Long Island Botanical Society

Vol. 29 No. 3 | The Quarterly Newsletter | Summer 2019

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

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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 Preserve[1], Shadmoor State Park[2], 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).

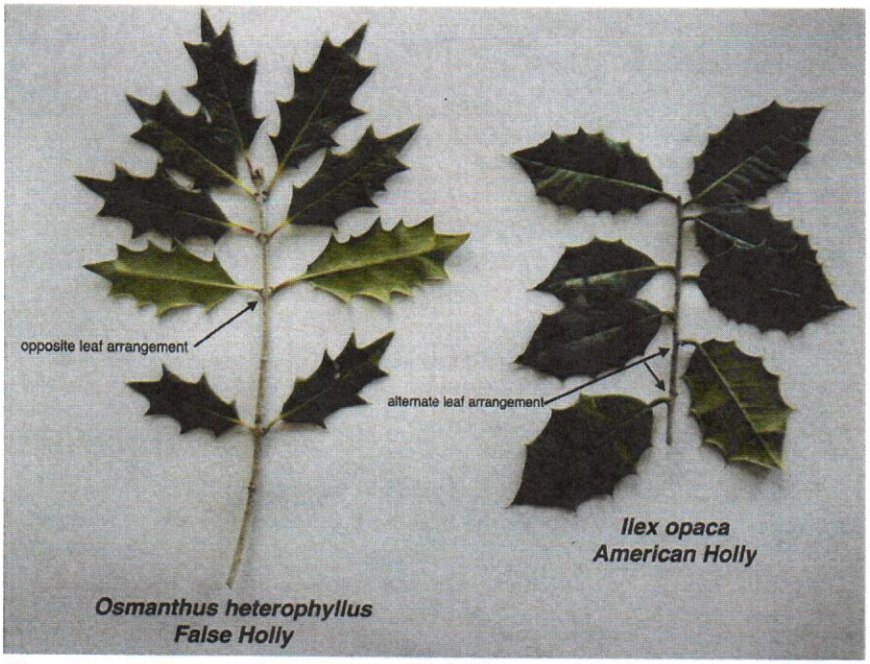


Figure 1.Leaf comparison of *Osmanthus heterophyllus* versus *Ilex opaca*.

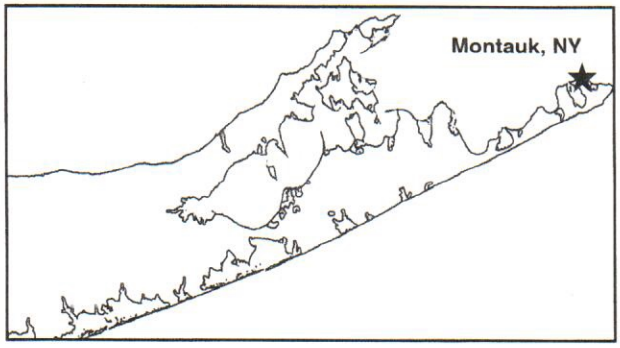
Osmanthus heterophyllus has become increasingly popular over the *(Continued on page 19)*

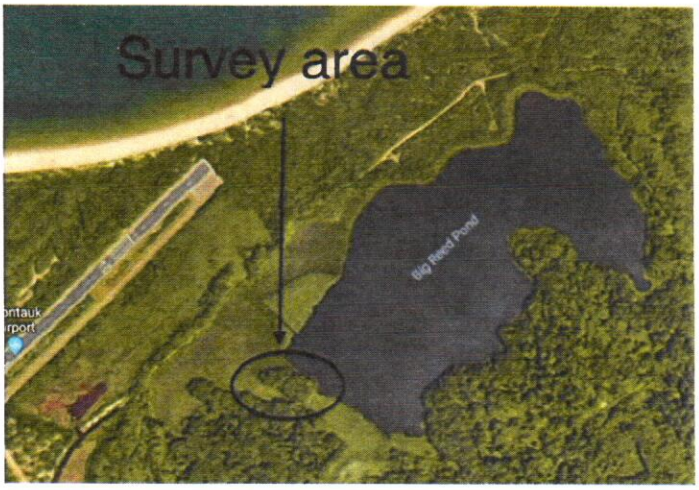
1 Culloden Point Preserve-East Hampton Town parkland, 190 acres, predominantly a coastal oak-hickory forest.

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

(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. heterophyllus,* Michael Dirr (1998) writes "FRUIT: Seldom seen in cultivation; the fruit is a slender, ovoid, ⅜ to ½" 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 heterophyllus* is indeed invasive, it can be controlled (pulled) long before it begins reproducing.

Conclusion:

Osmanthus heterophyllus 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. heterophyllus* 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. heterophyllus* which has opposite, glossy, dark green leaves. Additionally, *O. heterophyllus* leaves are more deeply lobed and "spinier" than American holly.

Osmanthus heterophyllus 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. Miedzwiecki CLT, CNLP (Montauk Garden Center, Montauk, N.Y.).

Literature Cited:

Dirr, M.A. 1998. Manual of woody landscape plants. Stipes Publishing. 1250 p.

Dirr, M.A. and C.W. Heuser. 1987. The reference manual of woody plant propagation. Varsity Press. 424 p.

EDDMapS (Early Detection & Distribution Mapping System). 2019. The University of Georgia - Center for Invasive Species and Ecosystem Health. https://www.eddmaps.org/Species/subject.cfm?sub=22581

Edinger, G.J., D.J. Evans, S. Gebauer, T.G. Howard, D.M. Hunt, and A.M. Olivero (eds.). 2002. Ecological communities of New York State. 2nd ed. A revised and expanded edition of Carol Reschke's Ecological communities of New York State. (Draft for review). New York Natural Heritage Program, New York Department of Environmental Conservation, Albany.

Gleason, H.A. and A. Cronquist. 1991. Manual of vascular plants of northeastern United States and adjacent Canada. 2nd edition. The New York Botanical Garden, Bronx. 910 p.

Haines, A. 2011. Flora Novae Angliae. A manual for the identification of native and naturalized higher vascular plants of New England. Yale Univ. Press, New Haven. 973 p.

Simmons, R.H. 2012. Invasive exotic plants that threaten parks and natural areas in Alexandria. City of Alexandria Dept. Recreation, Parks, and Cultural Activities, Alexandria. https://www.alexandriava.gov/uploadedFiles/recreation/parks/InvasiveExoticPlantsThatThreatenParksinAlexandria.pdf

USDA Plants Database. 2019. U.S. Dept. Agric., Nat. Res. Conserv. Serv. Retrieved April 18, 2019 from <http://www.plants.usda.gov>

Werier, D. 2017. Catalogue of the Vascular Plants of New York State. Memoirs of the Torrey Botanical Society 27: 1-542.

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