

Long Island Botanical Society

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The Quarterly Newsletter

Summer 2019

***Osmanthus heterophyllus* (Oleaceae) a New Invasive Species in New York**

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and

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Introduction:

It was on 1 November 2015, while botanizing with Matt Stedman, that two seedlings of *Osmanthus heterophyllus* (G. Don) P.S. Green were first observed at Big Reed woods in Montauk County Park. In the following three years, more seedlings were found at Big Reed woods as well as at other Montauk sites including Culloden Point Preserve¹, Shadmoor State Park², and along East Lake Drive. It was this increase in numbers and additional locations that initiated our survey of an approximately one-acre site, where the first two seedlings were found. The investigating team was comprised of five East Hampton High School student interns led by several Third House Nature Center members.

Plant description:

Osmanthus heterophyllus, commonly called false holly, is a

bushy upright evergreen shrub native to Japan and Taiwan and grows to approximately 8-12 feet (~2.5-3.5 meters). There are a number of favored cultivars such as 'Gulf Tide', 'Goshiki', and 'Variegatus'. There are also other species of *Osmanthus* used in the landscape and nursery trade, particularly *Osmanthus fortunei*. The late fall-early winter little white flowers, although inconspicuous, are highly fragrant. Curiously, references state *O. heterophyllus* as being dioecious, however, the two mature specimens in Shadmoor

were observed to be bisexual. *Osmanthus* is in the family Oleaceae, the same family as the notorious invasive genus, *Ligustrum*. *Osmanthus heterophyllus* is superficially similar to American holly, *Ilex opaca* (Fig. 1).

Osmanthus heterophyllus has become increasingly popular over the
(Continued on page 19)

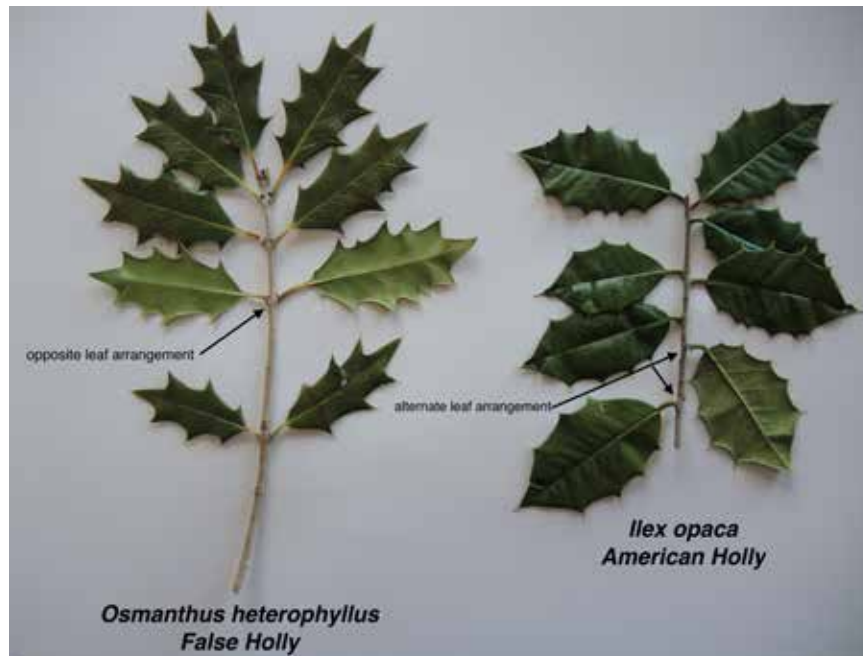


Figure 1. Leaf comparison of *Osmanthus heterophyllus* versus *Ilex opaca*.

1 Culloden Point Preserve-East Hampton Town parkland, 190 acres, predominantly a coastal oak-hickory forest.

2 Shadmoor State Preserve-New York State Park, 99 acres, predominantly a maritime coastal shrub land.

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

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Society News

LIBS thanks Wei Fang, Carole & Richard Ryder and Mary Rose Ruffini for their generous donations, and **Kim Berlin** for becoming the newest LIBS Life Member!

LIBS applies for \$20,000 grant from the William E. and Maude S. Pritchard Charitable Trust to help publish *Atlas of the Flora of Long Island, New York*. Despite the rich diversity of the plants on Long Island, the first and only *Flora of Long Island* was published in 1899 and has not been updated since. If awarded, this grant will be used to retain the services of a taxonomic botanist to update the taxonomy and nomenclature of difficult species groups in the *Atlas*.

LIBS tries to save Moores Woods. On 12 June 2019, Steve Young and Eric Lamont met at Moores Woods with representatives from the DEC and the Village of Greenport to document the occurrence of *Carex debilis* var. *debilis* within the proposed development site of a railroad ride through the rare Coastal Oak Hickory Forest. In New York this rare plant is restricted to Long Island and the population at Moores Woods is by far the largest and healthiest in the state. Within the relatively short period of time surveying the site (approx. 1 hour), dozens of individuals of *C. debilis* var. *debilis* were located within and directly adjacent to both sides of the proposed path of the railroad tracks. LIBS does not support construction of this project at Moores Woods because the proposed project will have significant negative impacts on the population of *C. debilis* var. *debilis*.

LIBS members monitor rare carrion flower. On 29 May 2019, Carole Ryder, Rich Kelly and Steve Young relocated two colonies of coastal carrion flower (*Smilax pseudochina*) at Massapequa Preserve, Nassau Co., the only known occurrence of this rare (S1) plant in New York. Plans to survey the site were in jeopardy after a shallow grave with human remains was found a few days before and police closed sections of the preserve to the public; the grave was purported to be the work of the violent MS13 gang.

Managing rare plants at the Freeman Avenue site. On 22 May 2019, John Turner (Co-chair, LIBS Conservation Committee) met on-site with Ken Ketlovich of American Towers Group (Ken oversees all 90 properties the company owns between Kentucky and Maine) to discuss and develop a management plan that promotes the protection of rare plants and biodiversity (see LIBS *Newsletter*, vol. 29, no. 1). A follow-up meeting is planned for 26 June 2019.

2nd Annual New York City EcoFlora Conference. 20 September 2019, at The New York Botanical Garden. The theme is "The Historical Flora of New York City: Implications for Conservation Action." Join NYBG's Center for Conservation Strategy staff and other renowned experts for an update on the New York City EcoFlora project, now in its second year. Sign up on NYBG's web site.

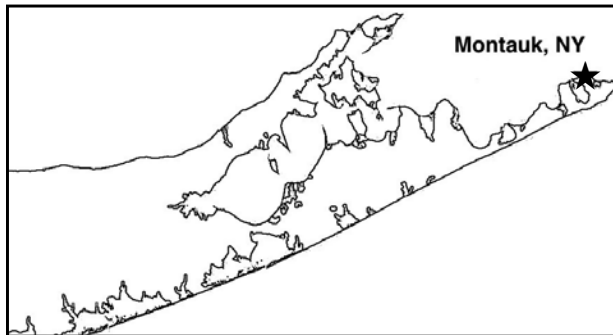
In Memoriam

Richard "Dick" Mitchell

The 4th State Botanist of New York

(*Osmanthus heterophyllus*, continued from cover)

Figure 2. right: Aerial view of the survey area of “The Island”.
Figure. 2A. below: Eastern Long Island, NY. Montauk area indicated by star.



last 5-10 years in local landscapes due to its excellent deer resistance, shade tolerance, and handsome glossy, evergreen, spiny foliage. It makes an excellent hedge, barrier, and screening material. *Osmanthus heterophyllus* can have spiny juvenile leaves or adult leaves which are typically entire on mature individuals, or sometimes an individual may sport both leaf types. All individuals of *O. heterophyllus* observed by us in Montauk have had juvenile foliage only.

Background:

Osmanthus heterophyllus is not included in the flora of New York (Werier 2017) nor is it included in the floras of New England (Haines 2011), northeastern United States (Gleason and Cronquist 1991), and North America (USDA Plants Database 2019). Online searches revealed some information about this species being invasive: Early Detection & Distribution Mapping System (EDDMapS 2019) reported it in Prince George’s County, MD (June 2017), the District of Columbia (Nov. 2017) and Baltimore City, MD (Feb. 2018). Additionally, the city of Alexandria, VA published a paper (Simmons 2012) entitled “Invasive exotic plants that threaten parks and natural areas in Alexandria” and *O. heterophyllus* is listed as an invasive shrub.

At a horticulture conference this past winter the senior author picked up a brochure by Cornell Cooperative Extension entitled “Long Island Gold Medal Plant Award Winners.” The mission of the Gold Medal Plant Program is to identify and promote exceptional ornamental plants that will thrive in the Long Island home landscape and one of the 2017 winners was none other than *O. heterophyllus* “Goshiki”.

Study site description:

The one-acre study site is located in Big Reed woods at Montauk County Park in an area locally referred to as “the island” (41.07602°N 071.91428°W). The vegetation is classified as a coastal oak-hickory forest community (Edinger et al., 2012) surrounded by a low emergent marsh bordering

the 56-acre freshwater Big Reed Pond (Fig. 2, above; Figs. 3 & 4, page 20). The dominant tree species are *Quercus alba*, *Q. velutina*, *Carya glabra*, *C. cordiformis*, *Nyssa sylvatica* and *Ilex opaca*. The shrub layer is mostly comprised of *Clethra alnifolia*, *Viburnum dentatum* var. *venosum* (S2, rare in NY), *Amelanchier canadensis*, and *Vaccinium corymbosum* along with the two subshrubs *Chimaphila maculata* and *Pyrola americana* and the ubiquitous vine *Smilax rotundifolia*. Common forbs include *Thelypteris noveboracensis*, *Fragaria vesca*, and *Carex pensylvanica*.

Methods:

The survey was conducted on 6 January 2019 at “the island” (locality where the first seedlings were observed in the park). A local surveyor, William Walsh, determined the area of the study site as 42,981.68 square feet, or 0.9867 acres (3,993 square meters or 0.399 hectares). The survey team included Victoria Bustamante, Matthew Stedman, five student interns, and five volunteers who searched the study site for two hours. When a seedling of *O. heterophyllus* was found it was assigned a number, tagged with a ribbon, measured, and the GPS coordinates recorded.

Results:

In the one-acre survey area, 56 seedlings of *O. heterophyllus* were documented. Individuals varied in height from 2.5 cm to 65 cm. Deducting the two tallest plants (16 cm and 65 cm) as the original seedlings from 2015, the average seedling was 5.6 cm, and may range from 1 to 4 years old. We cannot determine at this time the source of these individuals.

Subsequent to the initial survey the lead author was alerted to and visited a property (approximately 1.5 miles from the survey site) with a road-front planting of six mature *O. heterophyllus* individuals (10’ tall), estimated to be 15 years old. Directly across the small side street were approximately 70 escaped young individuals of *O. heterophyllus*, having sprouted up in the brushy hedgerow undergrowth (Fig. 5).

(Continued on page 20)

(*Osmanthus heterophyllus*, continued from page 19)

Specimens collected. USA. New York. Suffolk Co., East Hampton Township, hamlet of Montauk: Montauk County Park, Big Reed, 4 Mar 2018, *Bustamante 1248* (NY); Shadmoor State Park, no reproductive structures, 27 Nov 2016, *Bustamante 981* (NY); Shadmoor State Park, flowers bisexual, creamy white, extremely fragrant, note-this is same specimen as #981 collected 27 Nov. 2016 which had no reproductive structures present, 26 Nov 2018, *Bustamante 1483* (NY).

Potential source of seeds:

Because of the randomness of the seedlings and density in some Montauk locations, it is theorized that, in some cases, flocking birds such as cedar waxwings, red-wing blackbirds, starlings or robins may be responsible for dispersal of the seeds. Once a flock feeds on the mature fruits (a dark purple-black drupe; a fleshy one-seeded fruit), they move on to rest in treetops and drop the digested seeds through alimentary transportation. However, where is the source of these fruits? In Montauk, there are some extensive and mature (flower and seed producing) hedge plantings of *O. heterophyllus* along Old Montauk Highway and otherwise is found spottily in landscapes throughout the hamlet. Shadmoor State Park hosts two mature shrubs (approx. 9' tall) plus some younger seedlings. All other individuals observed

in Montauk are seedlings up to an estimated age of 4 years. Culloden Point Preserve and East Lake Drive have only seedlings as well.

There are at least two potential sources of seeds for young individuals of *O. heterophyllus* currently observed in Montauk: mature, horticultural individuals could be seed sources, or perhaps flocking birds may be responsible for the dispersal of seeds.

Management:

The "difficulty of control" for this species is expected to be low; not being aggressively rooted, the seedlings are easily pulled and removed, individuals are relatively slow growing and take years to become reproductively mature, and the evergreen foliage makes them easily spotted, especially in the winter against the backdrop of dry leaf litter. Although



Figure 3. Aerial closeup of "The Island" survey area.



Figure 4. Survey site habitat.



Figure 5. Typical *Osmanthus* seedling in situ on forest floor.

there is not much literature or information about the flowering age of *O. heterophyllum*, Michael Dirr (1998) writes “FRUIT: Seldom seen in cultivation; the fruit is a slender, ovoid, $\frac{3}{8}$ to $\frac{1}{2}$ ” long drupe with stone scarcely ribbed; have seen fruits on campus plants, not showy; ripen in fall of the year following flowering.” And in another book Dirr and Heuser (1987) writes “SEED: Seeds are reported to be difficult and slow to germinate.” Two commercial growers were consulted and both concurred that it doesn’t flower until it is at least 7 years old. This late-fruiting characteristic is helpful in that if *Osmanthus heterophyllum* is indeed invasive, it can be controlled (pulled) long before it begins reproducing.

Conclusion:

Osmanthus heterophyllum may be going largely unnoticed on Long Island and may be more prevalent than realized due to its superficial similarity to American holly, *Ilex opaca*. It can be easy to mistake a seedling *O. heterophyllum* for an *I. opaca* seedling. The two simplest ways to distinguish between the two is *I. opaca* has leaves arranged alternately on the stem and the foliage is a dull olive-green compared to *O. heterophyllum* which has opposite, glossy, dark green leaves. Additionally, *O. heterophyllum* leaves are more deeply lobed and “spinier” than American holly.

Osmanthus heterophyllum should be on everyone’s radar and if observed reported to the Long Island Botanical Society’s Flora Committee.

Acknowledgments:

The authors acknowledge with gratitude the help provided by Matthew Stedman, Ed Johann, & Madison Aldrich (Third House Nature Center, Inc., www.thirdhousenaturecenter.org), William Walsh (Land Surveyor, Montauk, N.Y.), The Garden Club of East Hampton (www.gceasthampton.org), and J. M. Miedziewicki CLT, CNLP (Montauk Garden Center, Montauk, N.Y.).

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LIBS Membership Renewals

for 2019 are past-due. If you have not yet renewed,
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Carol Johnston, LIBS Treasurer, 347 Duck Pond Road, Locust Valley, NY 11560.
\$25 Individual, \$30 Family, \$250 Life Member

Comparison of three *Carya* (Hickory) Species from Long Island, New York

Andrew M. Greller

Prof. of Biology Emeritus, Queens College, Flushing, New York 11367
(andrew.greller@qc.cuny.edu)

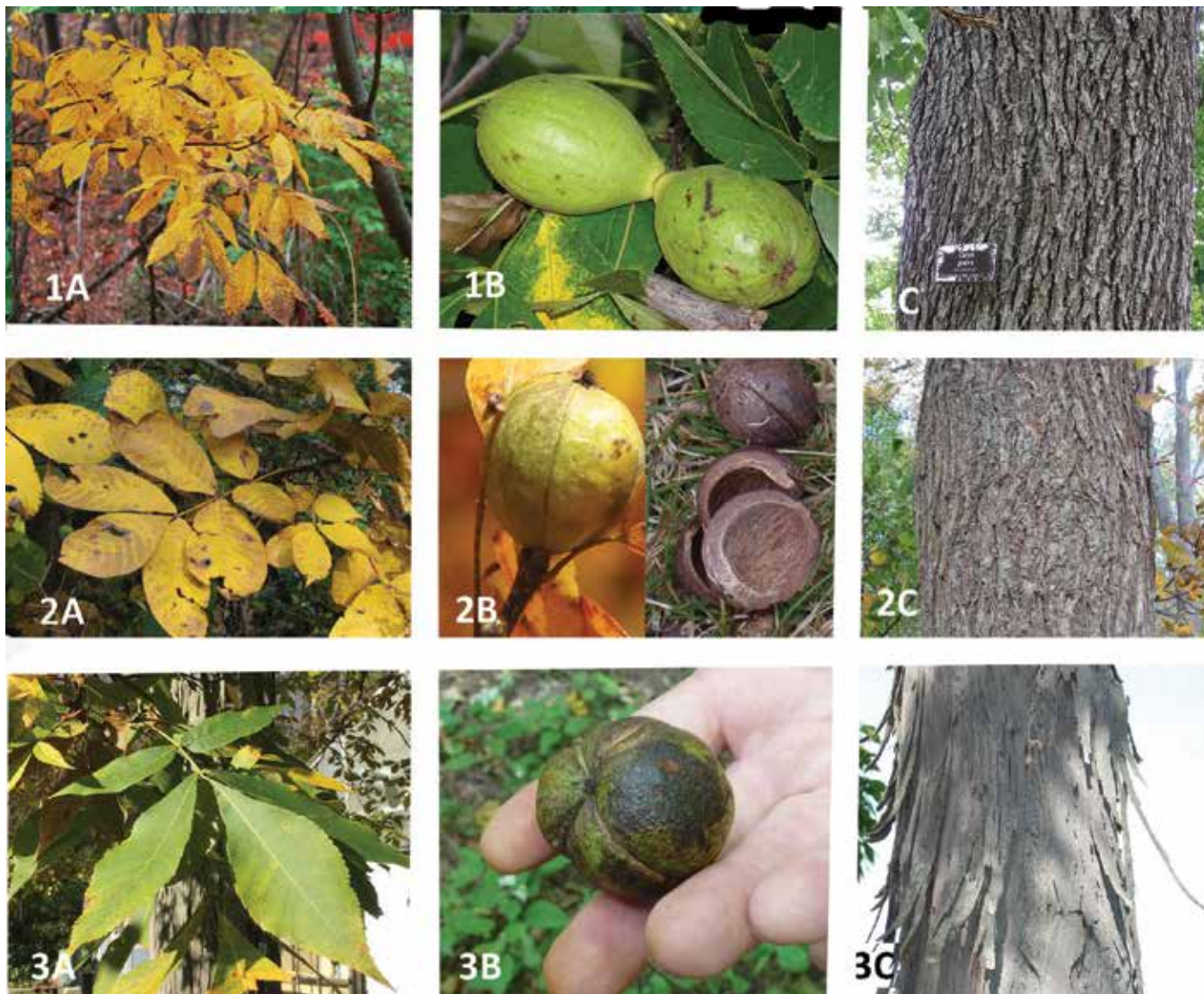


Plate 1. Photographic Comparison of *Carya glabra*, *Carya ovalis* and *Carya ovata* (all photos taken on or near Long Island, by A.M. Greller). Code: 1 *Carya glabra*; 2. *Carya ovalis*; 3. *Carya ovata*; A= Leaves; B= Fruits; C= Bark

In his excellent book, *Catalogue of the Vascular Plants of New York State*, David Werier (2017) does not recognize *Carya ovalis* (Wangenh.) Sarg. as a distinct species; rather he lumps it with *C. glabra* (Miller) Sweet into a single species and uses the name that has priority, *C. glabra*. Werier (pers. comm. 2019) explained why he lumped the two species: "Sometimes I find things that are textbook *C. ovalis* and *C. glabra* but I also find lots of things that mix and match the various character states that are used to distinguish them. My guess is further work will show there to be more than one species but I think it will be more complicated than just recognizing *C. ovalis* and *C. glabra* . . ."

Carya ovalis has a long history of being recognized as a distinct species and in nearly 50 years of field experience on Long Island, I have come to accept *C. ovalis* as a species separate from *C. glabra*. The accompanying plate illustrates the differences in leaf, fruit and bark among three species: *Carya glabra*, *C. ovalis*, and *C. ovata*. The latter is added to the comparison because the bark of certain individuals of *C. ovalis* shows some resemblance to that of *C. ovata*. In making the distinction between *C. glabra* and *C. ovalis*, I follow Manning (1950). Exact measurements for morphological structures can be obtained from Gleason and Cronquist (1991).

(Continued on page 23)

FIELD TRIPS

August 11, 2019 (Sunday) 10:00 AM

Ridgewood Reservoir Nature & History Tour

Main parking lot, Vermont Place, Highland Park (Queens County)

Trip Leaders: Rob Jett and Andy Greller

E-mail NewtownHistory@gmail.com or agreller2@optonline.net

The Newtown Historical Society will lead us on a natural history and history tour of the Ridgewood Reservoir, which was recently added to The National Register of Historic Places. We will walk around the granite-block reservoir looking for aquatic and woodland birds, and for plants that have come in after the abandonment of Ridgewood Reservoir as a water source for the City of Brooklyn. If time permits, we will explore the woodland that has developed at the bottom of the large, treed kettle hole in adjacent Highland Park. Leading for the Newtown Historical Soc. will be Rob Jett author of *The City Birder* and for LIBS it will be our own Andy Greller.

We will meet at the Vermont Place parking lot of Highland Park, which is exit 2 of the Jackie Robinson Parkway. Dress for the weather, bring a snack, water and insect repellent. Binoculars and a hand lens are recommended.

Contact the Newtown Historical Soc. or Andy to RSVP or for further information.

September 22, 2019 (Sunday), 10AM – 2PM

SMARTWEED SAVVY

Alley Pond Park, Queens, NY

Trip Leader: Daniel Atha

(datha@nybg.org; 718-514-3922)

More than twenty species of Smartweed occur in New York State. These beautiful plants are intimately associated with animal disturbance (including humans) and are abundant in both wilderness and urban environments. They are also challenging to identify and floras, field guides and manuals are often difficult. Join North America's Smartweed expert, Daniel Atha on a field trip to Alley Pond Park where almost half of state's Smartweeds have been found. Learn the best characters to reliably identify Smartweed from both fresh and preserved specimens. This is a joint field trip with New York Flora Association, the Long Island Botanical Society and the NYBG's New York City EcoFlora.

Lightning and heavy rain cancel. Bring a hand lens, suitable clothing, insect repellent, water and snacks.



(*Carya*, continued from page 22)

Field Recognition.

Briefly, the three hickories can be distinguished in the field on Long Island, as follows:

Carya glabra, pignut hickory, has dark, close bark, with firm ridges; leaves usually with 5 small leaflets; terminal buds relatively small; fruits are obovoid (pear-shaped) and attach to the stem by a very short stalk (Plate 1, Figure 1B); husk opens only at the distal end, never splitting to the base.

Carya ovalis, sweet pignut hickory or red hickory, has light bark that varies from smooth (young) to platy, with narrow, loose rectangular plates at maturity; some mature individuals have long plates that pull away from the trunk, distally; leaves are relatively large, usually with 7 leaflets, where the terminal leaflet is smaller than, or equal to, the adjacent two; terminal buds are relatively large; fruits small, globular; splitting to the base to liberate the nut; husks often split into three, a half-wall and two quarter-walls (Plate 1, Figure 2B).

Carya ovata, shagbark hickory, has light-colored bark that forms long strips; they pull away from the bark at both ends; leaves with 5 (rarely 7) leaflets, similar in size to *Carya ovalis*, but the terminal leaflet is larger than the two adjacent leaflets; husks thick, splitting to base; nut is angular.

Ecological and Geographical Distinctions for Long Island.

Carya ovalis is by far the most common hickory on Long Island. It is present in a range of oak-dominated forests from dry to moist. Its range occupies the center of Long Island and spreads to the northern coast and to the eastern ends. *Carya glabra* occurs scattered through the moist oak forests of the island. It is more common near the northern shore of Long Island, and forms a nearly pure stand on a moist slope in Ridge, in northern Suffolk County; it also occurs in the oak-tuliptree forests of western Long Island. *Carya ovata* is relatively rare on Long Island. Usually one encounters that species as individual trees, e.g. near Ft. Totten, in Queens County; and it occurs as a few specimens in Coffin Woods, Locust Valley, Nassau County. There is a stand of young *C. ovata* trees in Louis Clark Sanctuary, Old Brookville, Nassau County (a North Shore Land Alliance preserve).

Literature Cited.

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MANNING, W.E. 1950. A key to the hickories north of Virginia with notes on the two pignuts. *Rhodora* 52: 188-199.

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UPCOMING PROGRAMS

September 10, 2019* Tuesday, 7:30 PM

Rich Ring: "Rare Plants in Long Island State Parks."

This presentation will highlight the rare flora of Long Island, with an emphasis on State parks. Attention will be given to both recent discoveries and historical records. Rich has been a botanist with the NY Natural Heritage Program since 2006. Previously, he worked as a field ornithologist, ecologist, and botanist in Pennsylvania, New Hampshire, Michigan, and Alaska. He currently resides in Troy, NY.

October 8, 2019* Tuesday, 7:30 PM

Andrew Greller: "Wildflowers of the Island of Crete, Greece." This talk will cover the mountains and seashore habitats of Crete, with many orchid species highlighted from this Bob Gibbons led trip. Coverage will include the Sclerophyll Woodlands

of Mediterranean evergreens and the Garrigue shrublands or chaparral type habitats. Andy is Vice President of LIBS and Professor Emeritus of Biology, Queens College. In 2017 he was honored with the Torrey Botanical Society's Distinguished Service Award.

November 12, 2019* Tuesday, 7:30PM

Daniel Atha: "New York's Worst Invasives No One Has Ever Heard Of." Eleven non-native plant species have recently been discovered in New York City. Some are highly invasive and pose a serious threat to gardens and natural areas. Hear how they were discovered and learn the key characters for identification. Daniel Atha (The New York Botanical Garden) co-manages the New York City EcoFlora, a community science project to document the wild flora of New York City.

* All programs held at Bill Paterson Nature Center, Muttontown Preserve, East Norwich
Refreshments and informal talk begin at 7:30 p.m. Formal meeting starts at 8:00 p.m.
Directions to Muttontown: 516-354-6506