

SOFO naturalist



Each quarter SOFO features eco-links, written by a member or friend of the Museum. If you wish to submit an article, please contact us.

eco links

A Fresh Look at our Aquatic Invasives— Not Every New Face is a Bad Influence

by Rebecca Holloway



Author on field trip in a tidal wetland (left); head-high Phragmites australis trekking (right).

Picture this! Sun is shining, skies are a cloudless blue, and you're cruising down Dune Road ready for a beautiful beach day. Take a look to the side of the road, and framing the landscape in front of you are stands of a familiar plant with tall, tasseled stems. This flora, ubiquitous in New York, is Phragmites, (*scientific name Phragmites australis*) suitably known as common reed. Phragmites is not native here, and although it has grown here for generations, it's become exceptionally aggressive in recent years. Moreover, though Phragmites is often found in wetlands, it's considered a "cosmopolitan species": able to thrive in highly varied environments, whether it's fresh or saltwater, urban or wild. It's known to replace large areas of native plants like low-lying saltmeadow cordgrass (*Spartina patens*) and create expansive fields called "Phragmites monocultures." This reed's invasive. So what is an invasive species?

Invasives are plants or animals that do not naturally occur in a particular region but were introduced there through human activity. For example, the green crab, found on our rocky shores and tidal salt marshes, is thought to have been a tag-along stowaway on European merchant ships. When new species move in, they can pose threats to native species and even push them to disappear. These newcomers might be better at surviving in their new home—scientists say they have ecological competitive advantages, which can really change how the environment that we're used to looks and works.

Also importantly, many invasives thrive in those areas disturbed by human activity, like encroaching infrastructure and climate change. For example, Phragmites explodes in impounded wetlands (where tidal flow is restricted), and a reddish seaweed called Devil's Tongue Weed thrives in human-altered habitats like around docks. It also loves warm water, studies show its increase in abundance right alongside our increasing water temps.

More examples of aquatic invasives here on the South Fork include: a green seaweed called oyster thief, green crabs, Asian shore crabs, and Pacific sea squirts (a soft-bodied marine invertebrate.) Invasive

aquatics alter how local marine systems function and can decrease biodiversity, or the variety of specialized life, in our marine habitats. For instance, research from the Long Island Sound shows that oyster thief can outcompete native kelp, choke out mollusks like oysters and scallops, and limit how big our oysters grow. Without these important fisheries, local economies take a concerning hit.

Because of threats like these, there's lots of invasives talk, from federal agencies, ecologists, and local communities alike. For deeper understanding though, three big subcategories to get straight are the following: To start, the terms 'invasive' and 'nonnative' can't always be used interchangeably. Although there are fewer cases, there *can* be nonnative species introduced to a region that are in fact not invasive, meaning they do not boot out others in the ecosystem. An example of a nonnative in Long Island that we don't worry as much about are plants like black-eyed Susans, visitors from Midwest prairies. Although these introductions will still cause shifts, some nonnative species are accepted in our ecosystem today and are regarded as established, or "naturalized". So we have aliens living among us that scientists determine are not threatening to the local ecosystem. We call these plants or animals nonnative species, as opposed to "nonnative invasives".

Next, some nonnative species can become established, or "naturalized", meaning they're considered well established in an environment and living without human aid, even though they originated elsewhere. We accept, for instance, that wild horses are part of our North American wildlife, but they are actually not native to our lands, and evidence shows that many of today's wild horses have Spanish ancestry and are traced back to Columbus' 1492 voyage to the Americas, where they spread over the American Great Plains from Mexico¹.

Other local established invasives include the house finch and mute swans. Though some environmentalists maintain hard-and-fast unwelcoming opinions about them, these fauna are accepted now as part of our local environment and, in fact, some of us couldn't imagine summers in local habitats without them. These nonnatives are reminders that sometimes environments can shift over time. So lastly, healthy native environments in nature are always changing and on slow timescales (this means not usually noticeable in one human lifetime!), outside species can become established as new additions and outcompete residents as a result of environmental shifts.

Because of the often overlooked complexity in addressing invasives, we should first look deeper, at the more complicated story. Issues when overlooking nuances in nonnative management are these: 1) One way local and federal governments deal with the presence of nonnatives is by attempting to eradicate the species. Eradication efforts are often challenging, labor intensive, and costly, measuring success can be difficult, and in some cases, methods chosen can even have negative consequences on the local ecosystem or human health.

Continued on next page

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2) Relatively recent scientific discussion, like this paper in *Nature*², has more and more brought to light that our readiness to despise nonnatives may be based in a fear of the “foreign outsider,” or our very human, xenophobic tendencies. 3) Sometimes introduced species can have unexpected positive effects on local ecology or climate that should be a consideration for management choices.

To ground these, let’s circle back to our familiar common reed. For *Phragmites* removal, there are two main management methods in practice, and both are met with questions about their effectiveness and safety. Approaches are either: physically pulling up or cutting plants; or heavy applications of herbicide treatments using either imazapyr or glyphosate chemicals.

Many local attempts to curb *Phragmites* carried out by local well-meaning groups, and vouched for by federal organizations, have not been successful in eradicating the reed. In many cases, after a short 2-3 years, stands begin to return in a secondary invasion, multiplying from the few plants remaining post-treatment, and the reed’s extensive and enduring root system. Another concern is that pulling out the long rootstalks (able to reach about six-feet deep) may destabilize sediments and result in marsh loss.

With herbicide methods, it remains unclear what long-term health hazards the chemicals might pose. New York township plans proposing this avenue have been met with worried—and dedicated—community backlash.

A new conversation needed with climate change

A reminder—climate change refers to the long-term shifts in temperature, precipitation, and other weather patterns across the Earth, caused by human activities like burning fossil fuels and deforestation. These activities, starting in the mid-1800s, led to global warming, and a host of resulting environmental impacts such as extreme weather events and rising sea levels. Climate change is also moving species out of their home ranges, and scientists predict that we’ll see numbers of so-called invaders grow exponentially.



1993 photograph of New York Piermont Marsh pre-*Phragmites* invasion. Photo Dr. Dorothy Peteet.

The continued example of *Phragmites* illustrates how invasives can also have surprising environmental benefits in the context of climate change. Recent research has also shown that *Phragmites* might be a highly resilient species to climate change, meaning they can live in conditions including high air and water temperatures, and in disturbed environments with stagnant, low-oxygen water.

Moreover, coastal communities vouch for the reed’s importance as a shoreline buffer. With its aggressive, fast growing nature and deep roots, it has the ability to hold soil, and minimize infrastructure damage and beach erosion when towns are hit with increasing intense storm surges. These benefits may paint *Phragmites* in a new light...

As we’ve disturbed Earth’s natural balance, we’ve created a new climate reality, where we must change concepts and systems we know and have always relied on. It’s undeniable that thinking about climate change, especially for we environmentalists and probably you, reader, is saddening and daunting, and naturally so. Luckily, there

is an entire booming area of study, begun in 1972, honing and implementing steps we must take. This applied science, sustainable development, is how practitioners apply best practices to prepare and improve communities, economies, and the environment in a human-altered climate. An integral part of sustainable development is the concept of adaptation—preparing for and responding to climate change by doing things like building stronger infrastructure, changing how we farm, and making policies to handle crazy weather.

Understanding that we have to adapt to the changes we’re facing with climate change goes hand in hand with many scientists’ latest call to reframe nonnatives, thinking more in terms of comparing harm and benefits. As quoted by PhD biology professor Mark Davis in a 2016 *New York Times* article, “all species have negative impacts on something. The danger”, he said, “is often exaggerated.”

In all of this—the soup of invasive species in our waters and what to do about it—one thing’s for sure: a flourishing, diverse ecosystem, full of specialized and harmonious flora and fauna, uniquely adapted to each individual place and weather system, will always be the best-case scenario for the environment. And while there’s a pretty universal agreement that we should reduce and prevent invasions as much as we can, we also know that our current world requires a shift of priorities and new science-based approaches.

In our current planetary era called ‘The Anthropocene’ (defined by this period where human activity is the dominant influence on climate and the environment), in a newly global world (on a geologic time scale) with constant international movement, we’re going to need this perspective—how can we balance conserving our ecosystems while at once adapting to an overheated planet?

The author is a marine scientist with a bachelor’s in Environment and Sustainability, and her thesis research at Lamont-Doherty Earth Observatory studied aquatic methane (the second most important greenhouse gas) associated with Phragmites australis. She loves to get in the reeds with community members talking about marine and coastal sustainability science.

Citations:



1- Fazio, M, Patricia. *The Fight to Save a Memory: Creation of the Pryor Mountain Wild Horse Range (1968) and Evolving Federal Wild Horse Protection through 1971*. Doctoral dissertation, Texas A&M University, College Station, 1995

2- Davis, M., Chew, M., Hobbs, R. et al. Don’t judge species on their origins. *Nature* 474, 153–154 (2011.) <https://doi.org/10.1038/474153a>



2023 marsh, nonnative *Phragmites australis*. Photo Rebecca Holloway.

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A full description of each program is listed on the SOFO website:

www.sofa.org/calendar

July, August, & September

For SOFO members: programs are free, unless otherwise stated.

Level of membership indicates the number of people entitled to a free program.

For SOFO non-members: there is a fee.

Please contact us at: info@sofo.org for fee information or refer to the SOFO website at: www.sofa.org.

If you are not already a member we invite you to join the museum.

Find out about membership levels at www.sofa.org/membership.

For full information on the South Fork Natural History Museum (SOFO), including entrance fees and hours of operation, please refer to the website: www.sofa.org.



Great Egrets



Hermit Crab



Ribbon Snake



Snapping Turtle

Calendar At A Glance

Key: A—Adults T—Teens C—Children F—Family AA—All Ages

A full description of each program is listed on the SOFO website at www.sofa.org/calendar.

Advance reservations are required for all programs.

July

- Thursday, July 4, 4:15-5:30PM:** Easy Does It Yoga Class with Karen Meyer: A
- Saturday, July 6, 10:30AM:** Salamander Tracking Using Radio Telemetry: A/T/C8+
- Sunday, July 7, 1-3:30PM:** FREE, Pop-up Pond Life Exhibit: F
- Sunday, July 7, 10:30AM:** Feeding Time: C3-5
- Saturday, July 13, 6-10PM:** SOFO's 35th Annual Summer Gala "Preserving our Planet for Future Generations"
- Wednesday, July 17, 1-3:00PM:** SOFO's East End Outdoor Nature Education with Crystal at Hallock State Park, Riverhead. C 3-7.
- Thursday, July 18, 4:15-5:30PM:** Easy Does It Yoga Class with Karen Meyer: A
- Friday, July 19, 9:30AM:** En Plein Air Still Life Drawing at the Beach!: A/T/C12+
- Saturday, July 20, 9-10:30AM:** Observing Ospreys: A/T/C8+
- Saturday, July 20, 10:00AM:** FREE, Young Birders Club Meeting: Ages 8-18
- Saturday, July 20, 2:00PM:** Celebrate International Moon Day: Create Moon Crafts: A/T/C5+
- Saturday, July 20, 1-3:00PM:** SOFO's East End Outdoor Nature Education with Crystal at Hallock State Park, Riverhead. C 3-7.
- Sunday, July 21, 10:30AM-12:30PM:** Make a Fish Print T-Shirt with Captain Al Daniels: AA
- Sunday, July 21, 9-10:00PM:** FREE, Full Buck Moon Hike: AA
- Thursday, July 25, 4:15-5:30PM:** Easy Does It Yoga Class with Karen Meyer: A
- Saturday, July 27, 10:30AM:** FREE, Young Environmentalists Society (YES!) Meeting: Ages 10-16
- Saturday, July 27, 10:00am-1:00PM:** Nature and Bird Watching Cruise: A/T/C10+
- Saturday, July 27, 2:00PM:** FREE, Sunlight & Shadow—Building Your Own Sundial with Workshop Leader William Francis Taylor, NASA/JPL Solar System Ambassador, MSc. Co-Sponsored with Hamptons Observatory. A/T/C6+
- Sunday, July 28, 11:30AM-1:30PM:** FREE, Community Beach Cleanup, Cedar Point County Park, East Hampton, Co-Sponsored by the Office of Suffolk County Legislator Anne Welker: AA
- Sunday, July 28, 10:30AM:** Story Time-Garden Neighbors: C3-7

August

- Thursday, August 1, 4:15-5:30PM:** Easy Does It Yoga Class with Karen Meyer: A
- Thursday, August 1, 6:30PM:** FREE, Marine Scientist, Filmmaker, and Author Gaelin Rosenwaks Presents: Studying the Ocean: From Plankton to Sperm Whales!: A/T/C10+
- Saturday, August 3, 10-11AM:** FREE, Birding for Beginners: A/T/C10+
- Sunday, August 4, 10:30AM:** Feeding Time: C6-9
- Sunday, August 4, 1-3:30PM:** FREE, Pop-up Pond Life Exhibit: F
- Thursday, August 8, 4:15-5:30PM:** Easy Does It Yoga Class with Karen Meyer: A
- Saturday, August 10, 9-11:00AM:** FREE, Kayak Tour and Seining at Mashomack Preserve, Co-Sponsored by The Nature Conservancy at Mashomack Preserve: A/T/C10+
- Saturday, August 10, 1-3PM:** Goat on a Boat Puppet Theater Workshop— Shark Stories: C4+
- Sunday, August 11, 10:30AM:** Beach Glass Jewelry Making: A/T/C8+
- Wednesday, August 14, 11:00AM-1:00PM:** FREE, SOFO Shark Research and Education Program Panel Discussion Update. A/T/C8+
- Thursday, August 15, 4:15-5:30PM:** Easy Does It Yoga Class with Karen Meyer: A
- Saturday, August 17, 10:00AM:** FREE, Young Birders Club Meeting: Ages 8-18
- Saturday, August 17, 10:30AM-12:00PM:** FREE, Drawing with Natural Materials Workshop with Artist and Teacher Roisin Bateman: A

August **Saturday, August 17, 2:00PM:** Seining with SOFO, Peconic Bay, East Hampton: AA
continued **Sunday, August 18, 6:30PM:** FREE, YES! Presents—A Book Talk with Carl Safina and Alfie & Me:
What Owls Know and Humans Believe: A/T/C10+
Monday, August 19, 8:30-9:30PM: FREE, Full Sturgeon Super Moon Hike: AA
Wednesday, August 21, 1-3:00PM: SOFO's East End Outdoor Nature Education with Crystal at
Calverton Ponds Preserve. C3-7
Thursday, August 22, 4:15-5:30PM: Easy Does It Yoga Class with Karen Meyer: A
Saturday, August 24, 10:30AM: Seining for Freshwater Fishes and Turtles Too!, Long Pond,
Bridgehampton: AA
Saturday, August 24, 10:00AM-1:00PM: En Plein Air Painting Class with the Bridgehampton
Museum, register with The Bridgehampton Museum at
<https://www.bridgehamptonmuseum.org/art>: A/T13+
Saturday, August 24, 1-3:00PM: SOFO's East End Outdoor Nature Education with Crystal at
Calverton Ponds Preserve. C 3-7.
Sunday, August 25, 10:30AM: Story Time-Meet Our Local Turtles: C3-7
Thursday, August 29, 4:15-5:30PM: Easy Does It Yoga Class with Karen Meyer: A
Friday, August 30, 2:00PM: Celebrate National Beach Day with Beachcombing in East Hampton: AA
Saturday, August 31, 10:00AM: Snapping Turtles—Andy Sabin's Annual Prehistoric Monster Hunt: AA
Saturday, August 31, 10:30AM: FREE, Young Environmentalists Society (YES!) Meeting: Ages 10-16

September **Sunday, September 1, 1-3:30PM:** FREE, Pop-up Pond Life Exhibit: F
Thursday, September 5, 4:15-5:30PM: Easy Does It Yoga Class with Karen Meyer: A
Saturday, September 7, 9:30AM: Fishing for Beginners: Learn to Fish with Rod and Reel: A/T/C8+
Saturday, September 7, 10-11AM: FREE, Birding for Beginners: A/T/C10+
Saturday, September 7, 10:30AM: Celebrate National Mushroom Month: Mushroom Walk in
Riverhead – This Walk will Take Place Only if There Has Been
Rain and May be Rescheduled to a Later Date: A/T/C8+
Saturday, September 7, 3-4:00PM: FREE, International Shorebird Day Walk: A/T/C10+
Saturday, September 7, 6:30PM: FREE, Join SOFO for a Book Talk and Signing with Betsy McCully
and At the Glacier's Edge: A/T/C10+
Thursday, September 12, 4:15-5:30PM: Easy Does It Yoga Class with Karen Meyer: A
Tuesday, September 17, 7:30-8:30PM: FREE, Full Harvest Super Moon Hike: AA
Wednesday, September 18, 1-3:00PM: SOFO's East End Outdoor Nature Education with Crystal at
Old Ponquogue Bridge, Hampton Bays: C3-7
Thursday, September 19, 4:15-5:30PM: Easy Does It Yoga Class with Karen Meyer: A
Saturday, September 21, 10:00AM: FREE, Young Birders Club Meeting: Ages 8-18
Saturday, September 21, 1-3:00PM: SOFO's East End Outdoor Nature Education with Crystal at
Old Ponquogue Bridge, Hampton Bays. C 3-7.
Thursday, September 26, 4:15-5:30PM: Easy Does It Yoga Class with Karen Meyer: A
Saturday, September 28, 10:30AM: FREE, Young Environmentalists Society (YES!) Meeting:
Ages 10-16
Saturday, September 28, 10:30AM: Seining for Tropicals, Shinnecock Bay, Southampton: AA
Saturday, September 28, 4:00-6:00PM: Kayak Tour of East Shinnecock Bay, Old Fort Pond to Heady
Creek, BYOK: A/T/C10+
Sunday, September 29, 10:30AM: Story Time- Oak Tree Tales: C3-7

Fine Feathered Friends

by Aden Ali



I've been an avid birder since childhood and have been an active member of the SOFO Young Birders Club since its inception almost ten years ago. I've had the pleasure to participate in "Birding with Frank" walks here at the museum since I was in elementary school. Needless to say, birding has greatly influenced my love for nature.

I'm excited to be entering my senior year at Westhampton Beach Senior High School.

Throughout my teen years, summer break has been filled with memorable experiences (and not just because school was out.) Some of those amazing experiences involved the beauty of nature. For instance, last summer I went hiking locally here in the East End with my friends in the morning. We walked around and admired the scenery and animals living in the area. We saw many native wildlife during our walk, like box turtles, pine warblers, ospreys, and white-tailed deer. We even saw a bald eagle soaring overhead, fighting an osprey for dominance.

After our nature walk, we would drive down to Dune Road beach and hang out for the rest of the summer afternoon. We would go swimming in the relatively warm seawater and play a very competitive game of volleyball afterward. We would even get some ice cream at the concession stand as a reward for our victory (the losers would pay for our treat.) Next, we would walk along the shoreline and find exotic animals. For example, we walked past a protective roped off nesting ground for piping plovers. There were adults and offspring at the nesting ground. We also saw a pod of bottlenose dolphins swimming by. At the end of the day, we would leave the beach and listen to pop music while discussing our next adventure.

Nature has been a relevant part of my life and I use nature as a way to socialize with my friends over the summer. Summertime is special for me because it helps me incorporate my love for nature and for birding while creating long lasting memories with my friends. Teens on the East End are very fortunate to have the best of both worlds right here in our own backyards.



SOFO news

New Touch Tank

SOFO is pleased to announce a \$30,000 award from the Holomon Price Foundation towards the design and installation of a new marine touch tank exhibit. The newly expanded touch tank will provide a larger coastal bay exhibit area for crabs, snails, sea stars and fish and will allow more visitors of all ages to interact with these local marine animals. The new exhibit will include an area specifically designed for wheelchair access. We thank the Holomon Price Foundation for supporting SOFO through this grant award.

Dive into the Blue in a Virtual Shark Cage

Experience at SOFO



Virtual Reality (VR) shark dive in a real shark cage.

This summer the Museum will add a new exhibit for visitors, Dive Into the Blue with Local Sharks in a Shark Cage VR Experience. This new experience lets you swim with sharks and dive deep into the ocean inside a real shark cage. The virtual reality trip is perfect for the entire family. The opening of this new exhibit will take place during SOFO's shark week in August 2024.

Thank you Carol Crasson

Congratulations to Carol Crasson on her retirement from SOFO in March, 2024. Thank you Carol, for 35 years of creative, engaging, and fun nature education programs for children of all ages. We wish you all the best.





Great Swamp, Dai Dayton

Invitation to a Bog

by William Mulvihill

Great Swamp is the historical name for the 15- acre bog located between Scuttlehole Road, Brick Kiln Road, Bridgehampton Turnpike and Stony Hill Road. The north edge of the bog is adjacent to the southern edge of the Long Island Lighting Company's tower line, which runs from Stony Hill Road to Bridgehampton Turnpike.

The bog is partially drained by an old ditch along its eastern edge. The absence of surface water has allowed the creation of an unbroken forest of swamp maple. The intertwining roots of these trees and other growth have created solid (but cushiony) ground that allows normal walking. The overlapping branches of these trees create constant shade that, combined with moisture, allows for the profusion of ferns and other wetland flora. Many of the trees are very old; when they finally topple, their root clumps may be eight feet tall. Undisturbed, the bog continues to reduce leaves and deadfall into bogsoil, a process which began with the retreat of the glacier. The depth of this humus has never been measured.

The bog is a natural catch basin collecting all the rain and the runoff from melting snow over an area of perhaps 60 acres. This water percolates down through the friable humus and adds to the permanent reservoir below. Bogs have been described as upside-down lakes: the water below, bog soil above. Unlike lake water the subterranean bog water doesn't evaporate and contributes to the level of the water table.

Great Swamp is home to its own specialized bog flora and fauna and is protected by its dense foliage, fallen trees, thorn barriers and other impediments. The easiest way to get to Great Swamp is to walk along the tower line until you see, from a high bluff, the Okeefeno-kee-like northern edge. Entrance here is very difficult. The best way is to leave the tower line and approach the bog down the forested slope along its western side. If you go, wear a hat and waterproof shoes; bring garden shears and a compass. If you get "lost" head east or west.

The bog should be of interest to anyone concerned with geology, entomology, herpetology, ornithology or wetland biology. As a member of the South Fork Natural History Society and the owner of Great Swamp, I extend an open invitation to fellow members to visit, explore and enjoy this unique ecosystem.



Great Swamp plaque, Dai Dayton

This article is reprinted from the South Fork Natural History Society Newsletter Vol. 3, No. 1, 1991

In the early 1990's and again in 2011, the Mulvihill family, Dolores Zebrowski and her brother Bill Mulvihill, acted to protect over 100 acres of woodlands and wetlands in Bridgehampton - named the Daniel and Anna Mulvihill Preserve in honor of their parents.

SOFO Mission

The mission of the South Fork Natural History Museum (SOFO) is to stimulate interest in, advance knowledge of, and foster appreciation for the natural world with special emphasis on the unique natural environment of Long Island's South Fork.

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The *SOFO Naturalist* is
published quarterly

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