

Noteworthy plants reported from the Torrey Range— 2004 and 2005

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LAMONT, E. E. (Local Flora Committee, Torrey Botanical Society, The New York Botanical Garden, Bronx, New York 10458) AND S. M. YOUNG (New York Natural Heritage Program, 625 Broadway, Albany, New York 12233). Noteworthy plants reported from the Torrey Range—2004 and 2005. *J. Torrey Bot. Soc.* 133: 648–659. 2006.—Twenty five noteworthy species of vascular plants are reported from the Torrey Range, encompassing southeastern New York, northern New Jersey, and southwestern Connecticut: *Anagallis minima*, *Asclepias purpurascens*, *Diospyros virginiana*, *Eupatorium album* var. *subvenosum*, *Euphorbia lathyris*, *Fatoua villosa*, *Froelichia gracilis*, *Juncus debilis*, *Lemna valdiviana*, *Ludwigia peploides* subsp. *glabrescens*, *Lygodium palmatum*, *Myriophyllum spicatum*, *Oxalis violacea*, *Polygonum perfoliatum*, *Pycnanthemum torrei*, *Pyrus calleryana*, *Pyxidantha barbulate*, *Rumex hastatulus*, *Spiranthes vernalis*, *Thlaspi alliaceum*, *Trapa natans*, *Trichostema setaceum*, *Utricularia juncea*, *Utricularia radiata*, and *Vicia lathyroides*.

Key words: biodiversity, distribution, floristics, invasive plants, rare plants, Torrey Range.

This report is the fifth in a continuing series of floristic studies produced by the Local Flora Committee of the Torrey Botanical Society. For historical and background information contained in earlier reports, see Lamont and Fitzgerald (2001) and Lamont and Young (2002, 2004, 2005). The Torrey Range includes southeastern New York (Bronx, Kings, Nassau, New York, Orange, Putnam, Queens, Richmond, Rockland, Suffolk, and Westchester counties), northern New Jersey (Bergen, Essex, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Passaic, Somerset, Sussex, Union, and Warren counties), and southwestern Connecticut (Fairfield County). Nomenclature mostly follows Mitchell and Tucker (1997), ranges of distribution and nativity status follows Gleason and Cronquist (1991) unless otherwise stated, and herbarium abbreviations follow Holmgren et al. (1990).

Of the 25 vascular plant species included in this report, 14 are native to the Torrey Range and 11 are non-native; all 14 of the native species are listed as rare in either New York, New Jersey, or Connecticut. Six of the native

species are at (or near) their northern range limit in the Torrey Range, including *Diospyros virginiana*, *Juncus debilis*, *Rumex hastatulus*, *Spiranthes vernalis*, *Trichostema setaceum*, and *Utricularia juncea*. Three of the native species have restricted global ranges, including *Eupatorium album* var. *subvenosum*, *Pycnanthemum torrei*, and *Pyxidantha barbulate*.

New populations of five rare plant species are reported for the first time from the Torrey Range, including *Diospyros virginiana*, *Juncus debilis*, *Lemna valdiviana*, *Lygodium palmatum*, and *Utricularia radiata*. Clarification on the northern range limit of *Utricularia juncea* is presented, as is an update on the status of *Pycnanthemum torrei* on Staten Island, New York. Noteworthy increases in population size are reported for *Asclepias purpurascens*, *Oxalis violacea*, *Pyxidantha barbulate*, and *Spiranthes vernalis*. Conversely, populations of the globally rare *Eupatorium album* var. *subvenosum* have severely declined on Long Island, New York during the past 20 years. The last known population of *Rumex hastatulus* in the Torrey Range has not been observed during the past 15 years and *Trichostema setaceum* has not been observed in the Torrey Range for more than 60 years.

Of the non-native species included in this report, *Ludwigia peploides* subsp. *glabrescens*, *Myriophyllum spicatum*, and *Trapa natans* have the potential to become the most invasive

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submergent aquatic pests in the Torrey Range. *Froelichia gracilis*, *Polygonum perfoliatum*, and *Pyrus calleryana* have become, or have the potential to become, serious invasive terrestrial weeds. *Anagallis minima*, *Euphorbia lathyris*, *Fatoua villosa*, *Thlaspi alliaceum*, and *Vicia lathyroides* are newly established non-natives in the Torrey Range.

Throughout this report, we have endeavored to give credit to individuals who reported their findings to us. We are especially grateful to Karl Anderson (Philadelphia Botanical Club), Mariellé Anzelone (City of New York Parks and Recreation), Spider Barbour (independent field botanist), Orland "Skip" Blanchard (Long Island University & Long Island Botanical Society), Stephen Broyles (SUNY Cortland), Steve Glenn (Brooklyn Botanic Garden), Andrew Greller (Queens College of CUNY), Chart Guthrie (NYS Department of Environmental Conservation), Bill Jacobs (The Nature Conservancy), Jesse Jaycox (New York Natural Heritage Program), Marilyn Jordan (The Nature Conservancy), Rich Kelly (Long Island Botanical Society), Scott Kishbaugh (NYS Department of Environmental Conservation), Gregory Kramer (New York Restoration Project), Richard Lynch (Sweetbay Magnolia Conservancy), Ray Matarazzo (Staten Island Museum), Ed McGowan (NYS Parks and Historical Preservation), Kathy Schwager (The Nature Conservancy), Richard Stalter (St. John's University), and John Yrizarry (independent field botanist).

Annotated List of Noteworthy Plants Reported from the Torrey Range—2004 and 2005

Anagallis minima (L.) Krause ex Sturm
(*Centunculus minimus* L.)

Chaffweed

Primulaceae, the Primrose Family

There is a single New York record from Albany County for this diminutive, non-native relative of scarlet pimpernel (Weldy and Werier, 2005); there are no records at all from New Jersey according to the USDA Plants database (USDA, NRCS 2006). In July 2004, Orland "Skip" Blanchard found this species growing on the edge of a coastal fresh pond while he was flagging a wetland in Huntington Bay in northwestern Suffolk County, Long Island, New York. It grew in a wet residential lawn that was mowed to the water's edge. Near it and also mowed were *Ludwigia*

palustris, *Eclipta prostrata* and *Lindernia dubia*.

Anagallis minima occurs only as scattered records in the Northeast; it remains unreported from Pennsylvania, New Jersey and all of New England. Various northeastern floras describe the overall distribution of *A. minima* as irregularly cosmopolitan, or semicosmopolitan, or native outside of the Northeast. The NatureServe database indicates that states close to or bordering New Jersey and Pennsylvania to the south (Delaware, Maryland, Virginia, West Virginia) rank it as SU ("status uncertain because of the cryptic nature of the plant") or SH ("historical, no existing sites known in the state in the last 20–30 years but it may be rediscovered"); many other states to the south and west do not rank *A. minima* at all (NatureServe, 2006), but it is uncertain whether they do not know the status of the species or it is so common it is not ranked. Illinois ranks *A. minima* as a non-native species, whereas three of its border states (Kentucky, Missouri, Indiana) consider it native (NatureServe 2006).

Asclepias purpurascens L.

Purple Milkweed

Asclepiadaceae, the Milkweed Family

Purple milkweed is currently known in New York at 10 confirmed localities from Greene County south along the Hudson River counties through Staten Island and Long Island. There are also about 25 historical and unconfirmed records from the same region. Until recently all of these populations had less than 50 individuals each which seems to be a common phenomenon throughout the entire range of the species. The Natural Heritage Program botanists in the nine states of Minnesota, Michigan, Wisconsin, New Jersey, Delaware, Illinois, Virginia, Pennsylvania, and Tennessee were contacted for information on population sizes of this species in their states. Only two of the states reported populations of more than 100 individuals and the largest population was estimated to be 400 individuals in Illinois; almost all of the populations were reported to be 50 individuals or less. In all of New England there are only 4 extant populations in Massachusetts and Connecticut with a total of 23 stems (Farnsworth and DiGregorio 2001).

On 5 July 2004, a vegetation survey was conducted by Spider Barbour and John

Yrizarry on a future mitigation wetland in Stewart State Forest, Town of Montgomery, Orange County, New York. During the survey they found hundreds of plants of *Asclepias purpurascens* in a large wet meadow that was occasionally mowed for hay. The plants occurred with *Asclepias incarnata* and *Asclepias syriaca*. On 28 June 2005, a formal count revealed a population size of 1725 plants, far larger than any population ever reported in the Northeast and possibly within the entire range of the species. Some of the plants had white flowers mixed in with purple flowers indicating there may have been some hybridization with *Asclepias syriaca*. Steven Broyles, a milkweed expert from SUNY Cortland, collected plant material for DNA studies in the summer of 2006 to examine this phenomenon. Construction of the mitigation wetland proceeded in the fall and winter of 2005 but the purple milkweed population was buffered in an attempt to prevent negative impacts from the construction. The population will be monitored annually.

***Diospyros virginiana* L.**

Persimmon

Ebenaceae, the Ebony Family

Persimmon is at its northeastern range limit in southeastern New York and southern New England. There are 12 extant populations in New York, primarily on Staten Island and western Long Island with an outlier on eastern Long Island near Manorville (Lamont and Young 2004). In Nassau County, Long Island there is only one extant population and nine historical populations that have not been relocated. On 12 March 2005, an additional two trees were found at Valley Stream State Park, Nassau County by Gregory Kramer. They occur along the stream in association with *Acer rubrum*, *Nyssa sylvatica*, and *Juglans nigra*.

***Eupatorium album* L. var. *subvenosum* A. Gray**

White Boneset, White-bracted Thoroughwort
Asteraceae, the Aster Family

This variety of *Eupatorium album* was first described in 1884 from plants collected on Long Island, New Jersey, and Delaware (Gray 1884) and is presently considered globally rare by NatureServe (NatureServe 2006). In New York there are 17 historical localities for this taxon from Long Island, Staten Island, and

the Bronx. In 1984 and 1985, Bob Zaremba located eleven populations of *E. album* var. *subvenosum* on Long Island and one on Staten Island. The Long Island populations primarily occurred in disturbed sandy openings of pine barrens including roadside borders, powerline right-of-ways, and fields. The Staten Island population occurred in disturbed interdunal swales.

In August 2004, Steve Young resurveyed nine of the twelve occurrences previously documented by Zaremba, but found *E. album* var. *subvenosum* at only two of them. The open habitat at three of the sites had succeeded into woody vegetation. One roadside population was probably eliminated by mowing and another roadside population had been eliminated by *Phragmites*. Two populations were in areas that still appeared to provide suitable habitat but no white boneset was observed. The original populations at these last two sites contained only 5 to 10 plants each. One roadside population and one population in a grassy opening by a lake were still extant although the number of individuals was reduced.

Is *E. album* var. *subvenosum* in severe decline on Long Island, or is it just moving around in search of suitable habitat? Regular surveys of pine barrens disturbances in late summer over a number of years should reveal the answer. Its ability to grow along roadsides may indicate that it is more common than we think.

***Euphorbia lathyris* L.**

Gopher Spurge, Caper Spurge, Mole Plant
Euphorbiaceae, the Spurge Family

While hiking in mid-November 2005 on a fire break along the western border of Connectquot River State Park, Long Island, New York, Kathy Schwager and Bill Jacobs noticed a lush green patch of plants growing along the edge of the pitch pine-oak forest bordering a residential community. The colony of 30+ plants turned out to be *Euphorbia lathyris* (*E. lathyris* L., an orthographic variant), a non-native annual/biennial from the Mediterranean region with invasive qualities and currently quite uncommon in the Torrey Range. The plants were probably recently introduced to the site with illegally dumped landscape clippings. All individuals of *E. lathyris* were pulled, stuffed into plastic bags, removed from the site, and destroyed. During the plant removal process, many seeds

spontaneously ejected from their dried capsules.

Revisiting the site in the early summer of 2006 revealed an additional 200 to 300 thriving plants of *E. lathyris*. The relatively contained population of 2005 had vigorously expanded its borders; outlying individuals also were found scattered beyond the main population. During mid-July 2006, all visible plants of *E. lathyris* were once again removed and destroyed off-site. The site was visited once again about a month later to see if any individuals were missed, but no others were detected. The site will continue to be closely monitored and managed every year until the seed bank is exhausted.

***Fatoua villosa* (Thunb.) Nakai**

Mulberry Weed, Hairy Crabweed
Moraceae, the Mulberry Family

Fatoua villosa, a native of eastern Asia, was first reported for North America from Louisiana by Thieret (1964). It rapidly expanded its range into the eastern and midwestern states, apparently spreading from the distribution of horticultural materials (Massey 1975, Vincent 1993, Wunderlin 1997, Reznicek 2001, Yatskievych and Raveill 2001). More recently, Miller and Wood (2003) reported *F. villosa* from upstate New York and eastern Massachusetts.

In the late summer of 1998, Eric Lamont noticed seedlings of *F. villosa* in the pot of *Calathea makoyana* (peacock plant) that had been placed outside with other house plants in Riverhead, Long Island, New York. The *Calathea* had been purchased the previous winter at a large nursery and garden center. During the next few years, *F. villosa* appeared in pots of other house plants, including *Asplenium nidus* (bird's-nest fern), *Codiaeum variegatum* (croton), *Crassula argentea* (jade plant), and *Kalanchoe daigremontiana* (good-luck plant), also placed outside during the summer. By 2004, hundreds of *Fatoua* plants had colonized shady, relatively moist areas of the front and back yards, including a native fern garden with *Adiantum pedatum*, *Asplenium platyneuron*, *Botrychium dissectum* forma *obliquum*, *Cystopteris fragilis*, *Onoclea sensibilis*, *Osmunda claytoniana*, *Phegopteris connectilis*, and *Polystichum acrostichoides*.

***Froelichia gracilis* (Hook.) Moq.**

Slender Cotton-weed, Slender Snake-cotton
Amaranthaceae, the Amaranth Family

With the exception of a colony established in 1958 "in sand adjacent to the Rockaway railroad spur, Jamaica Bay Sanctuary, Queens" [7 Sept 1958, *Monachino* 628, NY], *Froelichia gracilis* probably began to sporadically colonize the Torrey Range during the 1970s and 1980s (this inference is based upon literature searches, herbarium searches at The New York Botanical Garden (NY) and Brooklyn Botanic Garden (BKL), and personal observations by local field botanists). By the mid to late 1990s, it was known to occur locally in Fairfield Co., CT; Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Sussex, and Warren cos., NJ; and Kings, Nassau, Putnam, Queens, Richmond, and Suffolk cos., NY. In 2000, a population of *F. gracilis* consisting of several dozen individuals occurred along the disturbed, open, sandy roadside of Route 58 in Riverhead, Long Island, New York. After road construction in the early 2000s, the population increased to thousands of individuals in 2005, and spread to other nearby sandy roadsides in the townships of Riverhead and adjacent Southampton. Similar observations have been recently reported from Jamaica Bay Wildlife Refuge in Queens County by Stalter and Lamont (2002) and others. Within a decade, *F. gracilis* reached "invasive plant" status within regions of the Torrey Range.

Froelichia gracilis is probably native only west of the Mississippi River from Iowa to Colorado south to Texas and Chihuahua, Mexico (Clemants 1992). Blake (1956) discussed the spread of this species east of the Mississippi River along railroad corridors.

***Juncus debilis* A. Gray**

Weak Rush
Juncaceae, the Rush Family

While searching for rare plants at Hempstead Lake State Park, Nassau County, Long Island, Steve Young located a population of *Juncus debilis* in September 2004. This was only the third known locality for the species in New York; the other two are in the highlands of Orange County and Tackapausha Preserve in Nassau County. Weak rush is common in the southeastern United States but only a few populations are known north of southern New Jersey. It does not occur farther north than Massachusetts and southeastern New York. *Juncus debilis* is closely related to *J. subcaudatus*, another New York State rare rush, and

plants need to be critically examined to avoid misidentifications.

***Lemna valdiviana* Phill.**

Pale Duckweed

Lemnaceae, the Duckweed Family

Pale duckweed is a rare plant in New York, known only from Long Island and Staten Island. From Long Island there are three historical records from the 1800s (the earliest from 1838 at Upper Yaphank Lake, Suffolk County), two from 1929, and one from 1936. From Staten Island there is one early record that was listed without a date in *Annotated List of the Ferns and Flowering Plants of New York State* (House 1924). After 1936, *L. valdiviana* was not collected again in New York until 1974 when Joe Beitel found it in Suffolk County at Southaven County Park at the edge of the Carmans River. It had been considered historical ("SH") by the New York Natural Heritage Program (Young and Weldy, May 2004) until 14 September 2004 when it was collected by Steve Young and Andrew Greller in a pond at Deepdale Golf Club, Town of North Hempstead, Nassau County, and again at Alley Pond Park in Queens County. Correct identification of voucher specimens was confirmed by Wayne Armstrong, a duckweed expert from Palomar College, San Marcos, California. This species is probably more common within the Torrey Range but it is not easily distinguished from *Lemna minor* and water bodies have not been systematically sampled. More directed surveys for *L. valdiviana* will be conducted in the future.

***Ludwigia peploides* (Kunth) Raven subsp. *glabrescens* (Kuntze) Raven**

Floating Water-primrose

Onagraceae, the Evening-primrose Family

An aquatic plant infestation along the borders of Peconic Lake (aka Forge Pond, a dammed portion of the Peconic River), Calverton, Long Island, was first reported to Chart Guthrie by local residents and fishermen in the summer of 2003. The aquatic species was ultimately identified as *Ludwigia peploides* subsp. *glabrescens* by Rob Marsh of the New York State Department of Environmental Conservation, and later confirmed by Steve Glenn of the Brooklyn Botanic Garden. Apparently, the Peconic Lake population was only the second confirmed occurrence of this

aquatic nuisance species in New York, the first being a 1992 occurrence from Prospect Lake in Brooklyn (Clemants, pers. comm.).

Since 2003, *L. peploides* subsp. *glabrescens* has spread downstream through two impoundments on the Peconic River, but it has not been observed to have spread upstream. In the spring of 2006, a consortium of six concerned groups (including freshwater anglers, environmental and civic groups, and government agencies) organized to develop and implement a plan to control and ultimately eradicate the *Ludwigia* infestation from the Peconic River. Funds were applied for, and the group was awarded an Invasive Aquatic Species Eradication Grant by the New York State Department of Environmental Conservation. On 10 June 2006, 60 volunteers manually removed 20 yd³ of *Ludwigia* from approximately 40% of the Peconic Lake shoreline, and on 19 August 2006, 55 volunteers removed another 40 yd³ from approximately 30% of the lake shoreline. The Grant will cover manual removal operations in the river through 2009.

***Lygodium palmatum* (Bernh.) Sw.**

Climbing Fern

Lygodiaceae, the Climbing Fern Family

Climbing fern is one of the most beautiful and interesting ferns in New York. It is at its northern range limit in New York and New England, with three extant populations in New York and five historical records. It was first collected in 1873 at the Catskill Mountains locality of Hunter, Greene County where it has not been re-located. Three other historical localities are known from upstate New York, and one from East Hampton, Long Island [1868, *E. S. Miller*, ROCH]. *Lygodium palmatum* is more common south of New York, especially in the southeastern United States. It would be expected to be more frequent in southeastern New York but its most southern extant locality in New York was in Saratoga County until 31 March 2005 when Ray Matarazzo discovered a small population in the Princes's Bay section of Staten Island. The habitat is a red maple/sweetgum swamp forest with moist soils on glacial till. The plants form a thick mat in a small clearing and also climb over sapling trees. The swamp forest is composed of approximately 80% tree species (including *Acer rubrum*, *Nyssa sylvatica*, *Liquidambar styraciflua*, *Quercus palustris*, *Quer-*

cus velutina, *Betula populifolia*, and *Sassafras albidum*), and 20% shrub and herb species (including *Vaccinium corymbosum*, *Viburnum dentatum* var. *lucidum*, and *Aralia nudicaulis*). The upstate populations tend to be associated with *Pinus strobus* or *P. rigida* with small *Sphagnum*-filled hollows.

***Myriophyllum spicatum* L.**

Eurasian Water-milfoil

Haloragaceae, the Water-milfoil Family

While conducting an aquatic plant survey on Long Island, New York in 2005, Scott Kishbaugh discovered established beds of *Myriophyllum spicatum* in North and South Twin Ponds (aka Seamans Ponds) in Wantagh, Nassau County. Absent any other confirmed sightings, this may represent the pioneering introduction of this invasive plant to Long Island. The plant formed surface canopies in a few locations, primarily at depths of approximately 1–2 meters in sandy substrates, but mostly was found growing as single stems to within 0.5 meters of the water surface; this suggests a relatively recent introduction of the plant to these lakes. A detailed survey of ponded waters in Nassau and Suffolk counties in 2005 and 2006 did not reveal any additional *M. spicatum* populations (Kishbaugh, pers. comm.).

Myriophyllum spicatum is among the most invasive submergent aquatic plant species in much of the northern portion of the United States. It is a generalist invader, growing copiously in shallow and deep water over the full range of trophic states and sediment types found throughout the Torrey Range. *Myriophyllum spicatum* gains competitive advantage over native plants by growing rapidly in water as cold as 10°C, reproducing by fragments, including those created through late summer auto-fragmentation (bearing adventitious roots), and by forming dense surface canopies that shade low-lying plants (Kishbaugh, pers. comm.).

The origin of Eurasian water-milfoil in the northeastern United States cannot be pinpointed with any certainty. Although it was reported in many northern lakes as early as the 1880s, many of those reports were based upon misidentifications of *Myriophyllum sibiricum* (*M. exalbescens*), a native plant superficially resembling *M. spicatum* (Aiken 1981, Couch and Nelson 1985). The first confirmed collection came from a Maryland pond in the early

1940s (Aiken 1981). It is likely that the plant was introduced into the Finger Lakes region of New York in the 1940s, and spread radially by boat traffic, water fowl, and water flow, probably most often along the Erie Canal. Over the last sixty years, *M. spicatum* has spread to nearly all of the 62 counties in New York, with the interior Adirondacks and Long Island the only regions in the state not colonized by the end of the 20th century. Although there have been unvouchered reports of *M. spicatum* from Long Island during at least the last decade, none of those reports have been confirmed. Eurasian water-milfoil has been found in northern New Jersey and southern Connecticut for at least twenty years, although sightings in the northeastern part of the Torrey Range (Fairfield County) have not been extensive.

***Oxalis violacea* L.**

Violet Wood-sorrel

Oxalidaceae, the Wood-sorrel Family

Violet wood-sorrel was first tracked as a rare plant in New York in 1997 when only six extant populations were known in the state. There are approximately 30 historical localities for this species, concentrated in the counties along the Hudson and Mohawk rivers from Staten Island to Schenectady County and also in the Susquehanna drainage from Chemung to Broome counties. Two new populations were found in the Torrey Range in 2005, increasing the state total to 14 extant populations. Jesse Jaycox and Ed McGowan found thousands of individuals of *O. violacea* on Sugarloaf Mountain in the Town of Chester, Orange County on 1 June 2005. Ed McGowan found an additional 35 individuals on the southeast face of Catamount Mountain, Town of Ramapo, Rockland County on 18 May 2005. This species usually occurs in open, dry, rocky woods and further exploration of this habitat in the Hudson Valley and Southern Tier should reveal more populations.

***Polygonum perfoliatum* L.**

Mile-a-Minute Weed

Polygonaceae, the Buckwheat Family

During the past ten years, mile-a-minute weed has established itself at an alarming rate throughout southeastern New York. It was first discovered in New York in 1994 at Ward Pound Ridge Reservation in Westchester County (Lamont and Fitzgerald 2001), and

in 1998 it was found along the Greenbelt Trail in Old Bethpage, Nassau County, Long Island (Lamont 1998). By 2004, more than 20 populations of *P. perfoliatum* had been reported from Long Island by members of the Long Island Botanical Society and the Long Island Chapter of The Nature Conservancy (Lamont 2005); populations were concentrated in northern Nassau County, but were also established as far east as Montauk Point on the South Fork and Orient Point on the North Fork.

Additional observation database records maintained by the Invasive Plant Council of New York State and Brooklyn Botanic Garden document the increasing abundance of *P. perfoliatum* throughout other regions of the Torrey Range. More than 40 populations of mile-a-minute weed have been reported from Westchester, Putnam, Rockland, and Orange counties, New York, and six populations have been reported from Warren County, New Jersey.

The fleshy, berrylike fruits of *P. perfoliatum* are primarily dispersed by birds (Mountain 1989, Okay 1997), and many new populations of this increasingly problematic invasive species in the Torrey Range have been found under trees where birds frequently perch.

***Pycnanthemum torrei* Benth.**

Torrey's Mountain Mint

Lamiaceae, the Mint Family

A new occurrence of this globally rare species was located in the Charleston section of Staten Island in 2003 (Lamont and Young 2004). Approximately 200 individuals grew along a natural roadside of a busy highway adjacent to a large natural area extending south from Clay Pit Ponds State Park. Since 2003, the roadside area has been developed into a large shopping center, but the *P. torrei* population has been protected by the establishment of a small buffer region, and the plants were still thriving in 2005. A monitoring and restoration project has been developed and implemented by the Natural Resources Group of the New York City Parks Department to provide further long-term protection.

***Pyrus calleryana* Decne.**

Bradford Pear, Callery Pear

Rosaceae, the Rose Family

Pyrus calleryana was not included in the flora of northeastern United States (Gleason and Cronquist 1991), the flora of New York (Mitchell and Tucker 1997), or the woody plants of southeastern New York (Clemants 1999).

In the summer of 2004, Andrew Greller reported an established population of *P. calleryana* at Froelich Farms Nature Preserve in the Town of Huntington, Suffolk Co., New York. Dozens of seedlings, saplings, and small trees to 6 m tall co-dominated a successional "tall shrubland/low woodland" with *Prunus serotina*, *Juniperus virginiana*, *Malus* spp., *Elaeagnus umbellata*, *Rhus glabra*, *Rosa multiflora*, and an occasional *Betula populifolia*; common vines included *Celastrus orbiculatus* and *Lonicera japonica*. Some of the taller individuals of *P. calleryana* were bearing fruit.

After hearing Greller's report, Eric Lamont located two more populations of *P. calleryana* in successional old fields on the North Fork of eastern Long Island during the spring of 2005. One population, located on Route 48 just east of Mattituck, consisted of more than 100 flowering individuals; the other, located on Route 48 north of Peconic, consisted of approximately 20 flowering individuals. In both cases, cultivated parent trees were located adjacent to or in the general vicinity of the naturalized populations.

Additional recent reports of naturalized *P. calleryana* in southeastern New York are from the High Line between 14th and 34th Streets, Manhattan Island; Mount Loretto Conservation Area, Staten Island; and the vicinity of West Mill Pond in Moriches, Suffolk Co. (Steve Glenn, pers. comm.).

Nesom (2000; also see references cited therein) has provided a brief summary of the introduction and colonization of *P. calleryana* in eastern United States with notes on reproduction, hybridization, some of the different cultivars, and its potential to become a serious invasive pest.

***Pyxidanthera barbulata* Michx.**

Pyxie, Pyxie-moss

Diapensiaceae, the Diapensia Family

Pyxie is at its northern range limit on Long Island, New York. It was first discovered in New York by state botanist Eugene Ogden on 7 May 1959 at South Side Sportsman's Club in Islip, now Connetquot River State Park. In the early 1900s, Roy Latham had observed it

growing on Eagle Neck just west of Orient Point in Suffolk County, and commented, "I did not consider it a native species. This plant had been long in cultivation in the oldest gardens of Orient. All of the local gardens and yards were raked, and the litter was piled in the cowyards and piggens present on every farm; the debris and manure were later carted out to the pasture lands and spread as fertilizer. I suspect that *P. barbulate* had become established by introduced seeds or plants, perhaps 100 or more years before I first noticed it. Plowing eradicated the Pyxie on Eagle Neck. I tried to transplant Pyxie to my farm at Orient; however, the soil may have been too wet and heavy, and the plants died." (Latham 1978).

In 1985, a second native population of 100–200 individuals was discovered along Freeman Avenue in Islip by Chris Mangels. The population occurred in a grassland opening created 10 to 15 years earlier by clearing the woods for a radio antenna installation. In 1998, the grassland was bulldozed in preparation for a larger antenna installation, and a survey in the spring of 1999 revealed only bare, unvegetated soil where the pixie had been. At that time, *P. barbulate* was considered extirpated at the site and no further surveys were conducted until September 2004 when Steve Young and Eric Lamont were surprised to find that the grassland had fully recovered from the earlier bulldozing. A detailed survey revealed approximately 70 clumps of pixies scattered around the old antenna. This population is now the largest in New York, surpassing the tens of plants growing under the shade of a thick shrub layer at Connetquot River State Park.

***Rumex hastatulus* Baldw.**

Heartwing Sorrel

Polygonaceae, the Smartweed Family

Rumex hastatulus is at its northeastern range limit in the Torrey Range. Historically, it had been collected from five localities in Suffolk Co., Long Island, New York. Populations from the vicinity of Aquebogue, Cold Spring Harbor, Northville, and Riverhead have not been re-located after extensive efforts during the 1980s and 1990s by members of the Long Island Botanical Society and New York Natural Heritage Program.

On 23 June 1929, Roy Latham and William Ferguson collected *R. hastatulus* from "pure

beach sand" above the upper margin of a brackish meadow at Promised Land on the Napeague isthmus of Long Island's South Fork (Latham 1934). In 1986, the Napeague population was re-located by Bob Zaremba; approximately 50 to 100 plants grew in association with *Panicum virgatum*, *Liatris scariosa* var. *novae-angliae*, *Schizachyrium scoparium* var. *littoralis*, and *Myrica pensylvanica*.

During the mid to late-1990s, members of the Long Island Botanical Society were unable to locate the Napeague population during several field trips to the region, but visits to the site may have been too early or too late in the season. From 2000 to 2004, Steve Young and/or Eric Lamont surveyed the site in early summer and failed to find *R. hastatulus*. In 2005, Bob Zaremba surveyed the site and also found no *R. hastatulus*. Because *R. hastatulus* has not been observed in New York in the last 20 years, New York Natural Heritage Program now lists this species as historical ("SH") in New York (Young & Weldy 2006).

Rumex hastatulus also had occurred in Atlantic, Monmouth, and Ocean counties, New Jersey. Efforts to re-locate those historical populations have been unsuccessful and the species is also listed as historical ("SH") in New Jersey.

***Spiranthes vernalis* Engelm. & A. Gray**

Spring Ladies'-tresses

Orchidaceae, the Orchid Family

Spiranthes vernalis reaches the northern limit of its range in southeastern New York and southern New England. Extant populations in New York are limited to Suffolk County where only 5 of 17 historical populations have been re-located (Lamont 1996). While conducting a floristic inventory of Plum Island, just east of Orient Point in Suffolk Co., Richard Stalter and Eric Lamont observed more than 1000 flowering individuals of *S. vernalis* scattered throughout the island in August 2004. Small colonies occurred in several grassy openings but the vast majority of individuals were found in the former parade ground bordering the island's south shore; in 2004, the parade ground had not been mowed as frequently as in recent past years. The Plum Island population of *S. vernalis* was the largest in New York in 2004. Revisiting the island in 2005 revealed that the population size had dramatically decreased, even though the for-

mer parade ground had not been mowed before August. It is unclear what factors may have influenced the emergence of such high numbers of flowering individuals in 2004.

***Thlaspi alliaceum* L.**

Garlic Penny-cress, Roadside Penny-cress
Brassicaceae, the Mustard Family

Among the newest non-native plants to colonize New Jersey is *Thlaspi alliaceum*. Karl Anderson reported this Eurasian species in the spring of 2005 as “almost the dominant weed in farm fields in southern Gloucester County, and I’ve since seen it in Mercer and Burlington counties ... The seeds have a very strong garlicky taste.” *Thlaspi alliaceum* was first reported in North America in the early 1960s in North Carolina, and has since spread to Delaware, Indiana, Kentucky, Louisiana, Maryland, Missouri, Ohio, Pennsylvania, and Tennessee (USDA, NRCS 2006; Missouri-plants.com). This species is not included in Gleason and Cronquist (1991), but a diagnostic key is provided by Weakley (2006).

***Trapa natans* L.**

Water-chestnut
Trapaceae, the Water-chestnut Family

Trapa natans was first discovered on Long Island, New York in late summer of 2004 during a routine water quality monitoring project conducted by Scott Kishbaugh of the New York State Department of Environmental Conservation. A single rooted plant was found (and removed) near the outlet of Mill Pond (aka Wantagh Pond and Jones Pond) in Wantagh, southwestern Nassau County. A more systematic survey in 2005 revealed a single bed approximately 150 square feet in area along the northern shore of the lake, and isolated single plants at scattered locations throughout the lake. Extensive surveys in 2006 of the inlets to Mill Pond and two upstream ponded waters (Twin Ponds, aka Seamans Pond, and Forest City Park Pond, aka Brownings Pond) did not reveal any additional occurrences of *T. natans*, although these upstream lakes sustained populations of *Myriophyllum spicatum* (Eurasian water milfoil) and *Egeria densa* (Brazilian elodea), respectively. A proposed dredging project on Mill Pond slated to remove extensive populations of *Nuphar lutea* in 2006 was expanded to include the large water chestnut bed in hopes of extirpating the population before it spread

to neighboring lakes. A detailed survey of ponded waters in Nassau and Suffolk Counties in 2005 and 2006 did not reveal any additional *T. natans* populations (Kishbaugh, pers. comm.).

Water chestnut has been the subject of extensive physical and chemical management in Vermont and upstate New York, and nuisance control can only be achieved with persistent and continuous application of these control methodologies over at least a decade, owing to the resilience of the spiked nutlet. However, *T. natans* is among the few invasive aquatic species in the Torrey Range that can be effectively controlled by cutting, if continual cutting operations ultimately exhaust the bank of nutlets capable of germination in bottom sediments, where they may be viable for up to 20 years (Kishbaugh, pers. comm.). *Trapa natans* is the only submergent plant for which the “plant(ing), transport, transplant, or traffic(ing)” of the plants, seeds, or nuts is outlawed in New York, as per the state Environmental Conservation Law. It is also considered an invasive, banned plant in Connecticut.

Water chestnut first colonized North America just north of the Torrey Range; there remains some debate within the botanical community whether the pioneering ornamental introduction can be traced to Sanders (now Collins) Lake in Scotia, New York or to Fresh Pond and a Harvard herbarium garden outside of Boston circa 1880 (Kishbaugh, pers. comm.). This perennial plant spread slowly throughout the mid Hudson River and Mohawk River basins over the next hundred years. In the last few decades, the southern boundaries of *T. natans* extended to the northern edge of the Torrey Range, primarily in the shallow littoral zone of small ponded waters and sluggish portions of the Hudson River in Putnam, Orange and Westchester counties in New York. It has become naturalized in the Hudson River, Mohawk River and Lake Champlain, forming dense canopies completely covering the water surface and impeding boat traffic and water flow. *Trapa natans* has recently spread to the Finger Lakes region and isolated ponds increasingly distant from the Hudson-Mohawk epicenter; waterfowl, hydrological transit, and especially boat traffic in the canal system are the primary vectors of transport. *Trapa natans* has been found in about a half dozen lakes and ponds in

northern New Jersey, and while it is not believed that this plant has been found in Fairfield County, Connecticut, it was introduced to the Connecticut River by 1999.

***Trichostema setaceum* Houtt.**

Tiny Blue-curls

Lamiaceae, the Mint Family

This attractive wildflower is closely related to the common blue-curls, *Trichostema dichotomum*. In New York, *T. setaceum* is known from only five historical localities on Long Island and Staten Island, with a questionable unvouchered report from Westchester County. It was first collected in 1894 on Staten Island and last seen in 1945 around Long Pond in Sag Harbor, Long Island. In September 1906, blue-curls was collected from around Hempstead Lake in Nassau County by Eugene Bicknell, and a voucher specimen was deposited at the New York State Museum (NYS). In September 2004, Steve Young visited the sandy shores of Hempstead Lake in search of *T. setaceum* but only the common *T. dichotomum* was found, primarily along the eastern shoreline. Bicknell's voucher of "*T. setaceum*" at NYS was re-examined by Steve Young; it had been misidentified and was reassigned to *T. dichotomum*.

***Utricularia juncea* Vahl**

Rush Bladderwort

Lentibulariaceae, the Bladderwort Family

In his most recent treatment of the genus *Utricularia*, Schnell (2002) reported *U. juncea* as occurring "in the eastern coastal plain of the United States from New Jersey to eastern Texas." However, Zaremba and Lamont (1993) confirmed the occurrence of *U. juncea* from three extensive pond systems in eastern Suffolk Co., Long Island, New York. From the coastal plain pond shores north of Manorville, *U. juncea* has been documented from Duck, Fox, Linus, Peasys, Sandy, Twin, and Woodchoppers ponds, and two small unnamed ponds; from the coastal plain Atlantic white cedar swamp just south of Riverhead, it has been documented from the south end of Cedar Pond; and from the coastal plain pond shores southeast of Flanders, it has been documented from House Pond and two small unnamed ponds west and north of Grass Pond. *Utricularia juncea* is currently listed as a state threatened plant ("S2") by New York Natural Heritage Program (Young and Weldy 2006).

***Utricularia radiata* Small**

Small Floating Bladderwort

Lentibulariaceae, the Bladderwort Family

Before 1984, there were only 11 historical localities for *U. radiata* in New York, primarily on Long Island. Beginning in 1984, intensive surveys of eastern Long Island's coastal plain ponds (Zaremba and Lamont 1993) revealed many new occurrences of *U. radiata*, and the re-location of two historical populations at Gibbs Pond and Artist Lake in Suffolk County. Floristic surveys of the Hudson Highlands conducted in 1992 by botanists from the New York State Museum and West Point Military Academy revealed four more occurrences of *U. radiata* in southeastern Orange County.

No extant populations of this species were known from Nassau County until 29 November 2004 when Steve Young found one plant floating along the shoreline of the south pond of Twin Lakes Preserve in Wantagh. More intensive surveys of Nassau County ponds may reveal more plants. A total of 23 occurrences of *U. radiata* are now known from southeastern New York, with the highest concentration still on eastern Long Island.

***Vicia lathyroides* L.**

Spring Vetch

Fabaceae, the Bean Family

Spring Vetch, an Old World native, has been found sparingly throughout the USA, but in the Northeast it is reported only from Virginia and Massachusetts. In the spring of 2000, Orland "Skip" Blanchard collected what later turned out to be this species in the village of The Branch and north of Ridge, both in Suffolk County, Long Island, New York. The plants were growing in fields with a mixture of grasses and other herbs in areas that were apparently mowed at remote intervals. It was not until 2004 that Blanchard actually returned to the specimens and positively identified them. Then in 2005, *V. lathyroides* was reported in a published list of the flora of Caumsett State Historic Park, in Lloyd Neck, also in Suffolk County, New York (Greller et al., 2005). Greller informed Blanchard that the record was based on a July 1994 collection.

It is now evident that *V. lathyroides* has been present on Long Island for over a decade and is well established in the north-central part of the island. It should be watched for elsewhere. This species has also recently been

added to the New Jersey flora (Cumberland County; Gerry Moore, pers. comm.) but apparently it has not yet been found in the Torrey Range in that state.

Blanchard's specimens are deposited in the herbarium of the Department of Biology, Long Island University, C. W. Post Campus.

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