Long Island Botanical Society

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Calling All Botanists: Your Help is Needed to Detect New Invasive Species Before They Become Established

By Jennifer Dean, Invasive Species Biologist
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As the invasive species biologist for the New York Natural Heritage Program, my day-to-day tasks can sometimes be a bit daunting. New and potentially invasive species are frequently brought to my attention, needing to be added to the tracking list, and previously uninvaded areas start to fill in on the map with points and polygons of documented infestations. While in most cases new data means bad news, this information is essential for natural resource managers making decisions about how to best protect our state's rich biodiversity.

By definition, invasive species are not native to the area of interest and are causing (or are likely to cause) harm to the environment, human health, or the economy. Invasive species are considered to be the second largest threat to global biodiversity after habitat loss (Wilcove et al. 1998).

During my first visit to Long Island after moving to the state, I had a memorable personal experience of the effect of invasives on native species: in the fall of 2010, I accompanied New York Natural Heritage Program (NYNHP) Chief Botanist Steve Young on an outing to Big Woods/Wolf Swamp Sanctuary on the South Fork, to check on populations of six rare salt marsh species, last documented in 1995. Where the rare plants were expected to be we found a solid wall of common reed grass (*Phragmites australis)*, too thick to walk through. It is possible some native plants were still there, but they were not found by us that day. And even if a few individual plants had pushed through the dense mat of *Phragmites* growth, they would be unlikely to breed and outcross to form stable populations.

Research has shown that invasive species can reduce native species to isolated patches that may persist as refugia in the short term, but whose population trajectory typically results longer term in "extinction debt" (Gilbert and Levine 2013).

But there is hope! Volunteer citizen scientists are being trained to help in the effort to combat the spread of invasive species. Successes are counted when any new invasive species is caught early and either eliminated or contained to that site. We call it "working at the bottom of the invasion curve" (Fig. 1), and this is where botanists can be of special help. While most members of the public can learn to identify the usual suspects (e.g., *Phragmites,* multiflora rose *[Rosa multiflora]*, oriental bittersweet *[Celastrus orbiculatus]*), especially since examples are never hard to find, these volunteers often lack the experience to identify new invasive species that appear at the introduction and early recognition end of the curve. Botanists have a good eye for spotting the unexpected plant, whether a rare species or a non-native not yet seen establishing in a natural area. [Ed. note: LIBS Newsletters have documented many such findings over the years.]

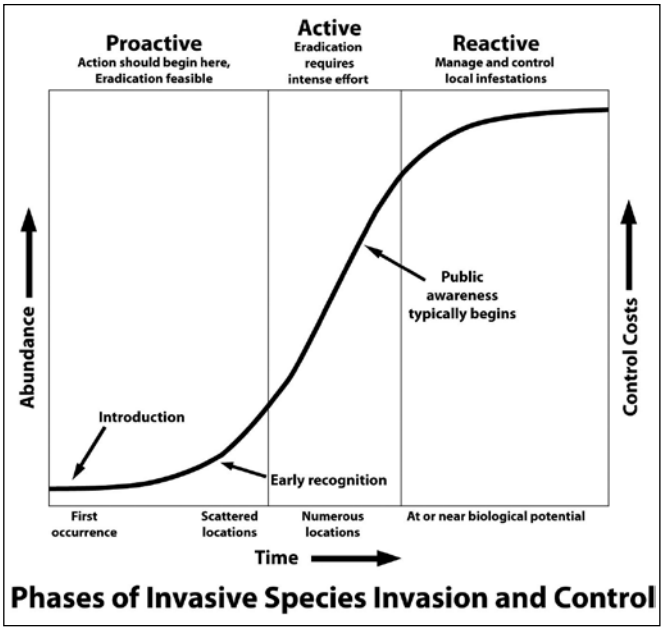

Figure 1. Generalized biotic invasion curve. Adapted from Hobbs and Humphries 1995.

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Long Island Botanical Society

Founded: 1986 • Incorporated: 1989

The Long Island Botanical Society is dedicated to the promotion of field botany and a greater understanding of the plants that grow wild on Long Island, New York.

Visit the Society's Web site
www.libotanical.org

Society News

The March 14th LIBS meeting was canceled because of a snowstorm. LIBS hopes to reschedule Dave Taft's presentation entitled "With a Little Help from My Friends: Parasites, Carnivores, Saprophytes and Heterotrophs among Us" to the autumn of 2017, date to be announced.

LIBS member Matt Kaelin announced that he has created a nature blog of photography featuring Long Island's native carnivorous plants and other interesting creatures. Of special interest is a story about conservation that tells how a nature preserve was established to save a coastal plains community habitat from development. See https://suffolkboglands.wordpress.com/.

According to NYS DEC Biologist David J. Adams, the NYS invasive species regulations, known as 6 NYCRR Part 575, contain a list of prohibited and regulated invasive species. See http://www.dec.ny.gov/animals/99141.html. Herbarium collecting of invasive plant species now requires a permit. Information on the relatively simple permit application and process can be found at: http://www.dec.ny.gov/permits/100696.html. For more information contact dave.adams@dec.ny.gov

Newcomb's Wildflower Guide botanical name update. From the New York Flora Association Blog: We think this is one of the best field guides for identifying wildflowers in New York. Unfortunately the scientific names have not been updated since it was published in 1977 and now just under 30% of them are out of date. Steve Young has compiled a list of changes for each page of the guide. It is available at the following web site: http://bit.ly/2bT8p5w

May 21-25 (Sunday to Thursday) Joint Field Meeting (Botsoc) The Limestone Region Of Northern New Jersey. Each year the Botanical Society of America, The Torrey Botanical Society, and The Philadelphia Botanical Club co-sponsor a field meeting in a different area of the northeastern United States. The 2017 field meeting will be held in northern New Jersey in and around the historic town of Johnsonburg. For additional information and registration forms contact David Austin, davidaustin@verizon.net

Save the Date! Friday, September 15th, 2017: Torrey Sesquicentennial Symposium. Founded in 1867 (as the Torrey Botanical Club), The Torrey Botanical Society is celebrating its 150th anniversary in 2017. Plans are under way for a special edition of the *Memoirs of the Torrey Botanical Society*, and a day-long symposium on Friday, September 15th at The New York Botanical Garden. The following day, Saturday, September 16th there will be an optional local field trip organized by the Torrey Botanical Society Field Committee.

JOIN LIBS TODAY!

Annual Membership is $20 payable to:
Long Island Botanical Society

Mail your dues to:
Carol Johnston, LIBS Treasurer
347 Duck Pond Road
Locust Valley, NY 11560

(New Invasive Species continued from cover)

Good data helps us to be strategic. By focusing on the species with high impacts but low abundance (Table 1), we have a higher probability of successful control. In general, the control of a well-established invasive species like *Phragmites* is not usually practical, since the costs in time and resources are high, and there is usually damage to the underlying native vegetation that we are trying to protect. We have to be realistic, knowing that most populations are here to stay, and instead focus our efforts where we have a better chance at protecting native biodiversity.

The NYS Invasive Species Database, accessible through the *i*MapInvasives online platform (www.nyimapinvasives.org), is designed to make reporting of invasives easy, so both natural resource managers and citizen scientists can enter information on locations and management efforts. This information is added to the hundreds of existing datasets provided by other conservation partners across the state. Since the launch of *i*MapInvasives in 2010, NYNHP has aggregated over 180,000 observation records for 400 species of plants and animals. This trove of information can then be filtered down by species and locations using the online map and a number of built-in query tools (Fig. 2). The power of having a statewide system also lies in the communication network: alerts are triggered by reports of high-priority species and by geography, and they are sent to state experts for review. Users are also alerted if they are reporting a species new to the county, and are encouraged to collect and submit a voucher specimen.

FROM THE MAILBAG:

February 23, 2017

Dear Eric,
I feel that I am late in writing to thank you and all of L.I.B.S. for the Distinguished Service Award which was given to me, as well as to Carol Johnston, at the meeting on December 13th. I am most appreciative and feel that my service to L.I.B.S. over the years was not to earn accolades but was only done because L.I.B.S. is so close to my heart.

I really feel that L.I.B.S. has done a signal work for naturalists all around this area and I am proud of not only its field trips, its regular Newsletters, its stimulating speakers, its botanical trips afield with resulting botanical discoveries, and its useful undertakings, like the Flora Atlas, but especially for its aura of conviviality to all who treasure the natural world. Being part of it has definitely sparked my life!

With thanks for everything!
Sincerely,
Barbara Conolly

TABLE 1. Invasive plant species to watch for on Long Island. Please be on the lookout for and report these species to *i*MapInvasives.

Species in low abundance on Long Island:

Actinidia arguta - hardy kiwi
Arthraxon hispidus - small carpet grass
Euphorbia lathyris - caper spurge
Heracleum mantegazzianum - giant hogweed
Juglans ailantifolia - Japanese walnut
Kalopanax septemlobus - castor-aralia
Lepidium latifolium - perennial pepper-grass

Species not yet documented on Long Island but in the surrounding region:

Aldrovanda vesiculosa - waterwheel-plant
Arum italicum - Italian arum
Carex macrocephala - big-headed sedge
Corydalis incisa - purple corydalis (purple keman)
Dipsacus laciniatus - cut-leaved teasel
Elaeagnus multiflora - cherry silver-berry
Glossostigma cleistanthum - mudmats
Glyceria maxima - tall glyceria (reed mannagrass)
Ipomoea lacunosa - pitted morning glory (white morning-glory)
Lobelia chinensis - Chinese lobelia
Myosoton aquaticum - giant chickweed
Paspalum dilatatum - dallisgrass
Persicaria nepalensis - Nepalese smartweed
Rorippa amphibia - great yellowcress
Youngia japonica - oriental false hawksbeard
[Ed note: This last species is recorded from Queens according to USDA Plants Database.]

To make reporting species even easier, we created a smartphone app for *i*MapInvasives (Fig. 3). This uses your phone's camera and GPS to record new findings, and then uploads the records into the online database under your account. To participate, you can request an account at www.nyimapinvasives.org/request-login. We encourage all LIBS members to get an account and download the *i*MapInvasives mobile app for entering data for new findings, whether a newly discovered species or invasives starting to encroach in a previously uninvaded area.

We invite LIBS members and friends to attend one of our *i*MapInvasives training sessions to be held throughout the state this spring. These will provide an in-depth look at the features of the database and information about invasives specific to your region. On Long Island, there will be a full training (with basic and advanced session options) offered June 23 at Connetquot River State Park. Additional training

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(New Invasive Species continued from page 11)

Figure 2. Example pages from the *i*MapInvasives web site. Detailed information about infestations can be entered and viewed online in *i*MapInvasives, such as this newly detected infestation of *Arum talicum*, observed by staff at the NYBG and NYC Parks.

Figure 3. The *i*MapInvasives Mobile app (www.nyimapinvasives.org/mobile).This application is a convenient way to collect new records for viewing and editing on the full online interface. Available for Apple and Android devices.

opportunities, including online modules, are also listed on our website. See the Spring Training Blitz registration link on our website (www.nyimapinvasives.org) for more details.

Another great invasive species resource in the area is the Long Island Invasive Species Management Area (LIISMA), hosted by the Long Island Native Plant Initiative, and led by its newly hired coordinator, Joanne Klein. To learn more about LIISMA, please visit www.LIISMA.org or email LIISMAPRISM@gmail.com.

References:

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Post-"Sandy" Survey of Forest Trees at a Muttontown Site

By Andrew M. Greller
Professor of Biology Emeritus, Queens College

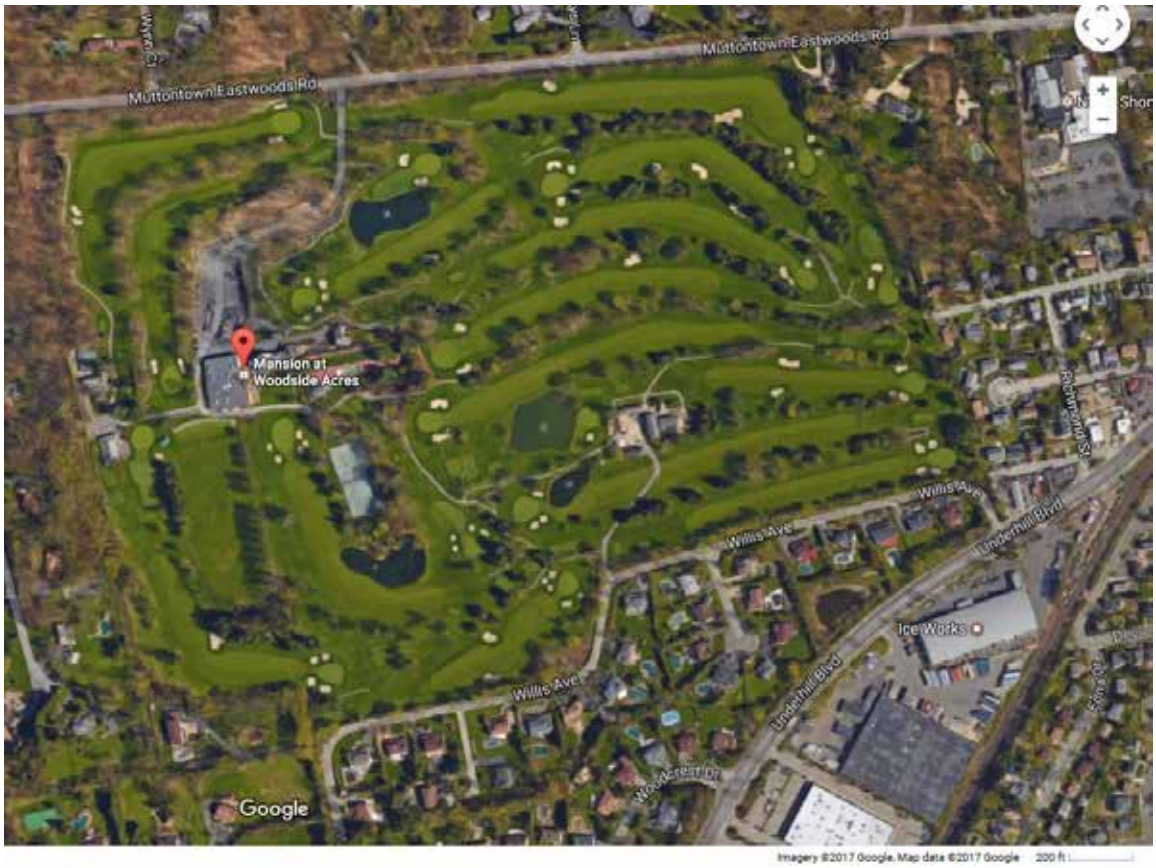

Figure 1. Aerial view of Woodside Acres Golf Course, Muttontown, NY. Woodland remnants are apparent at the periphery of the property and in the strips separating the fairways. [Image from Google Maps. Screenshot accessed 3/17/17.]

Introduction

In 2012, northeastern Nassau County, New York was heavily impacted by winds generated by a storm that began as Hurricane Sandy and passed through Long Island as Post-Tropical Cyclone Sandy. The hurricane made landfall near Atlantic City, New Jersey on October 29th, then traveled to the northeast. Wind velocity was 80 mph with gusts of 100 mph. Altogether, 95,534 buildings were damaged or destroyed in Nassau and Suffolk Counties. Tree debris was estimated at 172,980.91 cubic yards in Nassau County (Bleyer 2013).

Photo documentation of some of the damage is available online at "Photos: Oyster Bay Storm Damage Gallery" (http://tinyurl.com/zy2jllt) by Leah Bush on Oyster Bay Patch and at "Sandy tree damage scorecard [photo album]"(http://tinyurl.com/z4326kq) by Andrew Greller on Facebook.

Although I know of no quantitative, taxonomic tree survey that had been done in the general area, pre-"Sandy," I did complete one such survey, post-"Sandy," in the Syosset postal district (but located in adjacent Muttontown), and that is the subject of this work.

Surveyed Site

Woodside Acres (formerly called Woodcrest Golf Course, 225 Muttontown-Eastwoods Road, Syosset, N.Y. 11791-2409) is a private golf and country club that operates on 107 acres of gently rolling terrain (Fig. 1). It is sited a half-mile west of the center of Syosset, New York (centered on 40°49'21.86"N, 73°30'45.55"W). It is 273 feet above sea level and situated on the end moraine of the Harbor Hill Glacial Advance.

The soil is well-drained and moderately coarse-textured on low hills and ridges. Primary soil types are Riverhead Sandy Loam on 3-8% slopes (covers ca. 50%) and Montauk Fine Sandy Loam on 3-8% slopes (covers ca. 35%) (Wulforst, 1987). Four ponds occur on the site, their peripheries encased in stone.

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(Post - "Sandy" Survey continued from page 13)

Figure 2. A pile of cut trees that were downed during Hurricane Sandy, on the grounds of Woodside Acres Golf Course. These appear to be mainly black and scarlet oaks (*Quercus velutina* and *Q. coccinea,* respectively). [Photo by A. Greller.]

Methods

During the winter months of December 2012 and January 2013, on two dates, I conducted a census of all the trees on the property that appeared to be part of the remnant of the original wooded cover of the site. I included those persisting wooded sites that were located at the periphery of the golf course as well as the strips of woodland separating the fairways (Fig. 1). Most trees were in the range of 1-2 ft dbh; a few exceeded this diameter.

I also examined several piles of logs on the property. These presumably came from trees that were downed during the storm (Fig 2). I did not attempt to count stumps of trees within the wooded sites.

Results

The logs of the downed trees appeared to be mainly black and scarlet oaks (*Quercus velutina* and *Q. coccinea*, respectively). In addition, at least three downed trees remained on the fairways. One was a fungus-infected black locust (*Robinia pseudoacacia*) and the other two were black and scarlet oaks.

The census of standing trees (Table 1) documents the species composition of the forest-remnant trees remaining on the golf course.

Among the 390 trees counted, there were 21 species. The most abundant were *Quercus coccinea* (21.5%), *Q. velutina* (19.0%), *Acer rubrum* (17.2%), and *Q. alba* (14.4%). Less abundant were *Sassafras albidum* (6.4%) and *Fagus grandifolia* (5.9%). *Acer rubrum* was the most abundant tree in the ponds and lowlands area of the site, accounting for 37.5% of the 136 trees counted in that area. *Fagus grandifolia* reached its greatest abundance in lowlands, accounting for 13.2% of the lowland trees. On one low site in the south central area of the property *Acer rubrum, Sassafras albidum,* and *Q. palustris* were the most abundant trees. On the uplands *Q. alba, Q. coccinea*, and *Q. velutina* were the most abundant.

Discussion and Conclusion

Photo essays of tree damage in the suburbanized northern Syosset-Muttontown area suggest that nearly all of the trees that were uprooted or suffered broken boles or loss of major branches were oaks, usually scarlet or black, but never white oak. Examination of piles of logs on the subject property reveal a similar pattern.

Yet at the golf course, scarlet and black oaks account for the greatest percentage of standing trees, as they apparently did before the storm. It would thus appear that this mixed-oak forest type remains essentially unchanged by Post-Tropical Cyclone Sandy. It will be interesting to see if these findings hold in fully forested areas (but see Lindberg 2013); and also to see the effects of any subsequent powerful storms on tree populations in the same area.

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TABLE 1. Tree composition of Woodside Acres (Woodcrest) Golf Course, Muttontown, N.Y. Numbers and kinds of trees with diameters ≥ 1 ft at 4 1/2 ft above the ground [dbh] in December 2012 and January 2013.

Species	Common name	TOTAL TREES	% Abundance
Acer rubrum	red maple	67	17.2
Betula lenta	black birch	3	0.8
Carya cordiformis	bitternut hickory	2	0.5
Carya ovalis	pignut hickory	4	1.0
Carya tomentosa (=C. alba)	mockernut hickory	4	1.0
Cornus florida	flowering dogwood	6	1.5
Fagus grandifolia	American beech	23	5.9
Juglans nigra	black walnut	1	0.3
Liriodendron tulipifera	tulip poplar	1	0.3
Pinus strobus (cultivated?)	white pine	2	0.5
Platanus occidentalis	American sycamore	1	.03
Populus grandidentata	bigtooth aspen	2	.05
Prunus avium (naturalized exotic)	sweet cherry	5	1.3
Prunus serotina	black cherry	7	1.8
Quercus alba	white oak	56	14.4
Quercus coccinea	scarlet oak	84	21.5
Quercus palustris	pin oak	9	2.3
Quercus rubra	red oak	4	1.0
Quercus velutina	black oak	74	19.0
Robinia pseudoacacia	black locust	10	2.6
Sassafras albidum	sassafras	25	6.4
TOTAL 21		**390**	**100.1**

Field Trips

April 22, 2017 (Saturday) 10:00 AM
Van Cortlandt Park, Bronx Co., NY
"Spring Wildflowers in the Northwest Woods"
Trip Leaders: Kristine Wallstrom and Tom Fiore
E-mail: kwalstrom@earthlink.net

We hope that this is a well-timed weekend for early spring wildflowers in bloom. We will walk on the mostly level John Muir Trail starting in the Northwest Woods, going into the Croton Woods, and returning to the Rockwood Circle near the horse stable parking lot, where there are bathrooms. If bringing a bag lunch, one can eat here, or drive to the lovely gardens of Wave Hill on the Hudson, 10 minutes by car. Please bring lunch/snack, sunscreen and water.

Directions: From the Major Deegan Expressway (87) to Exit 11, drive down to Broadway (Rte 9) and drive north on B'way, to Mosholu Ave at a traffic light (Horse Stables) make a right and park at the stables. By subway, take the #1 train to its end at 242nd St & B'way, walk north on B'way (~1 mile) to the horse stables on the right, B'way and Mosholu Ave. Please contact Kristine by e-mail to register for the walk.

May 7, 2017 (Sunday) 10:00 AM
Rockefeller State Park Preserve
125 Phelps Way, Pleasantville, NY
Trip Leaders: Susan Antenen and Paula Sharp

Please meet at the entrance to Rockefeller State Park Preserve, 125 Phelps Way, Pleasantville, NY. There is a $6.00 parking fee unless you have an Empire Pass. The walk will leave from the entrance, go down to Swan Lake to Peaceful Path, and then around the lake. We'll see common spring wildflowers, and the leaders will talk about the park preserve's efforts to conserve wildflowers and wild bees.

Please bring lunch/snack, sunscreen and water. After the walk, if the group wants to further explore the park preserve, the leaders will point us in some promising directions.

Directions: Rockefeller State Park Preserve can be located on Google Maps. To register contact Al Lindberg by email at ajlindberg@optonline.net or at 516-686-6649.

June 10, 2017 (Saturday) 9:30 AM
Sherwood Jayne Farm Preserve
55 Old Post Rd, East Setauket, NY
Trip Leader: Enrico Nardone,
Seatuck Environmental Association

Join Seatuck Environmental Association, as we explore the beautiful rolling forests of the Sherwood Jayne Farm. The property, which is owned by the Society for the Preservation of Long Island Antiquities (SPLIA), features a variety of forest types and hosts a diversity of wildlife. We'll also search for American chestnut tree sprouts and discuss the work under way to save and restore these former forest giants.

Please bring lunch/snack, sunscreen, insect repellent and water.

Directions: Take the LIE to Exit 62 North (Nicolls Road). Take Nicolls Road several miles north to the end and bear right onto Route 25A. Proceed east through Setauket and East Setauket and make a right turn onto Old Coach Road (red schoolhouse offices on the corner). At the fork in road bear left onto Old Post Road. Sherwood-Jayne House is #55 Old Post Road. Meet at parking area. Questions: 631-487-0071.

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(Post -"Sandy" Survey continued from page 14)

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Lindberg, L. 2013. The great chainsaw massacre of Nassau County. Quart. Newslett. Long Island Bot. Soc. 23: 13, 15.

Wulforst, J.P. 1987. Soil survey of Nassau County, New York. USDA, Soil Conservation Service, 156 pp. + maps.

(Programs continued from back cover)

June 13, 2017 Tuesday, 5:30 PM
(please note early start time for the barbecue)

Annual Barbecue: The annual barbecue, featuring Chef Eric's made-to-order hot dogs and hamburgers. Salads, deviled eggs, desserts, etc. gladly accepted. The traditional location--on the green behind the Muttontown Preserve meeting house.

Location: Bill Paterson Nature Center
Muttontown Preserve, East Norwich

Long Island Botanical Society
PO Box 507
Aquebogue, NY 11931

Upcoming Programs

April 11, 2017* **Tuesday, 7:30 PM**

Steve Young: "The Rare Plants of Plum Island, New York." The New York Natural Heritage Program inventoried the rare plants, animals, and ecological communities on Plum Island in 2015. Chief botanist Steve Young will present the results of the field surveys for rare plants and discuss future survey and management recommendations. Steve received his B.S. in Environmental and Resource Management from the SUNY College of Environmental Science and Forestry and his M.S. in Taxonomic Botany from the University of Florida. He is in his 27th year as chief botanist for the New York Natural Heritage Program, a program of the SUNY College of Environmental Science and Forestry in Syracuse that is based in Albany.

Location: Bill Paterson Nature Center
Muttontown Preserve, East Norwich

May 9, 2017* **Tuesday, 7:30 PM**

Diane Bouchier: "Botanical Art: Tradition and Revival." Botanical art is a fine-art tradition that is experiencing a contemporary revival of truly global dimensions. This talk will present the high points of this tradition, moving from herbals to humanism and to the golden age of botanical illustration, and will show examples of some of the best work being done today. Dr. Bouchier is the founder of the American Society of Botanical Artists (ASBA), which is the leading international organization dedicated to botanical art, with over 1,500 individual and institutional members. Examples of the latter include the Missouri Botanical Garden and the Chelsea Physic Garden. An accomplished artist in her own right, she teaches botanical drawing at Gallery North in Setauket and lectures widely.

Location: Earth and Space Science Building
Gil Hanson Room (Room 123)
Stony Brook University, Stony Brook

* Refreshments and informal talk begin at 7:30 p.m. Formal meeting starts at 8:00 p.m.
Directions to Muttontown or Stony Brook: 516-354-6506

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