

## FEATURED GUEST ARTICLE:

# The Botanical Mythology of the Paulins Kill Meadows, New Jersey

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*A great many interesting new finds are yet in store for the botanist who has the opportunity to spend more time about Newton where Nature is still quite undisturbed in many places.*

Phillip Dowell, Fourth Annual Botanical Symposium of 1907

*Everything changes and nothing remains still ... and ... you cannot step twice into the same stream.*

Heraclitus, as quoted by Plato

*It has been said that it is the unexpected that happens, and in so far as we are unprepared for some events, this is true.*

Harold W. Pretz, 1911

Harold W. Pretz, an Allentown, Pennsylvania banker by profession, was by avocation a field botanist who spent much of his nearly 96 years studying the flora of eastern Pennsylvania and adjoining New Jersey. He became the leading expert on some of New Jersey's most important botanical sites, including the site that he and the other botanists of the time called the Paulins Kill Meadows, located just northeast of Newton, in mostly Andover and Hampton townships, Sussex County.

Late in the afternoon of June 25, 1910, Pretz wandered along the edges of the Sussex Branch of the Delaware Lackawanna & Western Railroad that sliced through the eastern edge of the Paulins Kill Meadows looking for unusual plants and birds. He had parted from his traveling companions, the Mattern brothers, Ned and Walter, at the Newton railroad station on Spring Street—they to make overnight arrangements at the nearby Hotel Waldmere, he to get a jump on his botanical explorations. His interest in the Meadows was perhaps piqued by all the rare and unusual plants that had been discovered there during the Botanical Symposium convened at the Hotel Waldmere in 1907. The attendees<sup>1</sup> of the Symposium, a week long joint meeting of members of the Philadelphia Botanical Club, the Torrey Botanical Club and others, were the first to document in a comprehensive way the diverse flora of the Meadows.

By the time the brothers (or the “boys” as he called them) rejoined Pretz, he had located few previously undocumented plants, but did make note of having heard the calls of “the rails and marsh wrens.” The goal for the afternoon was to

investigate the flora of the Meadows, especially in the areas he called the “Tamarack Swamp” and the “Cranberry Bog,” located about equidistant between the Newton railroad station and the next station to the north at Branchville Junction. As the small party walked northeastward, Pretz recorded the presence of two of New Jersey's pink-flowered orchids, the grass pink and the rose pogonia, observing, “The later was about past but the former in best condition, abundant and beautiful.”



*Grass pink orchid.*

*Photo Credit: David Snyder*

On Decoration Day, a few weeks earlier, Pretz and the Matterns, had discovered in the Meadows another one of New Jersey's pink orchids. This species, *Arethusa* or dragon-mouth, is a rare plant known primarily from sphagnum bogs in the Pine Barrens and all but unheard of from northern New Jersey locations. Several other rare New Jersey plant species were observed by Pretz on that earlier day in May: *Andromeda*<sup>2</sup> (or bog rosemary), bog birch, bog willow, buck-bean, and others. Also found were a number of “South Jersey” plants like golden club, large cranberry and pitcher plant. Although not rare, these species are all more characteristic of New Jersey's Coastal Plain, especially the Pine Barrens. But here, in peaty pools and on sphagnum

1- The attendees were a who's who of botanical luminaries: from professional botanists such as Nathaniel Lord Britton, author of the first comprehensive flora of NJ and the first director of the NY Botanical Garden, to accomplished amateurs like Bayard Long, the acknowledged expert on the flora of southern NJ. (Long was independently wealthy—his father wrote the short story that was the basis of the libretto of Puccini's *Madame Butterfly*—so he was able to devote his life to documenting the local flora.)

2- This small woody shrub in the blueberry family was named for the Greek princess Andromeda in 1753 by the Swedish botanist Carl Linnaeus. Andromeda, in Greek mythology, had been chained to a coastal rock as a sacrifice for her mother's boastful indiscretion and just before she is swallowed by Poseidon's sea serpent she was rescued by Perseus, her future husband. A literal translation is “to be mindful of men.”

hummocks in the dim light of tamaracks, they grew side-by-side with their displaced northern brethren, plants which were relicts of geographical distribution from the last ice age.

As the day drew to a close on the group's most recent exploration of the Meadows, a hurried retreat was made to return to the Waldmere so as not to miss supper. No new rare plants had been discovered on that day and even the detour to look for eggs in the nest of the marsh hawk (now named the northern harrier), was unlucky (the nest was empty) but they did see a bittern and several sora (a small elusive marshbird) as they walked back along the railroad.

The next day, June 26, 1910, Pretz and the Matterns were on their way by 7:00 AM, walking from Newton to Springdale by way of Muckshaw Ponds. This day's mission was to collect various species of shield ferns at the "Big Spring" for study by Phillip Dowell,<sup>3</sup> the leading expert on this difficult group of ferns. Reaching the spring, they paused for a drink before getting on with their fern collecting. They spent several productive hours searching among the bewildering array of the promiscuous shield ferns. Mission completed, they made the hike from the swamp to the Andover Junction railroad station for their return home, lugging their over-filled plant presses (102 fronds of the ferns alone), bulky photographic equipment, and whatever luggage they carried; their clothes and shoes covered in the muck and mire of the day's work.

Upon reaching the depot, the station master directed their attention to a stranger "which he ventured must be in the same business as [they] were."



*Pitcher Plant, more characteristic of New Jersey's Coastal Plain, but found at Paulins Kill Meadows.*  
Photo Credit:  
David Snyder

(Translation: he was also filthy.) The stranger was Kenneth Kent Mackenzie, a New York City attorney, and one of the most knowledgeable field botanists that New Jersey has produced (KKM lived in Maplewood, New Jersey). Mackenzie had spent the day collecting unusual sedges from the limestone swamps, lakes shores, sinkhole ponds and wooded ridges along the Sussex Branch, north of Andover Junction. It was Ned Mattern who first approached Mackenzie and asked in the awkward colloquialism of the time "what luck" had he that day. A con-

versation ensued, notes compared, and the day's botanical discoveries discussed and then continued onboard the train until they parted company at the Stanhope railroad station.



*Andromeda also known as bog rosemary.*

Photo Credit: David Snyder

In 1913, Mackenzie made his first field trip to the Paulins Kill Meadows; perhaps inspired by that chance meeting with Pretz and company, three years earlier. He returned once more in 1914. Mackenzie observed most of the rare plants documented by Pretz and the earlier botanists and discovered several previously unreported species. At the time, Mackenzie was well on his way to establishing himself as the leading expert of the notoriously difficult sedge genus, *Carex*, and he recorded several good finds including soft-leaf sedge, livid sedge (common in peatlands in the Pine Barrens but exceptionally rare in north Jersey) and the relocation of the mud sedge, then known only from three or four New Jersey locations.

Between 1907 and 1914, a total of 24 rare or regionally uncommon plant species had been documented from various locations within the Paulins Kill Meadows through the field work of the botanists of the Symposium, Pretz, and Mackenzie.

Harold Pretz died November 8, 1973 and is all but unknown to today's generation of field botanists. If not for the ca. 16,000 plant specimens that he pressed, mounted and gifted to several local botanical institutions his discoveries would be lost.<sup>4</sup> Mackenzie, (whose considerable botanical achievements are recognized far more today than had been during his lifetime), born in the same year as Pretz (1877), died in 1934. Botanically, the Mattern brothers,<sup>5</sup> have been relegated to obscurity—they made no New Jersey botanical collections nor have they left behind any field notes that I'm aware of. Although they made significant botanical discoveries, only Pretz seems to have made note.

After fighting a losing ridership battle to the automobile, the Sussex Branch of the D.L. & W. Railroad, which had provided the early naturalists easy access to the Meadows, ended all rail passenger service October 2, 1966. A few years later, in November of 1970, the historic Newton passenger station was torn down. The Andover Junction station burned to the ground 20 years earlier. The last of the rails were pulled up in 1977.

3- Dowell, who was an old friend of Pretz (they met when Dowell taught at Muhlenberg College in Allentown), described several new shield fern hybrids, two of which were discovered by him at the Big Spring during the 1907 Newton Symposium.

4- Even the plant species discovered by and named for Harold Pretz (*Polygala pretzii*) is now regarded as too trivial, and has been discarded into the waste bin of botanical synonymy.

5- Robert L. Schaeffer, Jr. (who was a field companion of Pretz) told me that Walter Mattern had a heart condition and soon stopped going out in the field with Pretz, turning to painting instead. He was a close friend of the impressionistic painter Walter Baum (founder of the Baum School of Art). Mattern's impressionistic paintings are in the collection of several major art museums. He died in 1946. Several years after his 1910 Paulins Kill Meadows trip with Pretz, Edwin "Ned" Mattern, moved to West Point, PA where in 1918 he bought a feed store. A year earlier, he was assigned a U.S. patent for a machine that cut seed potatoes. His date of death is given as "?" on one online family tree.

The Hotel Waldmere had maintained at least a tangential natural history connection by hosting into the 1970s some of the annual meetings of the Sussex County Bird Club.<sup>6</sup> In the years that followed, the hotel changed names and ownership a number of times and in 2012 it closed its doors under the name JC's Grill House.

The land fared less well.

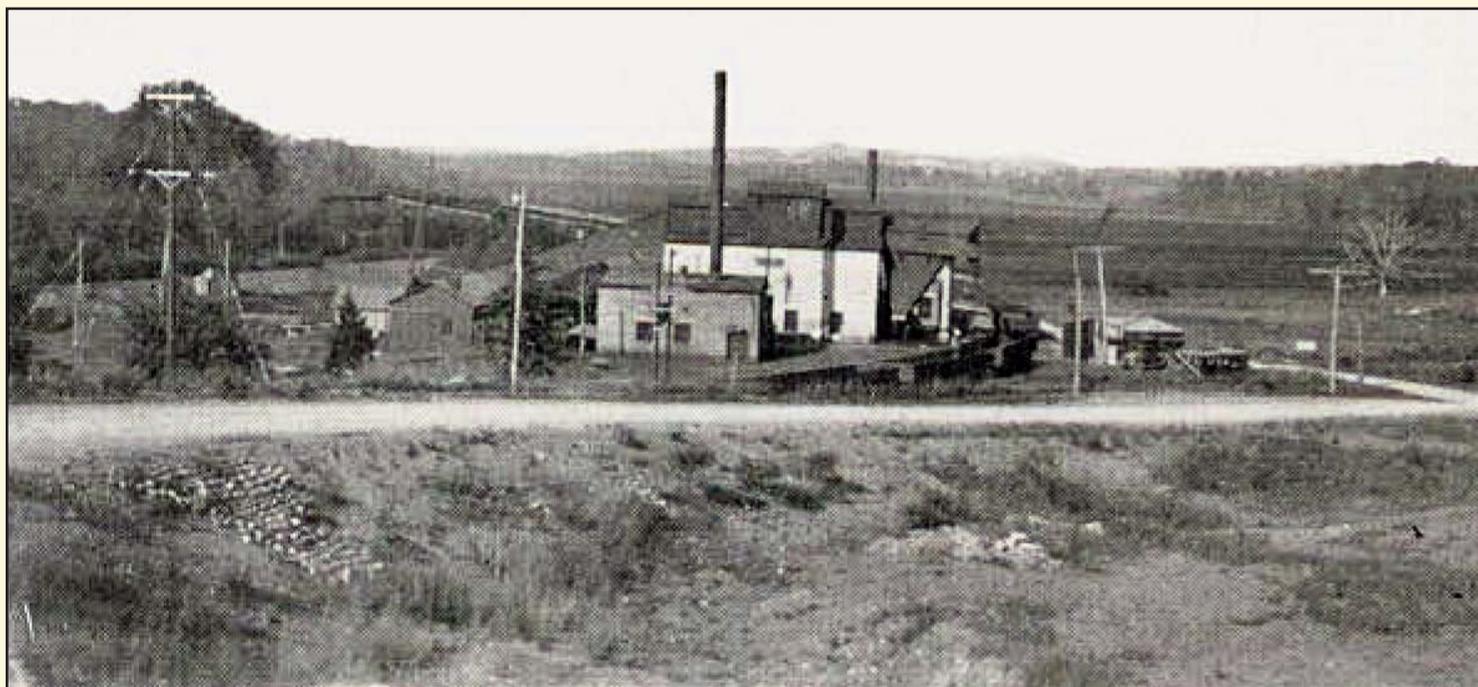
The Paulins Kill Meadows has its origin in the glacier meltwater that was trapped by the surrounding hills. Throughout the Holocene the glacial lake that had formed filled with sediments and decomposing plant debris (mostly moss, sedge and grass species). The resulting deep layers—up to 37 feet—of organically rich muck soils and peat are underlain by white marl and calcareous sands. The micro habitats created by the interplay of the acid peat and rich calcareous soils, contributed to the high diversity of the Meadows' flora. As plant succession proceeded, sunny, open sphagnum bogs gave way to the wooded swamps, brushy calcareous fens and the tamarack swamp explored by Pretz and Mackenzie. Glacial lake beds and northern bogs are known for their isolated populations of plants typical of more northern distributions.

William Penn was the first owner of much of the Meadows, having acquired about 5,000 acres in 1715. Penn willed the tract to his sons who then sold it in 1760. In the intervening

years, the parcel was broken up and resold and partially reconstituted and, in 1915, over 1,200 acres were purchased by Colonel Samuel Price Wetherill of Philadelphia for a peat mining operation.

A year after Mackenzie's last recorded field visit, the transformation of the Paulins Kill Meadows from wilderness to commodity was underway. The initial operation started at the northernmost corner of the property and then inched southwestward. A network of ditches was dug to drain the land and the vegetation was cleared so that the sod could be stripped away from the underlying peat layer. Cover crops were repeatedly planted and plowed under. The ground was "harrowed to break it into small pieces" and then it was "dug by caterpillar-mounted drag-line shovels and then stacked in heaps to dry." Colonel Wetherill named his peat product "Hyper Humus" and the corporation was named "Hyper-Humus Company."

By 1934, the Hyper-Humus Company had risen to be one the largest peat producing companies in the United States, with its enriched peat product having been used "on the White House lawn...famous football fields, parks, golf courses and private lawns throughout the United States." In time, the deep peat calcareous fens and grassy meadows, the cranberry bog and tamarack swamp, Pretz's pink orchids and Mackenzie's rare sedges were essentially reduced to potting soil. Gradually, and ironically, the name Paulins Kill



*Hyper-Humus Company, ca. 1930s.  
Peat continued to be mined from the Paulins Kill Meadows for nearly 75 years.*

6- Among the members of the Sussex County Bird Club who attended the 1970 annual meeting convened at the Hotel Waldmere were the New Jersey naturalists James L. Edwards and Jim Zamos, naturalist and film maker George Johnson, and Eloise Lehnert, whose Warren County property was purchased by the state and forms a significant portion of the New Jersey Natural Lands Trust's Limestone Ridge Marsh Preserve. The Dryden Kuser Cedar Swamp at High Point State Park is named in honor of the past president of the club, Senator John Dryden Kuser. The Senator's father donated 10,000 acres that became High Point State Park and he also financed the construction of the High Point Monument which was built on top of NJ's only known location of three-toothed cinquefoil. A few plants did survive and the population has since recovered.

Meadows fell into disuse, having been replaced by “Hyper Humus.”<sup>7</sup>

In 1985, the Hyper-Humus Company was subsumed by the Hyponex Corporation, which in turn was gobbled up by the Scotts Company in 1988. Two years later, the Philadelphia District of the Army Corps of Engineers, alleging that a Section 404 permit was required, directed a halt to the peat extraction at the Hyponex facility. In 2003, the U.S. District Court for New Jersey approved a judicial consent decree settling the Hyponex enforcement action through the grant of a conservation easement on the property to the New Jersey Natural Lands Trust, along with a \$125,000 management fund and long-term restoration requirements. The remainder fee interest was purchased by the New Jersey Department of Environmental Protection using Green Acres and New Jersey Waterfowl Stamp funds. In 2005, the property was transferred to the Division of Fish and Wildlife for management and renamed the slightly redundant Paulinskill River Wildlife Management Area (“kill” is Middle Dutch for “river”). With this settlement, nearly 75 years of active resource extraction came to a conclusion and a new phase of resource protection began.

In the portions of the Paulins Kill Meadows that were being mined for its peat and muck soils it’s likely that much of the wildlife fled; certainly the larger mammals (like deer) could have. The birds simply flew away or stopped coming back. With the cessation of mining operations which had created large water-filled impoundments, bird diversity rebounded. In 2005, Sharon and Wade Wander were contracted by the New Jersey Natural Lands Trust to conduct a comprehensive biological inventory of the Meadows. They documented 247 bird species, 61 of which have some level of conservation status. At the time of the Wander’s inventory, Pretz’s bitterns (least and the state endangered American), rails (king and Virginia) and sora, all were confirmed from breeding populations, however the northern harrier no longer nests there nor anywhere else in Sussex County. To compensate for this loss, there are nesting bald eagles and the number and kinds of shore birds are impressive, and, according to Tom Halliwell, the Paulins Kill Meadows has been one of the best inland sites for shore birds. It also has a respectable diversity of butterfly and moth species.

And the plants?



*Arethusa also known as dragon-mouth.*

*Photo Credit: David Snyder*

As luck would have it, ground zero of the peat extraction operations coincided with the largest concentrations of rare plant species and the highest quality natural plant communities. The plants, lacking any discernible legs or feet, were obliterated and the plant communities destroyed or irrevocably altered. Based on aerial imagery, the last areas to go were the cranberry bog and tamarack swamp which were destroyed sometime between 1963 and 1970. Most of this area has been transformed into open, watery wetlands which, in places, are under several feet of permanent standing water with no chance of recovery. Certainly all of the plant populations recorded by Mackenzie and likely many of Pretz’s were located in this area. At least nine plant species known to these botanists appear to have been extirpated from the Meadows, including *Arethusa*, the beautiful little pink orchid discovered by Pretz in 1910.<sup>8</sup>

A remarkable discovery was made in the Meadows on July 9, 1963; a discovery that seemed to have been made against all odds—or perhaps the gods’ subterfuge had weakened. The lucky discoverer was Vincent Abraitys, a former Hunterdon County chicken farmer-tax collector turned naturalist-author, who spent much of his free time tracking down birds and lost locations of New Jersey plants. Tucked away at the southern end of the Paulins Kill Meadows, just off of the Sussex Branch railroad, a little northeast of the Hotel Waldmere in downtown Newton, and just southwest of the ever advancing Hyper-Humus peat mining operation, Abraitys discovered a relatively tiny, brushy remnant of the deep peat calcareous fens that had once dotted the Meadows.

There were no tamaracks to be found in the fen and the abundant red maples and black ash and the various shrubs were complicit in transforming the fen into a wooded swamp. But in the remaining peaty and sphagnum openings, grew several of the “fancy plants” (as Vince liked to call them) known to the earlier botanists. He found the bog willow and bog birch, large cranberry and golden club, thin-leaved cotton grass and sweetgale; he even found one of Mackenzie’s lost sedges, the small yellow sedge, a species first described by Mackenzie based on specimens he had collected on June 26, 1910 from the shore of White Lake along the edge of the Sussex Branch railroad, north of the Andover Junction railroad station. (This site is now flooded.) To Abraitys’ surprise, hidden among the vegetation along an edge of the fen he found a small patch of *Andromeda*. In later explorations, Abraitys added a couple of plants never previously documented from the Paulins Kill Meadows—the

7- In the 1800s the wetlands were known as the “Gray Swamp” named for the abundance of gray birch, which according to Harold Pretz, were still “abundant throughout” in 1910.

8- In Greek mythology, *Arethusa* was an Eleian Nymph of fresh water, who in a desperate effort to preserve her purity from the unwanted amorous advances of the river-god *Alpheios*, appealed to the goddess *Artemis*. *Artemis* took pity and transformed *Arethusa* into a spring of water, hoping to conceal her from the river god. *Alpheios* was not deceived and continued his pursuit secretly disguised as a river and eventually he caught up with the Nymph. And like it has for the orchid, it did not end well for the Eleian Nymph.

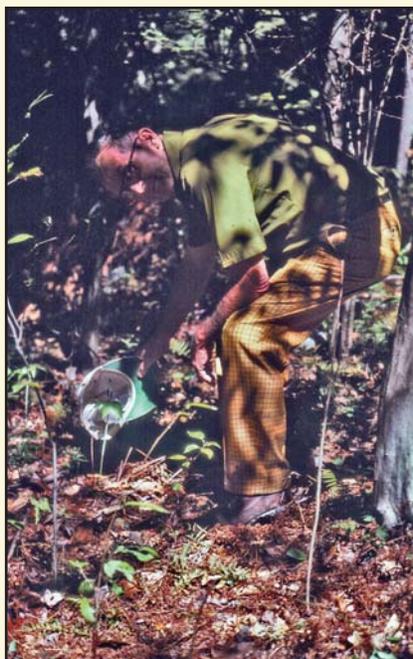
pretty little stiff gentian and the curious wisp of a plant, rush aster.

Abraitys' last recorded field trip to the fen was made on September 12, 1979. He added no new plants that day but in his notes he expressed his concern that the "bog [was] being overgrown" which meant strategic clearing of the woody vegetation was needed. To this end, he sought the help of Jim Zamos. Jim is a lifelong resident of Newton, a former superintendent of the Hackettstown Fish Hatchery, the former owner of a Newton real estate business, and one of New Jersey's premier birders.

Although the two were longtime friends and birding companions, the real reason that Abraitys approached him may have been Jim's stated field philosophy of "keep your eyes and ears open and your mouth shut." Abraitys' philosophy was a slight variation on Jim's theme: "keep it under your hat." A deal was struck. Abraitys would show Jim the bog with its fancy plants and in exchange Jim would keep an eye on the place and try to keep the worst of the woody succession at bay.

I first met Vincent Abraitys over the telephone in 1979. Mary Hough was then the curator of the Rutgers University herbarium and, with David Fairbrothers, coauthored the first publication on the rare and endangered plants of New Jersey. She told me that Abraitys had taken a few young protégés under his wing (her words) and I should give him a call. For some reason, Abraitys had always been suspicious of "those Rutgers people" and because of my association with "those people" it took me a while (and a number of good botanical finds) to be brought fully under his wing. Over the next five years we shared many new plant discoveries and botanical adventures. (He once made me ride on the roof of his station wagon so I could see above the tall roadside vegetation in an effort to relocate a rare orchid that he had misplaced.) Still, he never once tipped his hat about the Hyper Humus Bog, as he called it.

When Vince died November 3, 1983 (nearly 10 years to the day after Pretz had died), I was given by his wife his card file of all the plants he had observed in New Jersey. There were many thousands of entries on thousands of plants starting from about 1956. The rare plants he had discovered in the Paulins Kill Meadows were there, but all were devoid of



*Vincent Abraitys keeping something under his hat.*

*Photo Credit: David Snyder*

any meaningful directions.

My first serious attempt in locating the fen was on June 14, 1984. I had prepared for the search as best I could, reviewing the information on the specimens labels collected by the earlier botanists, reading through all of Vince's card file notes and studying my Newton West U.S. Geological Survey Topographic Quadrangle Map. From the map, I learned at least what areas not to search—the areas now marked as open water added in a 1971 revision of the map. And just for good measure, I stopped off at Jim Zamos' real estate office in Newton. I told Jim what I was up to and he then showed me to the wall in his office. The wall had been wallpapered, from floor to ceiling, with a set of Sussex County topographic maps. Jim pointed to the place on the wall—the map—where the fen was located and gave me directions on how to find it.

After a few wrong turns, I found the fen. Since I was expecting something a little more open, I had walked past it at least once. There was very little open habitat left, but the plants were still there—fancy and otherwise. Bog birch formed a small, shoulder high thicket. There were scattered knee-high shrubs of the bog willow and a single shrub of autumn willow.<sup>9</sup> Shrubby cinquefoil shared sphagnous hummocks with cranberry and pitcher plants. I searched and searched but did not find the Andromeda.

In the summer of that same year, I learned from Tom Halliwell (birder, botanist and another Abraitys protégé) that Jim Zamos had recently shown him the Andromeda at the fen. Arrangements were made, and on the 25th of August, I was back at the fen with Tom and with Rick Radis (naturalist, author and yet another Abraitys protégé). Kalm's lobelia was in full flower and the rush aster was close to blooming. Buck-bean, flat-leaf bladderwort and golden club formed small, but healthy populations in shallow-watered, mossy-bottomed pools. And, all but invisible in some dense vegetation grew a few small, straggly and not at all healthy looking shrubs of Andromeda. It was clear that the plant was not long for this earth and not Jim Zamos, and not even mighty Perseus would save Andromeda this time.

In the intervening years, I returned to the fen a number of

9- This species was discovered at the Paulins Kill Meadows on July 16, 1950 by James Leland Edwards. Born in 1895, Edwards learned the locations of NJ plants firsthand from early 20th century botanists like Mackenzie and in later years he was a mentor to Vincent Abraitys. Edwards was expert in both plants and birds and he participated in many of the Sussex County Bird Club's trips to the Meadows. It is possible that Edwards discovered the fen and provided the location to Abraitys but the only plant species that Edwards documented from the Meadows is the autumn willow and he described its habitat as an open marsh and not a boggy, brushy fen. Professionally Edwards was a civil engineer employed by H.G. Balcom & Associates where he worked on the design of the structural frame of the Empire State Building. The story goes (as told to me—in two slightly differing versions—by Abraitys and David Fairbrothers) that when the B-25 bomber crashed into the Empire State Building on July 28, 1945, state police were dispatched to locate Edwards in some remote New Jersey swamp that he had been botanizing. Once found, they then rushed him to New York City so he and others of the firm could assess whether the building would continue to stand.

times looking for some of the still lost plants of the Paulins Kill Meadows: the rest of Mackenzie's missing sedges, some of Pretz's orchids and especially the totally ungrass-like seaside arrow-grass, a flowering plant which is a model of nondescriptiveness.<sup>10</sup> Of these, I only found a single plant of the grass pink orchid; not in flower but in fruit, the capsule filled with hundreds of dust-like seeds. With luck, some day in the future, some visiting botanist will again describe it as "abundant."

I don't know why on those later field visits I didn't make an effort to search for the *Andromeda*—to see it one more time—but sometime after 1984, unobserved by anyone, that tenuous population of the little shrub with its small evergreen leaves and small pale pink bell-shaped flowers, quietly winked out of existence.

My most recent visit to the Paulins Kill Meadows was on October 22, 2012. This field trip was with Martin Rapp, preserve manager of the Natural Lands Trust. Martin had explored far more of the Meadows than had I and he had discovered some areas that he thought looked interesting for plants. We parked in a small dirt pull-off at the gated lane that led to the Sussex Branch Rail Trail. Stepping over the usual dumped lawn clippings, minor construction debris, a perfectly good leather belt, coffee cups, and beer bottles (this is New Jersey after all), we headed northward on the trail. Just south of where the second growth wet woods interfaced with the southernmost edge of the now defunct peat mining operation, we dropped down off the embankment and hiked northwest through the woods to the edge of the open wetlands, the former site of Pretz's tamarack swamp.

The woods, which were a tangle of nonnative invasive shrubs—barberry, wineberry and multiflora rose—had little to interest a botanist. The edge of the expansive treeless wetland was reached but a broad, very deep and water-filled ditch prevented access. Here we improvised a make-shift bridge built of rotten logs and decidedly undersized tree branches and here we momentarily abandoned good judgment and crossed over on our bridge of sticks.

The habitat that remained was even less than I had hoped to find. Not a wetland but a botanical wasteland. Stygian. Much of the site was overgrown with rank vegetation, in places covered with dense stands of the invasive phragmites and scattered clumps of purple loosestrife. Being late October,



*Buck-bean.*

*Photo Credit: David Snyder*

virtually nothing was in bloom; the vegetation mostly dead and brown. Knowing the once rich botanical history only made it more sullen. Theodore Roethke's poem *Moss-gathering* came to mind. Good luck finding anything here, I thought. The birds, however, didn't seem to mind the new landscape and the deer seemed happy as well.

We found our way first to the Paulins Kill, which had been ditched—for reasons still not fully understood—about 1860. From there we made our way back towards the rail trail, looking for the openings that Martin had thought seemed promising. These we found and they were more interesting; more open and not covered with quite as many invasives. It was about

here that I had started noticing some low vegetation that was a slightly different color of dead—tanner and definitely sedge-like. *Rhynchospora*?

After rummaging about in the tangled, matted vegetation, some seeds were found, making identification possible: *Rhynchospora scirpoides*, the long-beak bald-rush.<sup>11</sup> This species is very rare in New Jersey and known mostly from some peaty Coastal Plain intermittent ponds in the southern part of the state. And like the *Arethusa* orchid, it is barely known from northern New Jersey, with only three previously documented locations, all but one in Sussex County. Those sites are all turfy-bottomed limestone sinkhole ponds but here it grew in peaty, newly created meadow-like openings. And it occurred here in the thousands.

Had the species always been here but missed by those earlier botanists? Or was it a recent phenomenon resulting from seeds carried unknowingly by waterfowl? As Jim Zamos recently said to me, "Things change." We tend to view plant populations as static and unchangeable, but for whatever the reason—natural or human caused events or perhaps a need to flee the gods—plants continue to migrate: northern plants retreating northward, southern plants advancing northward.

From here, Martin and I made our way back to the trail and continued northeastward. Just past the wooded slope that led up to Jim Zamos' home, we turned westerly along an old dirt road and passed by the spot where Tom Halliwell had recently discovered New Jersey's only extant population of Gattinger's panic grass. Eventually we made our way to a wooded island-like limestone ridge we thought might be worth exploring. The woods were completely overrun by the

<sup>10</sup>- The species was first discovered at the Meadows in 1907 by Dr. Elsie Kupfer. It was last documented as present in 1961 by Bob Hirst, who along with his brother Frank, are famous for being the discoverers of the globally rare Hirst Brother's panic grass in the New Jersey Pine Barrens

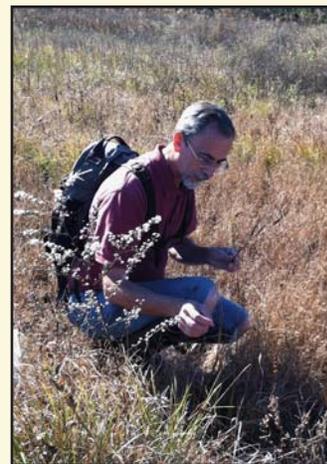
<sup>11</sup>- By my count long-beaked bald-rush is the forty-first rare or unusual plant to be discovered in the Paulins Kill Meadows and is one of the 17 rare species to have been discovered between 1950 and 2012. From 1915 to 1949, I cannot find any records of additions to the rare flora of the Meadows.

usual nasty assortment of invasive sticker and thorn bushes, making the going slow. It was late, and we hadn't had lunch, so we agreed to call it quits and headed back to our truck.

Before leaving the Meadows, a short detour was made to show Martin the fen discovered by Vincent Abraity. Vince's little lifeboat of a refugium was taking on water. Woody succession continues and the openings were even smaller. Most of the rare plants were still present but in smaller numbers. The bog birch was nibbled down to a foot or less by white-tailed deer that continue to eat out both the woody and herbaceous heart of the fen. In places the highly invasive Japanese stilt grass now carpets the spongy ground and Japanese barberry is edging in. Things do indeed change.

Back in our truck, we headed south to Newton, driving up Spring Street, past the site of the old railroad station, past JC's Grill House, and up to Hayek's Market and Deli on Rt. 206. We sat at a picnic table in the parking lot eating our sandwiches and rice pudding perched on a rise of elevation, that, had we been back in the days when William Penn owned his tract, we would have had a glimpse of the Meadows below. Some strangers approached—seemingly unaware or undeterred by our muck and peat covered clothing with touches of dried blood from the cuts and scratches suffered in our earlier bushwhacking—and asked directions to the Newton family court house. We shrugged. A story missed—sad or otherwise. As we sat there talking at the table under the half-shade of its too small umbrella, we decided that after we finished lunch we would head down to Andover Junction and explore some limestone ridges north

of the site of the old railroad station on land that is now a part of the newly created Kittatinny Valley State Park. Our conversation was intermittently drowned out by the sounds coming from the constant passing stream of cars, SUVs and trucks driven by their indifferent drivers and by the sounds of construction as builders worked to complete the new addition to the popular market.



David Snyder discovering *Rhynchospora* at the Paulins Kill Meadows. Photo Credit: Martin Rapp

Just possibly, somewhere out in space, perhaps out past the stars in the constellation of Andromeda, the sound waves of Ned Mattern's voice travel ever outward, carrying the faintest echo of a one hundred year old query asked of a long dead New Jersey botanist waiting on the platform of a railroad station that no longer stands, "What luck?"<sup>12</sup>

Amidst change, life goes on—grand and bold or subtle and unfathomable. And, if we observe and listen, there are still discoveries to be made and new mythologies to create.

12- For those who think that this statement is a fanciful implausibility—because sound waves cannot possibly travel through the vacuum of space—science says otherwise. Astronomers at Cambridge University, England, using NASA's orbiting X-ray telescope discovered a sound emanating from a black hole in the Perseus cluster of galaxies. According to NASA, the sound, a single note (B-flat to be precise) is the lowest sound wave ever to be detected from the Cosmos: "The Perseus cluster black hole's B-flat... is 57 octaves below middle C or one million, billion times lower than the lowest sound audible to the human ear." And that note has been sounding and traveling for a very long time. Space is not a complete vacuum but is filled with an amazing amount of seemingly insignificant gas and dust. This is the medium through which the sound waves travel and this is how the past is heard. Did I mention that Harold W. Pretz played the piano?

## Acknowledgements:

A complete list of source notes is too lengthy to include here but I want to acknowledge the primary references and individuals consulted. The majority of the quotes and background information on Harold Pretz are from his field notes contained in the collection of the Academy of Natural Sciences of Drexel University, Philadelphia, PA. Additional information on Pretz came from the late Robert L. Schaeffer, Jr. Over the years, Jim Zamos has answered many of my questions (both botanical and historical) about the Paulins Kill Meadows and the Newton area. In a January 2013 interview Jim gave me a brief history of the Meadows from their acquisition by William Penn through the Hyper-Humus years; most of which is summarized in Sharon and Wade Wander's 2005 biodiversity inventory of the Meadows prepared for the Natural Lands Trust (unpublished). Jim's offhand comment that "things change" became the thread that allowed me to weave the many disparate themes together. Additional information on the Hyper-Humus Company came from Meredith E. Johnson, *Mineral Industry of New Jersey for 1934*, Bul. 43 (1936), Reports of Dept. of Conservation and Development, Division of Geology and Topography, Trenton, NJ. Rick Radis' interview with Jim Zamos was also consulted (The Master of Hyper Humus, *New Jersey Audubon*, Spring/Summer, 2009). Tom Halliwell provided information on both birds and plants and also fact checked my memories. Much of the information on the D.L. & W. Railroad came from Dave Rutan's Remember the Sussex Branch (<http://dlw-sussexbranch.com/>). The Goddard Space Flight Center is the source for the strangeness emanating from the Perseus cluster's black hole (*Interpreting the "Song" of a Distant Black Hole* at:

[http://www.nasa.gov/centers/goddard/universe/black\\_hole\\_sound.html](http://www.nasa.gov/centers/goddard/universe/black_hole_sound.html). Martin Rapp's (NJ Natural Lands Trust) suggestion for a late fall field trip to the Meadows was the catalyst for this article. Cari Wild (NJ Natural Lands Trust) provided a succinct summary of the legal actions taken against the Hyper-Humus Company that resulted in the state acquisition of the Paulins Kill Meadows. Cari was also the primary source of encouragement. Jerry Hlubik's review kept my foot out of my mouth. Maude Snyder reviewed the first draft and made many good suggestions and Erik Snyder provided a careful, scholarly review. My thanks to all.