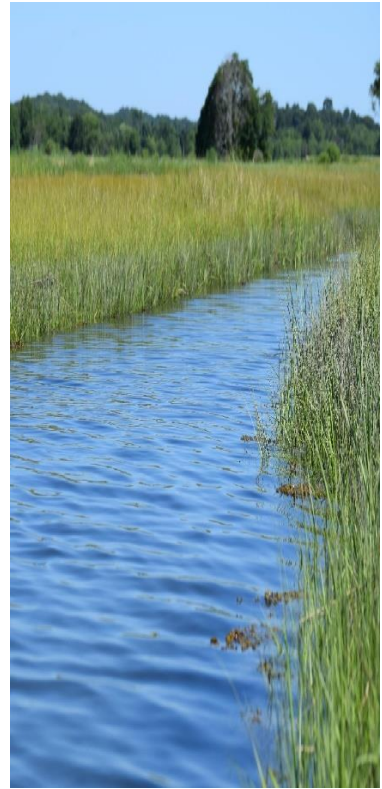


Huntington

Native, Extinct and Invasive Species



Town of Huntington Jo-Ann Raia Archives

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2024

© This brochure was created as an enhancement to the exhibit, “Huntington – Native, Extinct and Invasive Species” and contains information referring to a few of the species found in our area.



We acknowledge the following individuals for their assistance and support:
Abigail Bezruczyk, Invasive Species Field Project & Outreach Coordinator, Long Island Invasive Species Management Area (LIISMA)
Douglas Schmid, Professor, Environmental Science, Nassau Community College, Program Director, Friends of Hempstead Plains
Robert Litzke, Environmental Projects Coordinator, Town of Huntington Maritime Services

Additional sources used include:
Cornell Lab of Ornithology
All About Birds website, <http://www.allaboutbirds.org/>
National Audubon Society <https://www.audubon.org/>
Carpenter Farm Park, Huntington, website

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TERRESTRIAL - PLANTS: Native Species

Long Island is home of both native (aggressive) and non-native (invasive) species. Invasive species are organisms that are not native to the ecosystem under consideration and whose introduction is a constant challenge to the protection of our natural resources. Many species have been in New York for so long that people have forgotten that they are not native.



Culver's Root *Veronicastrum virginicum*

The common name comes from a mysterious Dr. Culver (or Couvert), an early pioneer physician, who used it in his practice since it had many medicinal uses. Culver's root is a popular garden plant and available in many plant nurseries in the Northeast. Its large size and showy spikes of white flowers and whorled leaves are a beautiful addition to an early-summer perennial garden, especially if one wants to help feed the bees and bumblebees. There are a number of cultivars available now. In New York, the few known sites for *Veronicastrum virginicum* are forest edges, including along bike trails and driveways. It has been found on north or northwest-facing slopes as well as along the bottomlands of major rivers.



Little Bluestem *Schizachyrium scoparium*

This bunchgrass is one of the dominant grasses of the tallgrass prairie that once made up the large portion of Long Island known as the Hempstead Plains. Little bluestem has skinny, flat, green leaves with a slight blue color at the base. It features beautiful clusters of fluffy, silvery-white seed heads and bronze-orange foliage from fall to winter. Many insects feed on its foliage which in turn provides food to insectivorous birds. Its fuzzy white seeds are a valuable food source to small birds and native bees who also use the stems for nesting. It is also a larval host for many native butterflies.



Maidenhair Fern *Adiantum pedatum*

The maidenhair fern is one of our most beautiful native ferns, always lovely in a landscape. Its fronds unfold on wiry, delicate black stems. The green fronds form a double-sided swirl of leaves from the top of the stem. Maidenhair ferns grow 12 to 20 inches tall and prefer partial to full shade. They thrive in moist well-drained soil. This is not a fern that will grow in standing water. A favorite feature of maidenhair fern is the deep burgundy color they turn in the fall.

TERRESTRIAL – PLANTS: Invasive Species

Most invasive plants were intentionally brought into a specific area for their ornamental value or ability to be used for food, fiber, or habitat restoration. Unfortunately, nobody recognized the negative impact the species would have on the environment, economy and human health until after the species were established.



Japanese Knotweed *Reynoutria japonica*

The Japanese knotweed is a common invasive plant with very strong shoots, a plant that homeowners might already be familiar with or frustrated by.



Garlic Mustard Flower *Alliaria petiolate*

Garlic mustard is an invasive herb that has spread throughout much of the United States over the past 150 years, becoming one of the worst invaders of forests in the American Northeast and Midwest. It is believed that this herb was introduced into North America for medicinal purposes and food. The earliest known report of it growing dates back to 1868 on Long Island. While it is usually found in the undergrowth of disturbed woodlots and forest edges, recent findings have shown that garlic mustard has the ability to establish and spread even in pristine areas. This spread has allowed it to become the dominant plant in the undergrowth of some forests, greatly reducing the diversity of all species.



Honeysuckle Berries *Lonicera caerulea*

Several species of honeysuckle found in NY are characterized as invasive. A native of China, Japan and Korea, it is a perennial woody vine (although its leaves can remain green throughout mild winters). It was introduced for horticultural purposes in 1806 on Long Island and was widely distributed as a garden plant through the early 1900s when it was finally recognized as a weed. The shrub forms range from 6 to 15 feet in height, while vines can reach 30 feet in length. The egg-shaped leaves range from 1 to 3 inches in length and are arranged oppositely along stems. Invasive honeysuckles begin flowering from May to June and bear small (less than 1-inch long), very fragrant tubular flowers ranging from creamy white through various shades of pink to crimson.



English Ivy

This is an aggressive invader that threatens all vegetation levels of forested and open areas, growing along the ground as well as into the forest canopy. Vines climbing up tree trunks spread out and envelop branches and twigs, blocking sunlight from reaching the host tree's foliage, thereby impeding photosynthesis. The added weight of vines also makes trees susceptible to blowing over during storms. English ivy has been confirmed as a reservoir for bacterial leaf scorch (*Xylella fastidiosa*), a harmful plant pathogen that affects a wide variety of native and ornamental trees such as elms, oaks and maples.



Multiflora Rose

Multiflora rose is an exotic invasive perennial shrub native to China, Japan, and Korea. Introduced into the United States in the 1860s and was used in the horticultural industry as readily available rose root stock for rose breeding programs and as an ornamental garden plant. As with other exotic invasive plants, multiflora rose was promoted for the wrong reasons while being planted widely throughout the Midwest, northeast, and elsewhere. It has escaped cultivation spreading into private and public lands, and as a result has been classified as a noxious weed in many states. Multiflora rose might be confused with blackberry or other thicket-forming, thorny bushes, but can be distinguished by its clusters of numerous, small, red rose hips and its tendency to climb as well as form thickets of upright, arching branches.



Winter Creeper *Euonymus fortunei*

This shrub is an evergreen perennial vine that was introduced as an ornamental groundcover. It has been reported to be invasive in natural areas in most of the states in the eastern half of the U.S. It can tolerate a broad range of environmental conditions ranging from full sun to deep shade, and acidic to basic and low nutrient soils, but it does not grow well in heavy wet soils.



Autumn Olive *Elaeagnus umbellata*

Historically planted for wildlife food and habitat, autumn olive has been found to be highly aggressive, with seeds widely dispersed by birds and mammals. Once thought as the best way to control erosion and provide wildlife habitat, it is now a major hassle. The plant's positive attributes are quickly outweighed by its rapid and uncontrollable spread across forest edges, roadsides, meadows and grassland, where it displaces native plants. Autumn olive can shade out desirable native plants and fixes nitrogen in the soil, which can degrade native plant communities that thrive on low-nutrient soils. It is difficult to control, as cut stumps and roots will sprout.

PLANTS : Endangered Species



Sandplain False Foxglove *Agalinis Acuta*

Agalinis Acuta is an annual, hemi-parasitic plant native to Long Island and the east coast. *Agalinis Acuta* lives off of the roots or shoot of a host plant. Growing about 14-20 inches, their pink flowers bloom in late summer and early fall, and they wither after one day. *Agalinis* inhabits dry, sandy, short-grass plains, roadsides and openings in oak scrub along the coastal plains. In 1987, *Agalinis Acuta* received Federal Protection under the *Endangered Species Act*.

TERRESTRIAL - PLANTS: Diseases



Beech Leaf Nematode

Spreading across Long Island, beech leaf disease nematode is a new disease affecting beech trees. A nematode is a microscopic worm that feeds inside tree leaves causing beech leaf disease. The disease progresses from the bottom of the canopy upward. Early symptoms include distinct striping between the leaf veins and darkening of the infested area. In later stages, leaves become uniformly darker, shrunken, crinkly and leathery. Affected limbs stop forming buds and, over time, the tree dies.

Hemlock Woolly Adelgid (HWA)



Native to Asia, the hemlock woolly adelgid, or HWA, is an invasive, aphid-like insect that attacks North American hemlocks. HWA insects are very small (1.5 mm) and often hard to see, but they can be easily identified by the white woolly masses they form on the underside of branches at the base of the needles. The HWA feeds deep within plant tissues by inserting its long sucking mouthparts into the base of the tree needles, tapping into the tree's food storage cells. This disrupts the flow of nutrients to the needles and eventually leads to the death of the needles and twigs. Needles will dry out and lose color, turning gray and eventually dropping from the tree. Terminal buds will also die, resulting in little to no new shoot growth. Dieback of major limbs can occur within two years.

Spotted Lanternfly (SLF)



Spotted lanternfly (SLF) is an emerging invasive species that uses its piercing-sucking mouthpart to feed on sap from over 70 different plant species. Described as planthoppers, SLF are small, plant-sucking bugs that leap when disturbed. On Long Island, SLF uses another invasive species, the Tree of Heaven, as a preferred host for reproduction. SLF has a strong preference for economically important plants such as grapevines, and also maple, black walnut, birch, and willow trees. SLF significantly damages these plants, which can harm their health or even kill them.

TERRESTRIAL – ANIMALS: Invasive



Italian Wall Lizard or Gecko

Native to the Mediterranean, the lizard is an introduced species that escaped as part of the pet trade decades ago. The lizards have thrived on Long Island. They eat a wide variety of insects and invertebrates including caterpillars, grasshoppers, and beetles. Some populations are also known to eat plant leaves and flower parts. Despite its invasive status, lizards are not known to have a significant ecological impact.



Gypsy Moth *Lymantria dispar*

The gypsy moth is a non-native insect from France. In New York, gypsy moth caterpillars are known to feed on the leaves of a large variety of trees such as oak, maple, apple, crabapple, hickory, basswood, aspen, willow, birch, pine, spruce, hemlock, and more. Oak is their preferred species.



European Rabbit *Oryctolagus cuniculus*

The European rabbit is a species of rabbit native to the Iberian Peninsula. It is known as an invasive species because it has been introduced worldwide and has caused many problems within the environment and ecosystems. Wild rabbits consume roots, bark, tubers, grass, seeds and grains. For added nutrients, they ingest their own fecal pellets. They are agricultural pests because of the damage they cause when foraging in cultivated vegetable gardens. Rabbits rarely live past three years; hawks, fox, coyotes, owls, dogs, hunters and traffic cause their early death.



Swede Midge/Bug *Contarinia nasturtii* (Kieffer)

The insect is native to Europe and southwestern Asia. The first discovery of Swede Midge in the US was in 2004, on a broccoli farm in Niagara County, NY. Swede Midge is a serious insect pest of cruciferous plants such as cabbage, cauliflower and broccoli because the larvae feed on, disfigure or destroy the growing tip of the plant. It is very difficult to detect swede midge damage until a plant has been completely infested. Swede Midge pupae can exist in the soil and will emerge in the same field to continue destroying crops.

TERRESTRIAL – ANIMALS: Extinct



Heath Hen

Heath Hen is an extinct native bird that used to live on Long Island's plains. The Heath Hen was a strange chicken-sized bird known for its flamboyant displays of plumage and bizarre, warbling vocalizations. An environment of scrub oak and pine trees made Long Island an attractive home for the hens. Their habitat stretched from the pine barrens of Suffolk County west to the Hempstead Plains. The causes of Long Island Heath Hen's extinction have gone largely unexplored.

Long Island lies on one of the four bird-migration flyways across the United States. Among the species which stop on Long Island are the Canada goose, the pigeon hawk, the swift, the tree swallow, and a great number of ducks. Despite of the decline and disappearance of some species, Long Island is still home to at least 200 different birds that breed and nest here.

TERRESTRIAL: Native Birds



Barn Swallow

Barn swallows have a steely blue back, wings, and tail, and rufous-to-tawny underparts. The blue crown and face contrast with the cinnamon-colored forehead and throat. The tail extends well beyond the wingtips and the long outer feathers give the tail a deep fork. Swallows are often seen skimming low over fields with a flowing, graceful flight. They seem to have adopted humans as neighbors, typically placing their nests in barns or garages, or under bridges and wharves; it is rare to find a barn swallow nest in a site that is not manmade. Food is mostly captured and eaten in the air. They feed on a wide variety of flying insects, especially flies (including house flies and horse flies), beetles, wasps, wild bees, winged ants, and true bugs. Barn swallows also eat moths, damselflies, grasshoppers, spiders, and snails.

Blue Jay



Jays are a member of the crow family and have been observed using “tools” as crows do. Visually striking, jays are mostly blue on the back and grayish white on the chest. The birds have a black “bridle” across the throat, face and neck and some white spots on the tail and wings. Male and female jays look the same. As backyard birds go, blue jays are highly intelligent and resourceful. The blue jay frequently mimics the calls of hawks, especially the red-shouldered hawk. These calls may provide information to other jays that a hawk is around, or may be used to deceive other species into believing a hawk is present. In the 1800’s much of the forested areas on Long Island was chopped down for firewood and building supplies for New York City. By caching nuts in the ground, blue jays helped spread nut-bearing trees and have been credited with reforesting the Island. This reforestation benefited numerous species of wildlife.

Cardinal



The cardinal, one of New York’s most brilliantly colored songbirds, is also one of our most abundant. Male cardinals are brilliant red all over while females are a brownish color. Both have the same black face and red-orange bill. Cardinals don’t migrate and they don’t molt into a dull plumage, so they’re still breathtaking during winter, visible in snowy backyards, making their chirping sound. Cardinals tend to sit low in shrubs and trees or forage on or near the ground, often in pairs. In fall and winter, they form fairly large flocks of several dozen birds. Their diet is quite varied, mostly seeds, insects and berries. They fly somewhat reluctantly on their short, round wings, taking short trips between thickets while foraging. They are common at bird feeders. Cardinals nest in dense tangles of shrubs and vines. Pairs stay together for the season raising, 1-2 broods or 4-10 chicks. Seven states use the Cardinal as their state bird.

Mourning Dove



A graceful, slender-tailed, small-headed dove that's common throughout Long Island and across the USA. Their soft, drawn-out calls sound like laments. When taking off, their wings make a sharp whistling or whinnying sound. Mourning doves are not songbirds. Most man-made changes to the landscape are favorable to mourning doves and actually contribute to the increase in their population. Unbothered by nesting around humans, mourning doves build their flimsy, unlined nests of needles, twigs, and grass stems in shrubbery, on gutters, eaves, or abandoned equipment. Although their average lifespan is less than a year, they can reproduce when only 85 days old, averaging about six broods a year. They perch on telephone wires or tree branches, forage for seeds on the ground, and can often be seen at birdfeeders. Rounding out their diet with grain, grasses or peanuts, the mourning dove will eat roughly 12 to 20 percent of their body weight per day, or 71 calories on average. Mourning doves eat many seeds and thereby facilitate the spread of plants, including undesirable species. Unlike the passenger pigeon and the heath hen who could not withstand the changing environment, the mourning dove has flourished in urban and suburban areas and has become one of the most sought after game birds in the country. Hunters may shoot more than 20 million mourning doves each year. Bones found in cave-like rock shelters indicate stone-age man used mourning doves for food nearly 9,000 years ago.

Phoebe



The phoebe is a plump songbird with a large head for a bird of its size. Related to flycatchers, it has a short, thin bill used for catching insects. It generally perches low in trees or on fence lines. Flying insects make up most of what phoebes eat. Phoebes are very active, making short flights to capture insects and very often returning to the same perch. They make sharp "peep" sounds, in addition to their familiar raspy "phoebe" call. In spring, the female selects a site under the protection of an eave or ledge on a building or bridge to build a nest from mud, moss, and leaves mixed with grass stems and animal hair. Unlike most birds, phoebes often reuse nests in subsequent year and sometimes may renovate old American robin or barn swallow nests for themselves. The phoebe is a loner, rarely gathering with other phoebes. Even members of a mated pair do not spend much time together. They may roost together early in pair formation, but even during egg laying the female frequently chases the male away. Both sexes, but particularly the female, attempt to defend the nest against such predators as snakes, jays, crows, chipmunks, mice, and house wrens. Hardy birds, phoebes are short-distance migrants and one of the earliest returning birds in spring, sometimes as early as March.

Yelw-Billed Cuckoo



The yellow-billed cuckoo is a slender, brown-toned bird with long tail and curved yellow beak. It is rather reclusive, often perching silently in the shade for long periods of time. The cuckoo's diet consists mostly of caterpillars and insects, but it will also consume lizards, frogs, berries, fruits, and the eggs of other birds. Its favorite food is the caterpillar. Cuckoo nesting habits rise and fall according to caterpillar irruptions or any sudden change in caterpillar populations. Yellow-billed cuckoos are considered "brood parasites," because they often lay their eggs in the nests of other birds; and they are called "rain crows" because of the "croaking" type call they make in hot, humid weather or before a storm. They are known to sing during flight and will often sing at night. They migrate as far as Argentina in the winter.

American Robin



American robins are members of the thrush family, a songbird with a large round body and warm orange breast. They are found in cities, suburbs, backyard gardens, parks, fields, and woodlands. American robins are strong, straight, and fast fliers. Using the wrist of one wing, the female builds a nest by pressing dead grass, mud, and twigs into a cup shape where she lays a clutch of 3-5 blue eggs: the origin of the color name *robin's egg blue*. Their beautiful nests are found near human habitation, including in mailboxes and broken drainpipes. They are so sturdy that other animals often reuse them after robins move on. Some American robins do migrate, but many remain in the same place year-round. They often come to bird feeders. As with many birds, weather and natural food supply affect their wintering range. In the fall and winter, when fruits and berries are plentiful, large flocks gather to roost in trees and shrubs to eat crabapples, hawthorns, holly, juniper, and others. Robins eat different types of food at different times of day: more earthworms in the morning and more fruit later. Because robins typically forage on lawns, where Long Islanders see them tugging earthworms from the ground, they are vulnerable to pesticide poisoning; this makes robins a visible indicator of chemical pollution. The robin has been celebrated in all forms of music and art, e.g., "The Ballad of Cock-Robin," "Rockin' Robin," and, "When the Red, Red Robin Comes Bob, Bob, Bobbin' Along." Their appearance signals the end of winter, so robins are often called the "harbinger of spring."

White-Throated Sparrow



The white-throated sparrow is a large, full-bodied bird with a prominent bill, rounded head, long legs, and long, narrow tail. A short to medium-distance migrant, white-throated sparrows are abundant native songbirds. They eat mainly the seeds of grasses, weeds and insects. They stay near the ground, where they hop about foraging in the leaf litter, pouncing at anything they've uncovered. In winter, these birds often forage in large flocks and make themselves known by singing their easily recognizable, whistled song. They readily visit bird feeders for millet and black oil sunflower seeds. Outside of the reproductive season, they often roost communally in trees or shrubs. Much communal chirping occurs before and after the birds settle in their evening roost, as well as before the birds leave the roost in the morning. White-throated sparrows come in two color forms: white-crowned and tan-crowned. The variation persists because individuals almost always mate with a bird of the opposite color form. White-crowned birds are more aggressive than tan-crowned ones, and white-crowned females may be able to outcompete their tan-crowned sisters for preferred tan-crowned males. In the arts, sparrow symbolism represents creativity, community, simplicity, and empowerment. The sparrow has become a symbol for a communal and protected environment.

Red-Bellied Woodpecker



The red-bellied woodpecker has a red-feathered head and a dusting of red on its otherwise white underside. Unknown a century ago, the red-bellied woodpecker has become a year-round resident of LI, a regular at backyard feeder and well-adapted to residential areas. At feeders, red-bellied woodpeckers push aside most bird species other than blue jays. They make shrill "kwirr" or "churr" rolling sounds, frequently heard during spring and summer. They eat in-season fruit, nuts and insects, and they pick at bark surfaces (rather than drilling into them) to snatch prey from deep crevices with their long, sticky, barbed-tip tongue. Red-bellied woodpeckers wedge large nuts into bark crevices to store to eat later eating, sometimes whacking them into manageable pieces using their beaks. They nest in cavities within dead limbs, trees or fence posts. The same pair may nest in the same cavity year after year. When nesting, males choose the site and begin to excavate, then attract a female by calling and tapping softly on the wood around or in the cavity. For birds that nest in cavities, nest holes are precious turf, so battles occur. Often falling victim to the aggressive European starling, which invade as many as half of all red-bellied woodpecker nests.

Downy Woodpecker



Downy woodpeckers have black and white plumage. Adult males can be distinguished from females by the red patch on the back of their heads. The smallest woodpecker on LI and the most likely to visit backyard bird feeders during the colder months, it prefers suet feeders, but is also fond of black oil sunflower seeds, millet, peanuts, and chunky peanut butter. Downy woodpeckers eat mainly insects, including beetle larvae that live inside wood or tree bark, caterpillars, and insect pests such as beetles. About a quarter of their diet consists of plant material, particularly berries, acorns, and grains. In late summer, they often perch atop tall weeds such as goldenrod, hammering away at a plant gall to get at the larva inside. Though not a songbird, the noisy sound of a woodpecker drumming has a role in territorial behavior as well as in finding food. Males tap on hollow branches to announce their territory and both sexes tap to attract nearby mates to possible nest sites. Nest cavities, made in the dead limbs of trees or in hanging snags, are used for only one nesting season. Old woodpecker nest holes are used by secondary-cavity-nesting birds like screech owls, and they may become winter larders filled with acorns for gray squirrels and chipmunks. In winter, petite downy woodpeckers frequently join flocks of similarly sized chickadees and nuthatches. Such “flocking” benefits means they can spend less time watching for predators and better luck finding food.

TERRESTRIAL - Native Birds of Prey



Red-Tailed Hawk

York’s most common hawk, red-tailed hawks are found year-round across the state, but usually only during the summer in the far northern areas. These are large and sturdy hawks, brown above and lighter below. Adults have a rusty red tail. Often seen soaring over fields or perched in high places, they constantly scan the ground for prey. They sit on top of telephone poles or in trees along highways. They attack in a slow, controlled dive with legs outstretched — much different from a falcon’s stoop — feeding on small mammals such as mice, voles, squirrels, chipmunks and rabbits. Their screaming call is often used in television and movies to portray any hawk or eagle.



Peregrine Falcon

Once listed as endangered, peregrine falcons now have established populations, not just on Long Island, but throughout New York City. There are approximately 25 nesting pairs in the five boroughs, making it the highest concentration anywhere in the world. Like the Cooper’s hawk, the abundance of pigeons feed the city’s falcon population well, while tall buildings and bridges provide excellent vantage points for spotting prey. Found on every continent in the world, except Antarctica, and on oceanic islands, they are the largest falcons in North America. Adults are blue-gray with barred underparts and a dark head. Much like red-tailed hawks, they love wide-open spaces, often most at home in coastal environments where they can prey on shorebirds. Fittingly, the name falcon means “wanderer” and peregrines have been known to travel as many as 15,500 miles per year, e.g., one nesting population in the Arctic tundra winters in South America. Despite the abundance of frequent-flyer miles, they have remarkable homing, evidenced by nesting sites in continuous use for hundreds of years, used by many generations of falcons. 13

Cooper's Hawk



Among the bird world's most skillful fliers, these are medium-sized hawks with a distinctive rounded tail (accipiter shape). They are a regular sight in parks, quiet neighborhoods, over fields, at backyard feeders, and even along busy streets. Originally woodland birds, studies show their numbers are actually higher in towns than in their natural habitat, the forests. Cooper's hawks mainly eat medium-sized birds such as the European starlings, mourning doves, rock pigeons and American robins. They sometimes rob nests and also eat chipmunks, rabbits, hares, mice, squirrels, and bats. Cities provide plenty of rock pigeons and mourning doves as prey as do backyard bird feeders. Cooper's hawks capture birds with their feet and kill them by repeated squeezing. As with most hawks, males are significantly smaller than their mates. Males tend to be submissive to females, listening for reassuring call notes made by females when they are willing to be approached. Males build nests of twigs, lined with bark, high in a trees, then provide nearly all the food to females and young for the 90 days before the young fledge.

TERRESTRIAL-BIRDS: Invasive

European Starling



First brought to North America by Shakespeare enthusiasts and released in New York City between the years 1890 and 1891, European starlings are now among the continent's most numerous songbirds. European starlings are stocky black birds with short tails, triangular wings, and long, pointed bills. It is considered a noisy bird with songs consisting of a wide variety of sounds. European starlings inhabit cities, suburbs, parks, farms, and fields but are rarely found in forests. Starlings are resented for their abundance and aggressiveness. During spring breeding season, Starlings push out native cavity nesters like bluebirds, owls, and woodpeckers contributing to their decline and destruction of native wildlife. For much of the year, they wheel through the sky and mob orchards and farms in big, noisy flocks, making starlings an agricultural pest. They may swoop in and clean up tons of insects and grubs, or they may swoop in and do cause millions of dollars in agricultural damage consuming fruit or crops. Starlings are often host to fleas, ticks, and mites, while their waste can spread invasive seeds and transmit disease. Because they are considered a nuisance species in North America, they are not a protected bird species. Predators of the starling include hawks, falcons, and owls.

AQUATIC: Wetland Life

Our local aquatic ecosystems host unique wetland life in the LI Sound, along its coasts, in salt marshes and in sandy beaches, all of which are constantly changing. Non-native species (plants and animals) — called “invasive” when they out-compete native species living in our coastal habitats — have been introduced (and continue to arrive) from other parts of the world. Some are released with ballast water held in the cargo holds of ships. Others arrive after accumulating on ship hulls (known as biofouling). Still others arrive in the packaging material of fish bait, from watercraft and rain gardens, from intentional release of fishing bait, by escaping from nurseries and water gardens, and by the intentional release of unwanted aquatic pets. Our salt marshes, that serve many critical roles in the Sound’s ecosystem, have distinct zones of vegetation, each determined by elevation. Tall saltmarsh cordgrass grows along the water’s edge in the low marshes, which are regularly flooded by the tides; this grass tolerates changes in water level, salt concentration, and temperature. Our sandy beaches are high-energy habitats, constantly and often dramatically changed by tides, winds, storms, and currents. From shallow sandy habitats to deep boulder habitats, life for Long Island Sound marine life is rich in diversity.

AQUATIC PLANTS: Invasive



Red Seaweed *Grateloupia*

Currently, Long Island supports seven species of seaweed that are thought to be non-native. The most recent introduction of a non-native seaweed was the discovery of the red seaweed (*Grateloupia*) on Montauk Point in 2001. Red seaweed thrives in warm water and it has the potential to grow in abundance as the Sound’s water temperature increases. It attaches to hard surfaces such as rocks and may compete with native red *algae* for important resources like space, light, and nutrients. In general, seaweeds are divided into 3 groups based on their color – green, brown or red – though even within groups, color varies greatly. These perennial species typically never die back (almost like evergreens) or die back only under adverse conditions (e.g., high water temperatures, low light, etc.), regrowing when stress is alleviated. Within a seagrass meadow, seaweeds can contribute to the overall primary production as well as to biodiversity; but because seaweeds require less light and can tolerate higher nutrient levels than seagrasses, they can overwhelm seagrass communities under eutrophic (nutrient rich) conditions, eventually contributing to the decline of seagrass meadows.

Oyster Thief or Dead Man’s Fingers *Codium Fragile*



Oyster thief or dead man’s fingers is a common tidal invasive microalga that threatens oyster catches. This green seaweed, also known as dead man’s fingers, or green fleece, was first discovered in Long Island waters in the late 1950s. It can be now seen year-round on open coasts, estuaries, and in sheltered habitats such as bays and harbors. It attaches to rocks, shells, or other hard substrates, and is often covered with epiphytic species (a plant that grows on another plant). Oyster thief outcompetes native seaweed, such as kelp, and it damages the ecosystem by smothering mussels and scallops, reducing the total mass of oyster biomass (biological material), and lifting shellfish off the seafloor.

Sea Squirt *Didemnum vexillum*



Sea squirts are soft-bodied marine invertebrate that grow on hard surfaces and feed by filtering particles, such as phytoplankton and bacteria, from the water column. They are called sea squirts because large ones shoot water from their filtering siphons (sucking tube structure) when they are picked up. They grow rapidly on docks, pilings, and the hulls of boats and, during growth spurts, they reach incredible densities, as many as hundreds per square foot. Besides compromising human structures, sea squirts can outcompete and suffocate filter-feeding bivalves such as mussels, scallops, and oysters. The dense clumps foul cages used for fish aquaculture, as well as ropes, rocks, and other gear used in mussel aquaculture. The sea squirt has negatively impacted the economy by reducing mussel harvest and damaging the local ecosystem.

Common Reed *Phragmites*



Phragmites or common reed is an invasive wetland/coastal plant that outcompetes native vegetation. Phragmites is a tall, perennial grass that can grow to over 15 feet in height, often in dense stands at the upland edge of disturbed marshes. In North America, which hosts both native Phragmites and introduced subspecies, introduced Phragmites forms dense stands of both live stems and standing dead stems from previous year's growth. Leaves are elongate and typically 1-1.5 inches wide at their widest point. Flowers form bushy panicles (cluster of flowers) in late July and August and are usually purple or golden in color. As seeds mature, the panicles begin to look "fluffy" due to the hairs on the seeds and they take on a grey sheen. Below ground, Phragmites forms a dense network of roots several feet in depth. The plant then spreads horizontally by sending out root runners which can grow 10 or more feet in a single growing season, crowding out native and other species.

Water Chestnut *Trapa natans*



In the mid-1800s the water chestnut was introduced into the United States as an ornamental plant. Today it colonizes shallow areas of freshwater lakes and ponds, and slow-moving streams and rivers, harming aquatic ecosystems and water recreation. Often out-competing native vegetation, water chestnuts form dense, floating mats that severely limit sunlight to below-surface species. These mats reduce oxygen levels in water, making it increasingly less habitable for fish, eventually killing them. It is of little value to waterfowl.

AQUATIC ANIMALS: Native Sea Creatures



Fiddler Crabs *Leptuca pugilator*

Fiddler crabs burrow into the sand, mud and peat at edges of saltmarshes; male crabs have one greatly enlarged right or left pincer for combat and mating rituals; the claws of females are about equal in size. Fiddlers feed on decaying vegetation, bacteria, algae and other organic matter found in the sand or mud, efficiently sifting out the sand with their mouthparts. They have distinctive compound, stalked (projected) eyes, like dragonflies, with up to 9,000 eye facets. The visual sensors on top of their eyes enable them to see motion from overhead — a helpful adaptation as they face numerous predators such as birds.



Green Crab *carcinus maenas*

Green crabs inhabit LI Sound marshes, rocky areas, and tidal flats. Voracious eaters of bivalve shellfish, they also eat seaweed and worms. This petite menace can disperse over large areas, harming many other species as well as aquaculture, fisheries, and even recreational fishing. Due to their insatiable appetite, a region's biodiversity may be critically altered by crashes in shellfish populations, destruction of eelgrass beds, and declines in native crab species.



Green Sea Urchins

Green sea urchins live in shallow waters, with rocky bottoms and limited wave action. They are covered in short, sharp, movable greenish spines. Urchins move using their spines and hundreds of miniature tube "feet" located under their body, which have tiny suction cups to grip surfaces. Their circular mouths, also located on their undersides, have five teeth. As they crawl along the ocean floor, they scrape fine algae off hard substrate with their teeth. They may migrate on a seasonal basis. Green urchins on the Atlantic Coast have been known to live for 20 to 25 years. They are fished commercially for their roe, which is mostly exported to Asia.



Ribbed Mussels

Ribbed mussels grow on the edges of tidal creeks in salt marshes, providing food for mammals and other organisms. To feed, mussels slightly open the shell so the cilia hairs on the gills draw in water and nitrogen-absorbing algae and plankton. By feeding, the mussels capture nitrogen, storing it in their shells and body tissue. Because they grow in dense clusters, ribbed mussels are excellent bio-filtration agents. Ribbed mussels absorb excessive nitrogen from the LI Sound's sewage and fertilizer runoff. Nutrients stimulate damaging algal blooms that lead to hypoxia (oxygen depletion) that threatens marine life when the algae die and decompose. By removing pollutants, mussels break the eutrophic cycle (excessive growth of aquatic plants). Atlantic-ribbed mussels are not sold for human consumption because of their unpleasant taste.

Bluefish *Pomatomus saltatrix*



The bluefish is a moderately proportioned fish, with a broad, forked tail. The spiny first dorsal fin is normally folded back in a groove, as are its pectoral fins. Coloration is a grayish blue-green dorsally, fading to white on the lower sides and belly. Its single row of teeth in each jaw is uniform in size, knife-edged, and sharp. Bluefish commonly range in size from seven-inch (18-cm) "snappers" to much larger, sometimes weighing as much as 40 lb (18 kg), though fish heavier than 20 lb (9 kg) are exceptional.

Hickory shad *Alosa mediocris*



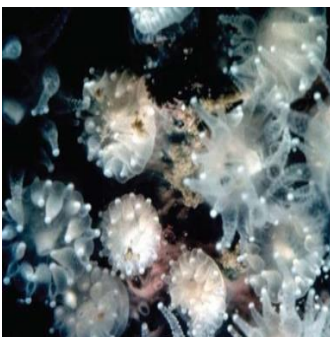
Hickory shad are elongate, laterally compressed fish with a tapering cross section. The scales on the belly are serrated. The fish is green-gray on its upper surface, becoming iridescent silver on the sides and white below. It is an anadromous fish species, meaning that it spawns in freshwater portions of rivers, but spends most of its life at sea. Hickory shad are piscivorous, feeding primarily on small fishes, although crustaceans and squid contribute to their diet.

Summer flounder or fluke *Paralichthys dentatus*



Summer Flounder typically has 5 to 14 ocellated (eye-like) spots on the body. Like most members of the left-eye flounders, they can change the color and pattern of their dark side to match the surrounding bottom and are also capable of rapidly burrowing into muddy or sandy bottoms. The teeth are quite sharp and well developed on both upper and lower jaws. The average summer flounder reaches sexual maturity at 2 years and weighs 1 to 3 pounds, typically 15 to 20 inches in length, though they may grow as large as 26 pounds and live up to 20 years with females making up the largest and oldest specimens. While primarily considered a bottom fish, they are rapid swimmers over short distances and can become very aggressive, feeding actively at mid-depths, even chasing prey to the surface.

Star Coral or Northern Star Coral



Star coral colonies encrust on clumps on rocks, under ledges and boulders, on pilings, and on wrecks throughout LI Sound, particularly the North Shore's Baiting Hollow. Star coral also grows in deep water, so detached clumps sometimes get washed onto shore. Coral embryos mature into polyps that spread their tentacles to feed, gathering plankton and other food particles from moving water. Corals are living colonies of individual *cnidarians* (aquatic invertebrates), each living in its own a calcium carbonate shell. The colony grows by budding and, in favorable conditions, a clump can grow a new polyp every 3 days. Coral often hosts various burrowing *commensal* invertebrates (organisms, such as many bacteria) that neither harm nor benefit their hosts.

Starfish or Sea Star



Starfish are *echinoderms*; spiny-skinned animals with five-part radial symmetry. Star Fish are not fish (fish have gills, scales, or fins). They have no brain or blood but do have a complex nervous system. Their arms have hundreds of tube-like feet that help them move and hold their prey. Starfish have the ability to regenerate their own arms. As a predator, who eats almost anything it encounters, each starfish has two stomachs and can swallow prey whole or insert its stomach into the prey and digest food outside its body. They eat clams, oysters, lobsters, small fish, and mollusks. There are over 2000 species of starfish and they can live up to 35 years. Starfish reproduce in two ways, either by fertilizing eggs or by regeneration (splitting into new starfish). Their relatively large size, diverse diet and ability to adapt to different environments make starfish ecologically important; the marine ecosystem would be dramatically different or cease to exist without them. Starfish are prey to sea anemones, other starfish species, crabs, fish, and gulls. Starfish cannot survive in fresh water and are vulnerable to high temperatures; they die when their temperature rises to 86 °F.

AQUATIC ANIMALS: Endangered

Diamondback Terrapins



The diamondback terrapin is the only native turtle species in North America that lives in brackish water (mix of fresh and salt water), such as salt marshes, tidal creeks, and shallow bays and harbors. Its name refers to the diamond pattern on top of its shell (carapace), which varies in overall design and coloration. The design on each shell, made of keratin (like our fingernails), is unique to each turtle — just like a human fingerprint. Terrapins are strong swimmers and have large webbed feet. They have strong jaws for crushing shells of prey, such as clams, snails, crabs, mussels, other mollusks and fish. Terrapins are often seen with their heads bobbing at the water surface or basking in the sun on mud banks. They only come ashore to nest from late May to early July, when females seek nesting sites to lay eggs. Using her hind webbed feet, the female scoops out a hole six inches deep for laying her 4-15 eggs. She then covers them and returns to the water, leaving the eggs to hatch and the hatchlings to fend for themselves. On Long Island, historically, terrapin populations have faced serious threats, including direct human harvest for food and destruction of coastal nest-laying habitat. In the late 1800s to early 1900s, turtle soup was so popular a delicacy that overharvesting greatly reduced populations. On May 1, 2018, New York closed terrapin harvesting. As marine inhabitants, terrapins are susceptible to wounds from the propellers on motorboats and, because they like bait, often die in recreational crab traps. Terrapins can carry Salmonella germs in their droppings, which can easily spread through their habitat, sickening people who come in contact with it.

AQUATIC ANIMALS: Invasive

Asian Shore Crab



Adult Asian shore crabs have a square-shaped carapace (shell) that ranges from 35 to 42 mm in width (about 1.5 inches on a side), each with 3 spines. Their color ranges from green to purple to orange-brown to red. Researchers believe Asian shore crabs arrived in the United States in the early 1980s, when boats released ballast water, carried from the crab's native waters in the western Pacific, into various waterways along the northern Atlantic coast. The discharge of ballast water from cargo ships is one of the major pathways for the introduction of invasive species around the world. The Asian shore crab has caused major ecological change on the rocky east coast of North America, including Long Island. They are omnivorous, eating microalgae, salt marsh grass, and small invertebrates like mussels, clams, periwinkles (worms) and European green crabs (also a non-native species). Females produce up to 50,000 eggs at a time and can produce 3–4 clutches per year, which mature within a month of hatching. Scientists specializing in invasive species believe that the Asian shore crabs' prolific breeding and wide-ranging diet is reducing the populations of a variety of species, including other crabs, fish, mussels, and lobsters. The Asian shore crab population is increasing while native crab populations are decreasing. Once an invasive species gets established in a new environment, it is nearly impossible to eradicate. Because Asian shore crabs are edible, one potential solution to their proliferation is creating demand for them as a food source.

Sand Flea or Beach Flea



Sand fleas are tiny crab-like crustaceans more closely related to lobsters, crabs, and crayfish than actual fleas or ticks. Adult sand fleas have a hard exoskeleton, are light in color, almost beige, white or translucent and measure between $\frac{1}{2}$ inch and 1 inch long. It is widely thought that they can alter their color slightly to match the sand on the beach where they reside. The crustaceans have 5 sets of tiny legs which they use to dig into the sand and/or paddle through the water. Sand fleas have gills which they use to breathe and need oxygenated water to survive. They have a telson (appendage) located at the rear of their underbelly, which females use to hold clutches of up to 250 bright-orange eggs. Eggs hatch in 2 to 59 days and within 1 to 4 months are fully mature; they live about a year. Sand fleas lift their antennae-like feeders to catch organic debris, such as seaweed and plankton. Found in large numbers where seaweed has washed up on the beach, sand fleas occasionally bite humans. Female sand fleas use the protein from blood as nutrition for laying eggs. Unable to jump, sand fleas usually bite legs and ankles. Their bites cause welts and itching but are not considered dangerous.

AQUATIC BIRDS: Birds Inhabiting Salt Marshes and Coastal Regions

AQUATIC BIRDS: Native



Seaside Sparrow

A hefty sparrow with a very large, long, pointed bill and a long, rounded tail, long legs, and short, rounded wings and a yellow tuff. With strong legs and feet for agility and a long, heavy bill for digging invertebrates and seeds from dense vegetation and thick mud, it favors smooth cordgrass, which is especially rich in both seeds and insects, spiders, bugs, etc. When eating seeds from seed heads, they perch in vegetation, pulling seeds toward them, using their bills to strip them off. They are active ground foragers, racing around quickly through the vegetation, mouse-like, and often darting or lunging after prey such as grasshoppers, crickets, wasps, ants, and beetles. During the spring mating season, males attract females by singing, raising their wings, and giving specific calls, one of which sounds like a whinny. Avoiding flood areas, females construct nests, tight cups of grasses lined with finer grasses, partially covering them, each with a canopy of adjacent live marsh plants, to lay 2-4 eggs. Both adults incubate the eggs and feed the nestlings. Once fledged, young seaside sparrows often form small flocks that forage together; at night or during storms, they may gather in roosts at along a marsh edge. A sparrow species of special concern, the seaside sparrow relies on salt marshes along the Long Island Sound, a key habitat which is diminishing and endangered. The species is also imperiled by runoff of pesticides and other chemicals, by ditching of marshes (to control insect populations or drain land), and by sea level rise caused by climate change, which will accelerate loss of tidal marsh habitats.

Clapper Rail



The large clapper rail is an abundant but secretive species who live in saltwater marshes; the extensive, dense vegetation serves as a refuge from high tides and predators. Clapper rails are opportunistic and omnivorous, eating whatever is available including crabs, crustaceans, fish, eggs, and plant matter. They find prey by sight and possibly by smell, usually grabbing food items from the surface or making shallow probes into the ground. Many prey are swallowed whole; pellets of indigestible material (such as clam shells) are later regurgitated. Nest sites are hidden in clumps of dense vegetation or shrubs above ground level to avoid flooding and avoid predators. Males do most of the nest building and may continue to add to the nest after the female has started incubating eggs. Nests may have domes to help keep them hidden, and ramps to enable entry and exit in habitats with high or fluctuating water levels. Clapper rails are monogamous during the breeding season, working together to raise young. After young birds leave the nest, parents divide the brood, each looking after half the offspring. Chicks are carried on the adults' backs during periods of high water or when the birds move across open water. Clapper rails form loose colonies when salt marshes offer limited high ground. They rarely fly, instead walking an often-irregular path with neck outstretched and tail erect, jerking up and down if agitated. Birds may run in response to a threat, holding tail and head straight out and body horizontal. Clapper rail populations are threatened by land development that alters vegetation, water levels or salinity and climate change causing storms that deposit sand and destroy marsh grasses. Because accumulated toxic materials in coastal wetlands can also compromise clapper rails, they serve as an indicator of estuary health. Clapper rails are listed as game birds and are hunted in all coastal eastern states from Rhode Island to Texas, except New York.

Great Blue Heron



The great blue heron, the largest of the North American herons, with long legs, a sinuous neck, and thick, dagger like bill, is found in saltwater and freshwater habitats, from open coasts, marshes, riverbanks, and lakes to backyard goldfish ponds. Herons wade slowly or stand statue-like, stalking fish or other prey. They eat nearly anything within striking distance, including fish, amphibians, reptiles, small mammals, insects, and other birds. They grab smaller prey in their strong mandibles (lower part of the bill) or use their dagger-like bills to impale larger fish, often shaking them to a breaking point before gulping them down. Breeding birds gather in colonies or “heronries” of several hundred pairs to build stick nests high off the ground in trees or bushes. Away from the colony, blue herons defend feeding territories from other herons with dramatic displays in which they approach intruders with their heads thrown back, wings outstretched, and bills pointing skyward. Gulls and even humans may also be a target of this defensive maneuver. In flight, the great blue heron curls its neck into a tight “S” shape, its wings broad and rounded and its legs trail well beyond the tail. They are a partial migrant, generally moving away from the northern edge of their breeding range in winter, with some flying as far south as the Caribbean.

Common Scoter or Surf Scoter



The surf scoter is a duck with a distinctive, sloping orange bill and black-and-white patches on the head, prompting the nickname “old skunk head.” They migrate along the coastline, nesting in wetlands or fresh lakes, where they breed. A surf scoter male defends a moving area around the female and provides food. The female with a brood is not territorial and offers little parental care so young surf scoters often switch from one brood to another. During the breeding period, adults and ducklings eat freshwater invertebrates, including insects, and some plant matter. Surf scoters are “molt migrants,” meaning that, after nesting, adults fly to an area where they can molt or shed their flight feathers and grow new ones. They briefly become flightless before continuing to their wintering range. Surf scoters leave the freshwater areas after breeding and settle along the seacoasts, where they consume small mollusks, mussels and clams, small crabs, sea squirts, and various marine worms and aquatic vegetation. Storms or foul weather can send flocks into sheltered bays and inlets in larger numbers, providing the opportunity for bird watchers or hunters. Scoters are a robust species and like other ducks, they are hunted mostly for sport.

AQUATIC BIRDS: Endangered

Piping Plovers



Little and round, piping plovers hide in plain sight on sandy ocean and lake shores, their sandy gray backs blending in as they forage along the water. They run, stop, and tilt over to peck and probe for marine worms, small crustaceans, flies, water beetles, and snails. When a wave passes, they hold 1 foot in front of their bodies and vibrate it in the sand, possibly to bring invertebrates to the surface so they can easily grab them. Although quick on their feet, they run around less than other shorebirds. Males begin the nest by making small depressions or scrapes in the sand within their territory, typically near small clumps of grass away from the water's edge, often near other nesting birds such as terns. Both parents incubate the eggs, trading positions in a way to limit exposure of the eggs: One parent tips up, while the other slides under. After the eggs hatch, both parents brood the chicks, the chicks snuggling under their bellies, so the parents look like they have 8 or more legs. Their ground nests are vulnerable to numerous predators, including dogs, rats, cats, weasels, skunks, raccoons, crows, ravens, and gulls as well as beach goers. When predators threaten their nest, plovers try to lead them away by feigning injury. Piping plovers are endangered due to direct and unintentional harassment by people, dogs, and vehicles; destruction of beach habitat for development; predation; and changes in water levels that affect availability of nesting habitat. Conservation efforts focus on protecting nests and nesting habitats by placing enclosures around nests, controlling known predators, limiting recreation near breeding sites, and restoring breeding sites such as sandbars.

Sandpiper



The semipalmated (webbed-foot) sandpiper, a small shorebird known as “peeps,” is the most familiar species in eastern North America. These sparrow-sized but assertive birds are in constant motion, rapidly pecking for tiny prey and endlessly chasing off other birds that attempt to feed near them. Sandpipers eat tiny invertebrates, including insects and other aquatic animals found in shallow water. They feed by touch and sight, pecking and probing rapidly at the water’s surface with repeated jabs of their bills. Their sharp vision and the sensitivity of their bill tips permit them to forage at night. Sandpipers appear to have a monogamous mating system. In spring, male sandpipers arrive at breeding grounds a few days before the females to establish and defend territories in areas of mixed plants, grasses, and moss. The male makes a “scrape” in the ground, then the female lines the nest with grasses and moss. The interior cup of the nest measures about 2.2 inches across, 1.8 inches deep. Males guard females until they've laid their clutch of 4 eggs and are highly territorial through the chick-rearing period. Powered by extensive fat reserves, sandpipers gather into flocks to fly nonstop across the ocean from New England to South America (some 2,500 miles). Due to their declining population, sandpipers are now a protected species. Hunting, mostly in South America, is one source of population decline, followed by destruction of wetlands, environmental pollutants, and climate change. 23

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