

## Noteworthy plants reported from the Torrey Range— 2009 and 2010<sup>1</sup>

Eric E. Lamont<sup>2</sup>

Torrey Botanical Society, Local Flora and Vegetation Committee, The New York Botanical Garden,  
Bronx, NY 10458

Steven D. Glenn<sup>3</sup>

Brooklyn Botanic Garden, 1000 Washington Avenue, Brooklyn, NY 11225

Stephen M. Young<sup>4</sup>

New York Natural Heritage Program, 625 Broadway, Albany, NY 12233

LAMONT, E. E. (Torrey Botanical Society, Local Flora and Vegetation Committee, The New York Botanical Garden, Bronx, NY 10458), S. D. GLENN (Brooklyn Botanic Garden, 1000 Washington Avenue, Brooklyn, NY 11225), AND S. M. YOUNG (New York Natural Heritage Program, 625 Broadway, Albany, NY 12233). Noteworthy plants reported from the Torrey Range—2009 and 2010. J. Torrey Bot. Soc. 138: 472–484. 2011.—Twenty-four noteworthy species of vascular plants are reported from the Torrey Range, encompassing southeastern New York, northern New Jersey, and southwestern Connecticut: *Acalypha australis*, *Carex arctata*, *Carex typhina*, *Corallorhiza trifida*, *Corydalis incisa*, *Cyperus polystachyos* var. *texensis*, *Cypripedium parviflorum* var. *makasin*, *Dryopteris celsa*, *Froelichia floridana*, *Galium boreale*, *Houstonia pusilla*, *Isotria medeoloides*, *Juglans ailantifolia*, *Juncus brachycarpus*, *Kyllinga pumila*, *Nymphoides peltata*, *Oldenlandia uniflora*, *Phlox divaricata*, *Platanthera pallida*, *Pycnanthemum verticillatum*, *Ranunculus pusillus*, *Schoenoplectus mucronatus*, *Stylophorum diphyllum*, and *Trichostema setaceum*.

Key words: floristics, invasive plants, northward range extensions, rare plants, Torrey Range.

The Torrey Range has been long known as a region that supports plant species of both southern and northern affinities. Taylor (1915) discussed this topic and concluded that approximately 13% of the Torrey Range flora, at the time, consisted of “southern species reaching their northern distribution point” and approximately 8% were “plants found exclusively north of the moraine.” During the past twelve years, the Torrey Botanical Society has been documenting changes in the Torrey Range flora, based on extensive field studies and collections, and four general trends have emerged. One change is an increase in the number of southern species migrating into the region. Previous papers in this Torrey series have included

examples such as *Eclipta prostrata*, *Eupatorium serotinum*, *Gamochaeta purpurea*, and *Heterotheca subaxillaris* (Lamont and Young 2002, 2005, 2006; Lamont and Glenn 2009); in this paper we discuss three more species: *Froelichia floridana*, *Houstonia pusilla*, and *Kyllinga pumila*. Other investigators also have noted this northern migration of southern species, including Greller et al. (2011).

A second change we have observed is a general decline in occurrences of northern species in the Torrey Range, but many northern and circumboreal species still persist in small isolated colonies. For example, populations of *Ligusticum scoticum* have become increasingly rare on eastern Long Island, New York (Lamont and Fitzgerald 2001); but, as presented in this paper, other northern species still persist, including *Corallorhiza trifida*, *Cypripedium parviflorum* var. *makasin*, and *Galium boreale*.

We continue to document the occurrence of many rare plant species within the Torrey Range. These finds are especially noteworthy considering that the metropolitan New York City region is one of the most populated areas on earth and many natural ecosystems have been destroyed or negatively impacted by human activity. In this paper we report on

<sup>1</sup> This report is the eighth in a continuing series of floristic studies produced by the Local Flora Committee of the Torrey Botanical Society. The Torrey Range comprises the region within a 50-mile radius of Columbus Circle, New York City, but includes all of Long Island, New York. For details on the past and present boundaries of the Torrey Range, including counties, see Lamont and Fitzgerald (2001).

<sup>2</sup> Corresponding author: 717 Sound Shore Road, Riverhead, NY 11901; E-mail: elamont@optonline.net

<sup>3</sup> E-mail: steveglenn@bbg.org

<sup>4</sup> E-mail: smyoung@gw.dec.state.ny.us

eleven rare plant species that have been located after years of not being observed. The most noteworthy is *Isotria medeoloides* from Orange County, New York, a species confirmed from only six previous localities in the state and not observed in more than 30 years. A collection of *Carex arctata* from Putnam County, New York, represents only the second documented report of this species from the Torrey Range, the first was from 1895. And a 2009 collection of *Dryopteris celsa* represents the first time this species has been documented from Staten Island in 102 years.

Finally, we report on the accelerated introduction and establishment of non-native species in the Torrey Range. In previous papers we reported on some recently established invasive species, including *Cardamine impatiens*, *Hydrilla verticillata*, *Lepidium latifolium*, *Myriophyllum spicatum*, *Phellodendron amurense*, *Polygonum perfoliatum*, *Pueraria lobata*, *Thlaspi alliaceum*, and *Trapa natans* (Lamont and Fitzgerald 2001; Lamont and Young 2002, 2004, 2006; Lamont and Glenn 2009). In this paper, we discuss the status of five more introductions to the Torrey Range: *Acalypha australis*, *Corydalis incisa* (new to the flora of North America), *Juglans ailantifolia*, *Nymphoides peltata*, and *Schoenoplectus mucronatus*.

Nomenclature follows Weldy and Werier (2011), ranges of distribution and nativity status follows Gleason and Cronquist (1991) unless otherwise stated, and herbarium abbreviations follow Holmgren et al. (1990).

Throughout this report, we have endeavored to give credit to individuals who reported their findings to us and provided expertise on specific species. We are especially grateful to Daniel Atha (New York Botanical Garden), David Austin (Torrey Botanical Society), Martin Bennett (Brooklyn Botanic Garden), Dennis Briede (Ridge and Valley Conservancy), Robert Canace (Ridge and Valley Conservancy), Michael Feder (Long Island Botanical Society), Andrew Greller (Queens College, CUNY), Garrett Herth (Long Island Botanical Society), Robert McGrath (Long Island Botanical Society), Wayne Morris (independent botanist), Robert Naczi (New York Botanical Garden), Tom Nelson (Native Orchid Conference), Larry Penny (Long Island Botanical Society), Eleanor "Sam" Saulys (Native Orchid Conference), Charles Sheviak (New York State Museum), Kimberly Smith (New York

Natural Heritage Program), Richard Stalter (St. John's University), and Mark Szutarski (Torrey Botanical Society).

#### Discussion of noteworthy plants reported from the Torrey Range—2009 and 2010

##### *Acalypha australis* L.

Asian Copperleaf

Euphorbiaceae, the Spurge Family

This species is a recent introduction to North America where it was first collected in 1989 from Kings and Queens counties, New York (Delendick 1990). Since then it has been collected from four boroughs of New York City; Nassau County, Long Island; and adjacent northeastern New Jersey (Lamont 2010).

In 2009, Michael Feder reported *A. australis* as "very common, now approaching abundant" throughout western-most Long Island, especially in Kings and Queens counties. It frequently occurs on roadsides, vacant lots, gardens, and even lawns; sometimes in very large populations consisting of hundreds, maybe thousands of individuals. Feder has observed it growing with *Acalypha rhomboidea* Raf., with no evidence of hybridization. In 20 years, *A. australis* has become fully established in the Torrey Range.

##### *Carex arctata* W. Boott

Drooping Woodland Sedge

Cyperaceae, the Sedge Family

In 2009, Steven Glenn collected *C. arctata* from Putnam County, New York (Glenn 11986, BKL). This collection represents only the second documented report of this species from the Torrey Range. The first collection, in 1895, was from Bridgeport, Connecticut (Eames 965, CONN). This northern sedge usually occurs in forests from northeastern United States to the Great Lakes region and adjacent Canada (Waterway 2002). In New York, *C. arctata* is common "in the northern and cooler parts" (Weldy and Werier 2011).

A few unvouchered reports of *C. arctata* from the Torrey Range have been published during the past 125 years. Britton (1889) reported it from Bergen and Essex counties, New Jersey, but it was not listed earlier by Willis (1874) or later again by Britton (1901) for New Jersey. Taylor (1915) doubted its occurrence in Bergen and Essex counties as did Hough (1983). This sedge is currently listed as a state rare plant in New Jersey (Snyder 2010), but no specimens have been seen to confirm its presence.

*Carex arctata* also has been historically reported from the periphery of the Torrey Range, including Litchfield County, Connecticut (Graves et al. 1910, Taylor 1915, Seymour 1969, Magee and Ahles 2007); Dutchess, Sullivan, and Ulster counties, New York (Taylor 1915, Weldy and Werier 2011); and Bucks, Pike, Monroe, and Wayne counties, Pennsylvania (Bailey 1886; Porter 1903; Wherry et al. 1979; Botany Department, Morris Arboretum 2011).

Accurate identification of *C. arctata* can sometimes be difficult. Bailey (1888, 1893) noted that *C. arctata* is often confused with *C. aestivalis* M. A. Curtis and *C. debilis* Michx. Possibly, early reports of this sedge from the Torrey Range and adjacent regions are based on misidentified collections of *Carex* section *Hymenochlaenae*.

***Carex typhina* Michx.**

Cat-tail Sedge

Cyperaceae, the Sedge Family

A new population of the state rare sedge *C. typhina* was located in September 2009 by Kimberly Smith, during a floristic survey of Margaret Lewis Norrie State Park, Dutchess County, New York. The population was located around the edge of a small vernal pool in Appalachian oak-hickory forest within a large complex of vernal pools. Another rare vernal pool sedge, *Carex lupuliformis* Sartw., also was present.

Smith's collection of *C. typhina* is the second ever from Dutchess County and the first since it was collected near Rhinecliff in 1932, a locality about 8 km north. The next closest extant population occurs in Croton Falls, Westchester County.

This discovery marks the seventh known extant population in New York, although there are about 10 historical records that have not been systematically searched for. There are an additional 10 records from the New York City area that have been extirpated by development and one from Quaker Bridge, Cattaraugus County, New York, that was flooded by the Alleghey reservoir.

***Corallorhiza trifida* Chat.**

Early Coralroot

Orchidaceae, the Orchid Family

This delicate orchid is circumboreal and has been historically known from only a few localities in the Torrey Range. It has been long

considered rare in New Jersey (Britton 1889, Snyder 2010), where it is restricted to the northern counties, with an unverified report from Burlington County (Hough 1983). In Fairfield County, Connecticut, it had been known during the 1920s and 1930s from a single locality near Danbury (*Eames s.n.*, CONN). In New York, *C. trifida* was previously known only as far south as Dutchess and Ulster counties (Weldy and Werier 2011).

In 2009, Daniel Atha located a population of *C. trifida* in Putnam County, New York. The collection (*Atha 7667*, NY) represents the first confirmed record from the lower Hudson Valley, and only the second reported occurrence in the Torrey Range in more than 30 years (Brooklyn Botanic Garden 2011). The general aspect of *C. trifida* (height less than 35 cm, flowers small and greenish to yellowish, and leaves reduced to sheathing scales), suggests that it could be easily overlooked in the field.

***Corydalis incisa* (Thunb.) Pers.**

Purple Keman

Fumariaceae, the Fumitory Family

This native plant of eastern Asia was first collected in North America in June 2005 by Steven Glenn. Dozens of flowering individuals were established in a red maple-hardwood floodplain along both sides of the Bronx River north of Burke Bridge, Bronx County, New York. Voucher specimens were collected and the identity was verified by Mark Tibbit, coauthor of *Bleeding Hearts, Corydalis, and Their Relatives* (Tibbit et al. 2008). Glenn presumes that the population had been established for at least a couple of years before 2005.

In 2009 and 2010, Robert Naczi conducted field studies along the Bronx River and determined that *C. incisa* "was persisting, locally abundant, and established along the Bronx River in Bronx Park." Additionally, in 2010 Daniel Atha observed and collected a single plant of this species on the grounds of The New York Botanical Garden south of previously known localities along the Bronx River. In recent years, *C. incisa* has become a popular garden plant and is now an established member of the Torrey Range flora.

Thunberg (1801) first described this species under the name *Fumaria incisa*. It is commonly known in Japan as Purple Keman because it is said to resemble a Buddhist temple instrument. Members of the genus *Corydalis* are

used in traditional Asian, especially Chinese, medicine to alleviate fever and aches such as those caused by malaria (Tibbit et al. 2008).

***Cyperus polystachyos* Rottb. var. *texensis* (Torr.) Fern.**

Coast Flatsedge

Cyperaceae, the Sedge Family

This southern flatsedge of tidal marshes is at the northern limit of its range in coastal Massachusetts and on Long Island, New York, and is listed as rare in both states. In New York, there are eleven pre-1989 collections of *C. polystachyos* var. *texensis*, dating back to 1886, but four of those occurrences have been extirpated on western Long Island and New York City. In 1989 and 1990, six new populations were located in tidal marshes on far eastern Long Island and Fishers Island but two of them have been recently extirpated. In 1994, a small population was located in Queens County.

In the late summers of 2009 and 2010 Kimberly Smith located four new populations of southern flatsedge in Montauk, Hither Hills, and Napeague state parks on eastern Long Island. These discoveries bring the number of occurrences in New York back up to eight. The spread of *Phragmites* is a threat to the salt marshes and rare plants of eastern Long Island.

***Cypripedium parviflorum* Salisb. var. *makasin* (Farwell) Sheviak**

Northern Small Yellow Lady's-slipper

Orchidaceae, the Orchid Family

The southern limit of *Cypripedium parviflorum* var. *makasin* in northeastern United States is not well known. For example, Brown (2007) reported the southern limit as extending from Massachusetts west through central and western New York; accordingly, var. *makasin* does not occur in Connecticut, southern New York, and New Jersey. However, Sheviak (2002a, and pers. comm.) noted that widely scattered populations of var. *makasin* historically occurred in Connecticut, southern New York, and northwestern New Jersey; and are currently considered very rare or extirpated in each of those regions.

In 2008, Tom Nelson and Eric Lamont initiated ongoing field studies on the status of yellow *Cypripediums* (Fig. 1a,b,c) within the Torrey Range and beyond. Individuals from each population are meticulously photographed for diagnostic morphological characters

that aid in the separation of the three varieties of *C. parviflorum*: var. *makasin*, var. *parviflorum*, and var. *pubescens*. Of these three varieties, var. *makasin* is the rarest in the Torrey Range. With assistance from local botanists (see acknowledgement section), two extant populations of var. *makasin* from northwestern New Jersey have been located and monitored by Nelson and Lamont since 2009. Both populations occur in the Great Limestone Valley of Sussex and Warren counties. One population, consisting of approximately 30 to 40 individuals, occurs in a calcareous red maple swamp; the other, consisting of approximately 20 individuals, occurs along the shallow, open shoreline of a calcareous fen.

Several individuals within the larger colony have flowers that entirely lack reddish-brown color (Fig. 1b); apparently, this anthocyanin-free color form of var. *makasin* is very rare. Sheviak (pers. comm.) commented: "This is a really nice find. I've never seen anything like it in the species. The lack of red pigment in the flower would be due to a mutation, and presumably it's recessive. So the defective allele is probably more widely distributed in the population, and only the plants that are homozygous for the allele lack the red. I'm not aware that the color form has been named, but it sure is beautiful. It would be a choice horticultural item, so be careful who you tell about it."

***Dryopteris celsa* (Palmer) Knowlt., Palmer & Poll.**

Log Fern

Dryopteridaceae, the Wood Fern Family

On 24 June 2009, Richard Stalter collected a fern from a forested wetland on Staten Island, New York. He identified the collection as *D. celsa* and sent it to James Montgomery, coauthor of *New Jersey Ferns and Fern-Allies*, who verified the initial determination.

*Dryopteris celsa* is considered endangered in New York with only one previous extant occurrence in Ontario County in western New York and four historical occurrences, three from the Finger Lakes region and one from Staten Island. The Staten Island collection was from 1907, the first time it was collected in New York; the colony occurred in a swamp on the northwestern part of the island that today is known as Magnolia Swamp. Stalter's collection was from a different part of the island and





FIG. 1. *Cyripedium parviflorum* var. *makasin* from Sussex and Warren counties, New Jersey; a) typical flowers from the calcareous fen population, b) anthocyanin-free color form from the calcareous red maple swamp population, c) a dense group of individuals from the calcareous fen locality. Photographs by Tom Nelson.

the first time the species had been documented on Staten Island in 102 years.

***Froelichia floridana* (Nutt.) Moq.**

Large Cottonweed, Plains Snakecotton  
Amaranthaceae, the Amaranth Family

In 2010, Michael Feder located a spontaneously occurring population of *F. floridana* at Jamaica Bay Wildlife Refuge, Queens County, New York. Voucher specimens were collected and the identity was verified by Robert Naczi (NY); vouchers have been deposited at BKL, BH, and NY. This collection documents a new addition to the flora of New York (Weldy and Werrier 2011) and the Torrey Range. The population consists of approximately fifty individuals in sandy soil above the high tide line east of the train tracks, northeast of East Pond. The tallest individuals had stems approximately 80 cm long. *Froelichia floridana* was not observed at the refuge by Stalter and Lamont (2002).

The northward migration of this species along the Atlantic coastal plain has been well documented. McCauley (2004) reported *F. floridana* on the Atlantic coastal plain from Florida north to southeastern North Carolina with a disjunct occurrence in Maryland. It was listed as “introduced” in Delaware by Hough (1983) who also noted that it was “now spreading northward [into southern New Jersey].” Apparently, only later was *F. floridana* reported from Virginia (Harvill et al. 1992, USDA Plants Database 2011).

*Froelichia gracilis* (Hook.) Moq. is another recent migrant to the Torrey Range from southern latitudes. In the 1970s and 1980s, *F. gracilis* sporadically colonized the Torrey Range and by the mid-2000s had become thoroughly established (Lamont and Young 2006).

***Galium boreale* L.**

Northern Bedstraw  
Rubiaceae, the Madder Family

*Galium boreale* is a circumboreal species with two distinct geographic distributions: Iceland to central Siberia, and central Asia through North America. Some early American authorities treated the North American representative as a separate species, *G. septentrionale* Roem. & Schult. or *G. strictum* Torr., but most later authors regarded them as a single entity. Later cytological studies revealed that the Eurasian taxon is tetraploid while the American-Asiatic taxon is hexaploid, perhaps

lending credence to a two species concept (Löve and Löve 1954).

In eastern United States, *G. boreale* s. l. ranges south in the Appalachian Mountains to West Virginia and Virginia (Fernald 1950, USDA Plants Database 2011). While historically found in the Torrey Range, early authors noted it was rare and local, not found along the coast, and increasing in occurrence northward (Taylor 1915, Fernald 1950, Seymour 1969). In the lower Hudson Valley of New York, northern bedstraw has been found in only Orange and Rockland counties (Brooklyn Botanic Garden 2011, Weldy and Werrier 2011). In New Jersey, *G. boreale* is listed as a state rare plant (Snyder 2010) and during the past 60 years has been reported only four times, all from Sussex and Warren counties (Brooklyn Botanic Garden 2011).

In September 2010, Steven Glenn located a population of *G. boreale* in Sussex County, New Jersey, along the banks of the Delaware River (Glenn 12888, BKL); the last collection from this region was from more than 40 years ago (*Edwards s.n.*, CHRB). Field botanists should be aware that while typical *G. boreale* has villous-hirsute fruits, a glabrous or glabrate fruiting variety (*G. boreale* var. *hyssopifolium* (Hoffm.) DC.) occurs as far south as northern New Jersey (Britton 1901, Fernald 1950, Seymour 1969).

***Houstonia pusilla* Schoepf**

Tiny Bluets  
Rubiaceae, the Madder Family

In April 2010, large colonies of *H. pusilla* were observed and photographed by Garrett Herth at Heckscher State Park, Town of Islip, Suffolk County, New York. Hundreds, probably thousands of individuals dominate several grassy road medians composed of sandy, well-drained soil. In April 2011, the site was revisited by Herth who again observed large colonies of tiny bluets dominating the road medians.

In April 2011, Andrew Greller independently located a large population of *H. pusilla* at Jones Beach State Park, Town of Hempstead, Nassau County, New York. Voucher specimens were collected and have been deposited at BKL. Greller (pers. comm.) noted, “*Houstonia [pusilla]* occurs in populations varying from a few dozen to hundreds, scattered on the south shoulder of Ocean Parkway for nearly the entire length of Zachs Bay, Jones



Beach Island. The habitat is the grassy right-of-way of Ocean Parkway. This habitat appears to be man-made (anthropogenic), where topsoil was deposited and mowing and fertilizing take place on a regular basis.”

These two localities are situated approximately 32 km from each other, and consist of similar maritime landscapes and habitat characteristics. Jones Beach State Park is located on Jones Beach Island, a barrier island off the south shore of Long Island; Heckscher State Park is located on the Timber Point peninsula and extends into Great South Bay off Long Island’s south shore. Greller and Herth (2011) report that *H. pusilla* is locally abundant and established at both localities.

*Houstonia pusilla* has not been previously documented from New York (Weldy and Werier 2011); thus, these established occurrences on Long Island represent a new state record. Along the Atlantic coastal plain, *H. pusilla* has been reported from Florida to Maryland (USDA Plants Database 2011); thus, these two disjunct New York occurrences extend the northeastern range limit of the species by more than 700 km.

***Isotria medeoloides* (Pursh) Raf.**

Small Whorled Pogonia

Orchidaceae, the Orchid Family

*Isotria medeoloides*, a federally threatened orchid, was located in Orange County, New York in late May 2010 by Kimberly Smith. The orchid was found in a state park where a survey for other rare plants was being conducted. No one has seen this rare orchid in New York since 1976 when Mildred Faust photographed two flowering individuals in a swamp in Onondaga County. Beaver have flooded the area since then and invasive plants have colonized the site and the orchid has not appeared again. *Isotria medeoloides* is present in 17 other states in the eastern United States and is endangered or threatened in each. Botanists have spent decades looking for small whorled pogonia throughout New York where it had been collected only five times before 1976. From 1887 to 1923, *I. medeoloides* had been collected once in five different New York counties: Washington, Ulster, Rockland, Nassau, and Suffolk. Orange County is now added to the list of where it has been known to occur.

***Juglans ailantifolia* Carrière**

Japanese Walnut

Juglandaceae, the Walnut Family

In 2010, Daniel Atha located two spontaneously reproducing colonies of *J. ailantifolia* in the village of Orient, Suffolk County, New York. Voucher specimens were collected (*Atha & Zembruski* 8550) and deposited at NY. These collections represent the first documented report of spontaneously reproducing Japanese walnut in North America. One colony consists of six individuals ranging from saplings through mature, fruit-bearing trees. The two fruit-bearing trees may have been planted but the saplings are spontaneous (*vide* property owners Robert and Madelyn Ehrlich). The trees are concentrated within a one-acre lot in a residential zone occupied by a house, lawn, and gravel parking area. The second occurrence consists of one tree, 9 m tall and 21.2 cm diameter at breast height, located approximately 3.2 km east of the first colony. The individual occurs along the edge of a woodland dominated by *Prunus serotina* Ehrh., *Robinia pseudoacacia* L., and *Acer negundo* L. The low woods are drained by an intermittent stream. An intensive survey of adjacent areas was not conducted and there could be additional individuals not reported here.

*Juglans ailantifolia* has been in cultivation in North America since 1860 (Rehder 1937) and has been collected several times from gardens and arboreta. At this time, it is not known if the Orient population will continue to reproduce and persist, but like so many other recent tree introductions, it may eventually expand its current range and colonize other regions in and near the Torrey Range.

The genus *Juglans*, comprising 21 species, is divided into four sections: sect. *Juglans* with one species; sect. *Rhysocaryon* with 16 species; sect. *Cardiocaryon* with three species, including *J. ailantifolia*; and sect. *Trachycaryon* with one species (Manning 1978). The three Asian species of section *Cardiocaryon* are very closely related to American butternut, *J. cinerea* L. in section *Trachycaryon*. Molecular sequence data from three different gene regions (Stone et al. 2009) support the close relationship between the two sections as proposed by Manning (1978). Unlike the butternut, however, which is highly susceptible to walnut canker, the Japanese walnut is thus far resistant.

***Juncus brachycarpus* Engelm.**

Short-fruit Rush

Juncaceae, the Rush Family

This rare rush was collected 15 times between 1909 and 1943 on Long Island, New York, where it is at the northern edge of its range. In 1991, a new population consisting of hundreds of individuals was found at Pelham Bay Park, Bronx County, New York; at the time, this occurrence was the only known population in the state. In July 2010, Kimberly Smith found a second extant New York population of about 100 individuals in a wet meadow at Montauk Point State Park, Suffolk County. This locality is the farthest east it has been found in the state; the closest historical record is a 1943 collection from Riverhead.

***Kyllinga pumila* Michx.**

Annual Greenhead Sedge

Cyperaceae, the Sedge Family

Long known as *Cyperus tenuifolius* (Steudel) Dandy, this species is the most widespread of all *Kyllinga* species in the United States, with the center of its range in the Southeast (Delahoussaye and Thieret 1967, Bryson et al. 1997, Tucker 2002). In 2010, Wayne Morris collected *K. pumila* from a wet lawn in lower Manhattan, New York County, New York (Morris s.n., BKL), the first documented record from the Torrey Range since 1957 (Brooklyn Botanic Garden 2011, Weldy and Werier 2011).

*Kyllinga pumila* was not included in the Torrey Range flora by early botanists (Britton 1889, Taylor 1915), but it has been migrating northward along the Atlantic coastal plain during the past century. Noted as far north as Virginia by Britton in 1901, *K. pumila* was reported from Delaware, Maryland, Pennsylvania, and southern New Jersey by the early 1990s (Norton and Brown 1946, Tatnall 1946, Fernald 1950, Delahoussaye and Thieret 1967, Hough 1983, Gleason and Cronquist 1991). The earliest voucher from the Torrey Range is a 1937 collection from Queens County, New York (Hembury s.n., BKL). Shortly thereafter, Svenson (1938) reported *K. pumila* from Kings County, New York, and Fernald (1950) reported it from Long Island, New York, the northeastern most occurrence cited in the literature.

Many species of *Kyllinga* are considered weedy (Bryson et al. 1997); so, does *K. pumila* pose a threat to natural areas in the Torrey Range? Although *Kyllinga* species generally produce many readily dispersible seeds (Bryson et al. 1997), one study concluded that *K.*

*pumila* has the lowest germination rate of all *Kyllinga* species tested (Lowe et al. 1999). Additionally, *K. pumila* is native to the eastern United States, not too far south of the Torrey Range; therefore, natural biotic and abiotic factors should keep the species in balance within the region. Finally, *K. pumila* commonly occurs in highly maintained and frequently irrigated turf (Bryson et al. 1997, Tucker 2002), thus suggesting that it presents a minimal threat to natural ecosystems in the Torrey Range.

***Nymphoides peltata* (Gmel.) Kuntze**

Yellow Floating-heart

Menyanthaceae, the Buckbean Family

*Nymphoides peltata* is an aquatic species native to Eurasia that was introduced in North America as a popular ornamental (Stuckey 1974). It has escaped cultivation and become established throughout most of the United States and analysis suggests that it has been separately introduced into many widely scattered localities (Stuckey 1974, USDA Plants Database 2011). One of the earliest North American records is an 1886 collection from Terrace Pond in Central Park, New York County, New York (Stuckey 1974); a 1946 collection from Central Park (Monachino 442, PENN/PH) includes an annotation stating “a pest in ponds”.

In 2010, Steven Glenn collected *N. peltata* in Alexauken Creek, Hunterdon County, New Jersey (Glenn 12743, BKL). This collection represents the first record of this species from northern New Jersey (Brooklyn Botanic Garden 2011).

Reproductive and dispersal characteristics of *N. peltata* suggest that this species poses a potential threat as a pest in aquatic ecosystems in the Torrey Range. The most susceptible habitats would likely be sluggish, shallow waterways such as pond margins, backwater sloughs along rivers, and marshes; some studies suggest that *Nymphoides* is restricted to water depths less than 1.5 to 2 m (Muenscher 1933, Nohara 1991). *Nymphoides* in general can propagate vegetatively, readily forming new plants from separated nodes (Dress 1954). Another study found seed production as high as 3000 seeds/m<sup>2</sup> (van der Velde and van der Heijden 1981). Additionally, various seed coat features, such as marginal specialized trichomes and hydrophobic surfaces, facilitate hydrochory, epizoochory, and



possibly aenemochory (van der Velde and van der Heijden 1981, Cook 1990, Chuang and Ornduff 1992). Once established in a suitable habitat, proliferation might ensue; Stuckey (1974) cited a 1935 Muenscher study of *N. peltata* forming dense beds in shallow water of the Hudson River just north of the Torrey Range.

***Oldenlandia uniflora* L.**

Clustered Bluets

Rubiaceae, the Madder Family

This diminutive bluet reaches the northern limit of its distribution in the Torrey Range, where it has been considered rare for more than 100 years (Willis 1874, Taylor 1915). In New York, it is currently listed as “critically imperiled due to extreme rarity” and has been collected from Bronx, Queens, Richmond, and Suffolk counties (Weldy and Werier 2011). In New Jersey, it was historically reported as “rare in Bergen and Hudson counties,” but becoming “common southward” (Taylor 1915); currently, it is listed as a state rare species (Snyder 2010). *Oldenlandia uniflora* has never been reported from Connecticut or Massachusetts (USDA Plants Database 2011).

In 2010, *O. uniflora* was collected from Nassau County, New York, by Steven Glenn (Glenn 12952, BKL); this collection represents the first record of this species from Nassau County (Weldy and Werier 2011). It was also reported in 2010 from the grounds of The New York Botanical Garden, Bronx County, by staff botanists.

*Oldenlandia uniflora* has endured a tortuous nomenclatural history, sometimes placed in *Houstonia* or *Hedyotis* (Lewis 1961); and as Fosberg (1954) noted “this species has a very misleading name, as the flowers are glomerate in the leaf axils, rather than solitary.” This feature was apparently taken into account by Michaux, who assigned the name *Oldenlandia glomerata* in 1803.

***Phlox divaricata* L.**

Wild Blue Phlox

Polemoniaceae, the Phlox Family

The nativity status of *P. divaricata* in the Torrey Range is debatable. While currently listed as a rare native species in New Jersey (Snyder 2010), older floristic sources indicate that its native distribution is beyond the Torrey Range. *Phlox divaricata* was not included in the floras of New Jersey (Willis 1874, Britton

1889), southeastern New York (Taylor 1915), or Connecticut (Graves et al. 1910, Seymour 1969). Taylor (1915) reported *P. divaricata* as “adventive” in New Jersey and stated that it was “nowhere a wild plant in our area.” More recent authors consider the native northeastern range of *P. divaricata* as extending from up-state and western New York south and west to central Pennsylvania (Wherry 1955, Levin 1967, Weldy and Werier 2011). In Vermont, Gilman (pers. comm.) considers *P. divaricata* “presumably adventive from further south and west.”

In 2010, Steven Glenn located a large population of *P. divaricata* in Sussex County, New Jersey (Glenn 12465, BKL), one of only a few reports from the Torrey Range (Brooklyn Botanic Garden 2011). It is not known if these occurrences from the western border of the Torrey Range represent disjunct populations on the eastern fringe of the species native range, or populations persisting or escaping from cultivation.

***Platanthera pallida* P. M. Brown**

Pale Fringed Orchid

Orchidaceae, the Orchid Family

For the past few years, Eric Lamont and Robert McGrath have been reporting on extensive browsing of *P. pallida* at Napeague, Suffolk County, New York (Lamont 2010). In 2010, Larry Penny (pers. comm.) added his observations: “On the Monday before last [August 16<sup>th</sup>], I checked the only home of one of the world’s most newly described orchid, the pale crested fringed orchid, *Platanthera pallida*. The count was a disappointment. Yes, there were several to be tallied, but all but a few of the flowering heads had been snipped off by some browsers, either deer or cottontail rabbits, or both. That means there will be very few seeds to start new orchids next spring. However, there were many, many first-year plants, single leaves sticking up, so I felt a little better about next year’s prospects.”

The taxonomic status of *P. pallida* is still being debated. The plants were long thought to be pale-flowered forms of *Platanthera cristata* (Michx.) Lindl. Brown (1992) described them as a new species, *Platanthera pallida*, endemic to eastern Long Island where its distribution is restricted to three sites just east and west of Napeague Harbor. Sheviak (2002b) considered “the plants described as *P. pallida*... to represent neither a distinct species nor are they merely hybrids; they seem to be partially

stabilized introgression products and potentially useful subjects for evolutionary study.”

Regardless of the taxonomic status of this taxon, it is extremely rare in the Torrey Range and needs protection. All three colonies are located on public land. The largest colony is the one being browsed and is supposed to be managed by a national environmental organization. Ten years ago the colony consisted of 1000+ flowering individuals (Lamont, pers. obs.). Placing a fence around the colony would be a simple solution to the browsing problem; this suggestion has been proposed to environmental managers.

***Pycnanthemum verticillatum* (Michx.) Pers.**

Whorled Mountain-mint

Lamiaceae, the Mint Family

*Pycnanthemum verticillatum* var. *verticillatum* is listed as endangered or threatened in New York, Maryland, Ohio, and Michigan and possibly extirpated from Pennsylvania and Tennessee. Prior to the present collection, it was verified from only four localities in New York (Young 2008).

In 2009, Daniel Atha collected *P. verticillatum* (Atha 7734, NY) at the Ice Pond Conservation Area in northeastern Putnam County, New York. The population consists of an uncertain number of individuals growing under a high-voltage transmission line. The power line and its right-of-way traverse a steep hill rising from 34 m above sea level to a height of nearly 240 m. The right-of-way is maintained by brush clearing and herbicide treatment and receives frequent traffic from all-terrain-vehicles (ATVs), hikers, and white-tailed deer (*Odocoileus virginianus*).

Seven species of *Pycnanthemum* are native to New York (Mitchell and Tucker 1997), and some of them are difficult to identify. The whorled mountain-mint belongs to a group of five species in the state with numerous, compact flower clusters. The other two species have loose flower heads with evident branchlets within the flower clusters. *Pycnanthemum verticillatum* is distinguished from the other four species by the minutely pubescent stems (pubescent on and between the angles of the stem) and the relatively narrow, pubescent leaves at least 3 times as long as wide). It is morphologically most similar to *Pycnanthemum torrei* Benth., another rare species in the Torrey Range with glabrous leaves and much longer calyx teeth.

***Ranunculus pusillus* Poir.**

Low Spearwort

Ranunculaceae, the Buttercup Family

*Ranunculus pusillus*, a denizen of wet habitats, reaches the northern limit of its distribution in the Torrey Range where it is considered extirpated in New York (Young 2010), and rare and vulnerable to extirpation in New Jersey (Snyder 2010). The most recent New York collections are from Richmond County in 1894, Westchester County in 1895, and Nassau County in 1905 (Weldy and Werier 2011).

In 2009, Steven Glenn located two small colonies of *R. pusillus* in the Great Swamp, Morris County, New Jersey (Glenn 11957, BKL), representing only the second record of this rare species from the Torrey Range in the past 30 years (Brooklyn Botanic Garden 2011).

***Schoenoplectus mucronatus* (L.) Palla**

Bog Bulrush

Cyperaceae, the Sedge Family

The first report of this Eurasian bulrush from eastern United States was based on collections from southeastern Pennsylvania in the 1860s (Britton 1888, Porter 1903); the collections were later identified as robust specimens of *Scirpus debilis* Pursh (Long 1918, Beetle 1942), later synonymized to *Schoenoplectus purshianus* (Fern.) M. T. Strong var. *williamsii* (Fern.) S. G. Smith (Smith and Hayasaka 2002). Another early report of this non-native sedge, from ballast in Camden, New Jersey in the 1870s (Long 1918), was never substantiated with a voucher collection.

Beetle (1942) claimed that *S. mucronatus* did not occur in the New World, and thus the species was not included in subsequent Northeastern flora manuals (Fernald 1950, Seymour 1969, Gleason and Cronquist 1991, Magee and Ahles 2007). However, unbeknown to Beetle, bog bulrush was collected in California in 1942; later, in 1971, it was collected in the Midwest (Smith 2002), and more recently in the Torrey Range (USDA Plants Database 2011, Weldy and Werier 2011, Brooklyn Botanic Garden 2011). In 1992, *S. mucronatus* was collected in Fairfield County, Connecticut (Mehrhoff 16034, CONN), and in 1993 it was collected in Suffolk County, New York (Mangels 2007, PH).

In 2009, Martin Bennett collected *S. mucronatus* in a large mud puddle over sand (Bennett

09379, BKL) in the same general vicinity as Mangel's 1993 collection from Suffolk County. For more than 15 years the population has persisted and may be expected to spread, probably expedited by waterfowl. Smith and Yatskievych (1996) concluded that many recent collections of *S. mucronatus* from the United States were from man-made wetlands, mostly of recent origin, and the achenes are likely transported in the gut or in mud on feet or feathers of migratory waterfowl.

***Stylophorum diphyllum* (Michx.) Nutt.**

Celandine-poppy

Papaveraceae, the Poppy Family

A large, persistent and spreading population of *S. diphyllum* was located in northeastern Putnam County, New York, by Daniel Atha in 2009. Numerous individuals were thriving without aid on a mesic, shady, gentle slope near the parking area of the William Clough Nature Preserve in the town of Patterson. An 18th century home is adjacent to the property and contiguous with the *S. diphyllum* population.

The native range of *S. diphyllum* is western Pennsylvania to southern Michigan and Wisconsin, south to Tennessee, Georgia, and Arkansas (Gleason and Cronquist 1991). It occurs in rich, moist woods in much the same habitat as *Podophyllum peltatum*, and has never been reported from New York (Weldy and Werier 2011). The population of *S. diphyllum* found by Atha probably is not a native, disjunct population, rather it is likely persistent and spreading after cultivation. The site will be monitored to see if *S. diphyllum* expands its distribution in the Torrey Range.

***Trichostema setaceum* Houtt.**

Narrow-leaved Blue-curly

Lamiaceae, the Mint Family

While conducting a rare plant survey with Stephen Young and Michael Feder on 29 September 2010, Rich Kelly located a small population of *T. setaceum* in the vicinity of Long Pond on the South Fork of eastern Long Island, Suffolk County, New York. This sighting was the first time it had been seen in New York since September 1945 when a voucher was collected at Long Pond south of Sag Harbor, the same general vicinity where Kelly found it 65 years later. *Trichostema setaceum* was first reported from Long Pond in 1925 and again in 1927.

New York botanists have been diligently searching the Long Pond region for *T. setaceum* during the past 30 years without finding it. Four other historical records of this rare plant are known from New York: two from Staten Island in 1889 and 1894; the vicinity of Wading River, Suffolk County, in 1921; and near Salem Center, Westchester County, in the early 1900s. Long Island and coastal Massachusetts are at the northeastern edge of the species range.

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