found on its preserves. As of 2018, 13 preserves have been studied, selected from over one hundred preserves with some attempt to focus on the largest, richest areas and in all geographic regions of the state, including Highlands, Pinelands and Delaware Bayshore.

Beginning in 2010 with the inventory of Bear Creek Preserve in Warren County, it was clear this inventory initiative was paying off with many new discoveries of threatened and endangered species. That one study documented more than a dozen new locations for both rare plants and animals. Of most significance was the discovery of the federally endangered dwarf wedgemussel, a little freshwater mussel found in stream bottom sediments of Bear Creek.

Following the success of that first study, the inventory work moved on to scour other preserves and reveal many more new discoveries of rare species. In 2011, the Trust stepped up the pace of biodiversity inventories to two per year, one north Jersey and one south. This year that number was pushed up again to three north Jersey preserves: Congleton in Sussex County, and High Rock and Mt. Lake Bog preserves in Warren County. Environmental consultant BioStar Associates, Inc. was awarded the work.

The 373-acre Congleton Preserve is an expanse of open marsh with the Beaver Run as its centerpiece. Named for an historic dairy farm that once operated there, the Congleton farmhouse and barns are long gone. Old fields, pastures and stone walls remain as clues to the land's past use. In 2010, State Botanist David Snyder made an outstanding find amongst the tall grass and shrubs of an old pasture. Where cows had grazed decades ago, Snyder discovered a green carpet of *Trollius laxus* spp. *laxus*, the spreading globeflower. This low growing plant with dusky yellow flowers has what Snyder describes as a "buttery" feel to their leaves. Here, growing along this wetland edge was the largest population of spreading globeflower known in the world. This discovery, combined with a surrounding rich limestone forest, felt just right for a host of new species finds. Yet, after turning rocks and logs to discover salamanders or snakes and combing woodlands for plants, relatively few new plant or animal occurrences were discovered. However, some intense nighttime moth counting, done with assistance from moth expert Blaine Rothausser, documented 250 moth species at Congleton Preserve, including some special species like the Florida fern moth.



Spreading globeflower



Buck bean

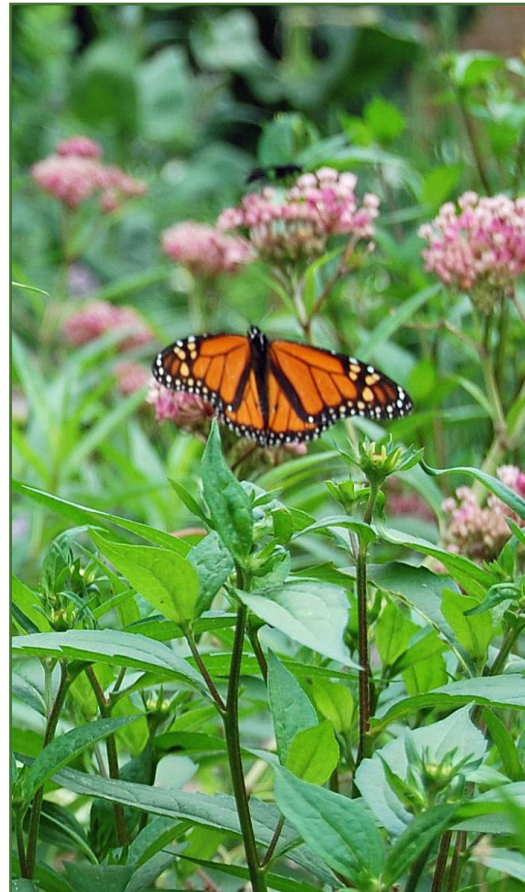
High Rock and Mt. Lake Bog preserves are adjacent to one another, having only a roadway marking the boundary between them. So, it seemed logical to survey these properties together even though their habitat types are a striking contrast. High Rock is a forested mountain top of oaks and hickory, while Mt. Lake Bog is a low wetland of black spruce, larch and maples. Together these preserves comprise 297 acres. Many rare and unique plants were known from this area, particularly from the bog, but some records had not been relocated for decades. Despite climbing up and down steep mountains and slogging in the deep mucky bog, many of the plants proved elusive. One rare plant, *Menyanthes trifoliata*, buck bean, with its lacy white flower, was a highlight to see contrasting with the dark waters of the bog.

The 2018 inventories included the establishment of photo monitoring plots. These plots include key locations of high-quality ecosystems and natural communities across the landscape being studied. This concept is so simple but so important, since much of our natural habitats, even those on protected open spaces like Trust preserves, are undergoing rapid degradation from invasive plants and changes in forest health that you can actually see in pictures. These tagged and labeled photos can be used as a type of baseline monitoring, so ecologists can return to that exact location and compare changes over time.

In 2018, the Trust put some funding it received from a Morristown Airport runway improvement project right to work with a four-day plant and salamander survey at Black Meadows Preserve in Morris County. Hope of finding the endangered blue-spotted salamander were dashed when an extremely wet spring made most areas unsuitable for both salamanders and surveyors. Perhaps another year will reveal the presence of this unique salamander.

Also, University of Rhode Island junior Kevin Rodriguez conducted his second year of monarch butterfly surveys. Following the Monarch Larva Monitoring Project protocol, the Sussex County resident looked at milkweed fields at Wildcat Branch Preserve in Sussex County. Kevin provided a summary report of the study and results. It's important for students like Kevin to gain field and reporting skills and demonstrate their good work habits.

Thinking ahead to the Trust's 50th Anniversary in 2019, the Trust plans inventories on three more preserves. These include Sooy Place Preserve, a 1,585-acre property in the Pine Barrens of Burlington County, and a combined 388-acres to be monitored at Wallkill and Sterling Hill preserves in Sussex County.



Monarch feasting on milkweed.

Reinhardt Reflections

By Martin Rapp, Preserve Manager

As a young upstart ecologist in 1991 with the NJ Natural Lands Trust, one of my first assignments as Preserve Manager was to make a visit to Goyn Reinhardt. Goyn was more than instrumental in moving the Trust from just a legislative idea to an actual on-the-ground land conservation agency. That's because in 1973 Goyn donated his 297-acre farm to the Trust, thereby establishing his legacy through the Reinhardt Preserve. As the Trust approaches its 50th Anniversary it's more than fitting that the land that was so much a part of the Reinhart and Nerpass families continue as a model for land conservation.



Goyn Reinhardt with his radio in hand.

Goyn knew these woods very well. Although his home was in nearby Port Jervis, New York, he traveled each day back to the old farm, where he had so many memories. I called Goyn at 9:00 AM one morning to arrange for the visit. Goyn was hard of hearing and could no longer hear the phone ring; instead he had adapted a light to the dial telephone so he could look for any incoming calls. Then Goyn was off to the farm, he had chores to do. That was to feed his most beloved cats... and he had a bunch.

That day I parked next to his fairly worn out car, an AMC Pacer, and waited for him to finish his cat chores. Goyn offered a very warm welcome with a big handshake, then he stepped back to turn on his hearing aid... "testing, testing" he would say. As a ham radio operator, he knew this lingo well.

Goyn recounted the farm and local history as I followed him into the woods to see the property boundaries of the preserve. Following him around the farm, it was difficult to believe that Goyn was in his mid-80's at that time. We reviewed his firewood cutting practices and looked over his old 12hp International Hit & Miss engine that powered his buzz saw. Soon we were in his Pacer and off to Tom and Arlen's Diner in Port Jervis for his regular lunch routine. He kept half the roast beef sandwich and the two creams from his coffee to bring back to his favorite cats for their lunch. That afternoon, Goyn guided me across busy Clove Road to view the farm's old limestone kiln. Positioned right beside the road, the kiln is a big rock chimney structure where his family



The old limestone kiln

It's evident that Goyn lead by example and had a story worth hearing.

would burn quarried limestone rock as a way to make agricultural lime for their farm fields.

Goyn knew most of the neighbors on the mountain and made a point to visit them often. Talk of the preserve and preservation was a common topic with Goyn. It's evident that Goyn led by example and had a story worth hearing. For even today, those neighbors who knew Goyn adhere to his wisdom. In 2019, the year of the Trust's 50th Anniversary, five new properties surrounding the old farm are to be preserved as additions to the Reinhardt Preserve.

Other long-time Montague Township names, including Bender, Karp, and Hardwick, have preserved their properties, too. A sizable addition of almost 100 acres of what had been part of the Theodoseau Farm, including its own limestone kiln, will also be preserved thanks the Wiess family. And Goyn would likely be pleased to know that the DiCola family, longtime friends, recently sold the site of the historic Reinhardt limestone kiln to the New Jersey Green Acres Program.

After all these years since he donated the farm, the mountain looks pretty much the same thanks to Goyn. Acres of forest, wetlands for ducks and beavers, and remnant history of a day gone by. Goyn has since passed but not his legacy. The namesake Reinhardt Road and, with due thanks to Goyn's vision, a preserved landscape that will always be known as the Reinhardt Preserve.



Different but equally beautiful views of the Reinhardt Preserve.

Hunting News

During the 2018-2019 hunting season approximately 3,602 hunters registered at Trust preserves through its website: 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. This year 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 develop a fair way to implement the lottery. As soon as the Trust would tinker with the technology to eliminate redundant or false submissions, a technical workaround to our fix was discovered. Therefore, the fairest approach was 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.

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 High Rock Mountain Preserve.

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Pinelands Preservation Alliance
Bruce Bieber
Keith Seager
John King
William "Bill" Schmitz
Barnegat Bay Sportsmen's Club
Upstream Alliance
Wayne Township
Wildlife Preserves, Inc.

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.



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.



Awesome volunteers from the Center for Aquatic Sciences' CAUSE team (Community and Urban Science Enrichment) at a Petty's Island clean-up event.



Board of Trustees

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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