

#14 Tundra plants: Bearberry (*Arctostaphylos uva-ursi*) is a unique, evergreen shrub that grows along the ground. You will notice some woody stems nearby that are the branches of these very old plants. Also called hog cranberry or mealy plum, the red fruit ripens in autumn and, while dry and tasteless to humans, it is a favorite for winter residents of the property such as White-tailed Deer, Meadow Voles, and numerous overwintering birds. Tiny pink flowers bloom in April or May and these are the primary nectar source for the earliest butterfly that emerges – the Brown Elfin (*Callophrys augustinus*).

#15 Nantucket Shadbush (*Amelanchier nantucketensis*): In front of this post is a large stand of a dark green inconspicuous shrub called Nantucket Shadbush. When it blooms with delicate white blossoms in late April or early May it is the first plant to do so in its habitat. In doing so, it stands out for only a couple of weeks in the year when nothing else is blooming. This slender, gray-barked shrub is also called Juneberry because of its early ripening fruit; a favorite of many birds and other native wildlife.

#16 Shrubland birds: From this vantage you can see and hear many shrubland birds, including the Eastern Towhee (*Pipilo erythrophthalmus*) and Eastern Kingbird (*Tyrannus tyrannus*). Towhees are one of the most common birds found on Nantucket and make a characteristic 'drink-your-tea' call. They nest on the ground within shrublands and feed in the undergrowth. Kingbirds are a feisty species of flycatcher known to aggressively defend their breeding territory from avian predators, such as hawks. You can observe them diving from small trees and shrubs to catch insects in flight, their food source of choice.

#17 Wind and salt spray: The early successional habitats found on Nantucket are maintained by periodic disturbance. Ongoing

research investigates how to maintain and increase the coverage of sandplain grasslands and heathlands. Possible methods include prescribed fire, mechanical land clearing, mowing, and seeding with native plants. Here at LLNF, we know that wind and salt spray from the north shore have created a lot of the disturbance regime found on the property historically. These ecological forces are responsible for the low-growth of our shrubs and trees and keep succession at bay, helping to maintain the grassland and heathland plant communities.

#18 Shrub wetland: The low spot beyond the post has standing water for part of the year and supports a breeding colony of small tree frogs called Spring Peepers (*Pseudacris crucifer*). Spotted Turtles, American Woodcock, and snakes all use shrub wetlands for food, cover, or breeding habitat. The dark evergreen shrub below is Inkberry (*Ilex glabra*). Other plants include Cinnamon Fern (*Osmundastrum cinnamomeum*), Fox Grape (*Vitis labrusca*), and additional wetland plant specialists.

#19 Restoration and Stewardship: This area to the north was previously a large thicket of Japanese Black Pine (*Pinus thunbergii*). These pines, as their name implies, are native to Japan. Able to grow in very harsh conditions in impoverished sandy soils and extremely salt tolerant, this fast growing species was imported into the U.S. as a wind-break and soil stabilizer. LLNF has been actively working to manage this invasive tree. Removal of this species has opened the canopy with many native grasses, wildflowers, and low shrubs now proliferating. The restored wind and salt spray regime will help keep this area a grassland/heathland plant community.

#20 LLNF Outreach and Education: Welcome back to the LLNF offices! The LLNF is dedicated to environmental education and connecting people of all ages to nature and the

world around them. We provide opportunities for guided nature exploration, workshops, family programs, and classes. Our education program works hand-in-hand with our research program, providing opportunities to be directly involved in the research at the comfort level of the participant whether that is as an observer or a more hands-on experience. Pick up our most recent brochure or visit our website (llnf.org) to learn more.



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Self-guided Nature Trail

The Linda Loring Nature Foundation is a 108-acre preserve for conservation, education, and research. The gently sloping, mile-long loop trail crosses a magnificent coastal sandplain ecosystem with populations of animals, birds, and rare plants. Enjoy!

#1 Welcome to the Linda Loring Nature Foundation: Our property and trails are open to the public sun-up to sundown 365 days a year. The trail is a little over one mile long and travels over fairly easy terrain with a few modest inclines. The trails are for passive exploration and the quiet enjoyment of nature. The natural communities found on Nantucket represent a diversity of habitats that are home to numerous plant and animal species. You will pass through coastal shrublands, heathlands, and the globally rare sandplain grasslands. Keep your eyes open as you never know what you'll come across along the trails. Remember to take only pictures. By posting photos on our iNaturalist project (inaturalist.org) or through social media, you contribute to LLNF biodiversity knowledge.

#2 Nest Boxes: For cavity nesting bird species, the availability of a suitable breeding site is critical. On Nantucket, tree cavities are a rarity which acts as a severe limiting factor for many species. Providing nest boxes on the LLNF property allows native cavity nesting species, particularly Tree Swallows (*Tachycineta bicolor*) and a few Black-capped Chickadees (*Poecile atricapillus*), to nest. They feed their young a diet primarily comprised of insects. They add a lot of activity to the LLNF property from April through mid-July. In the early fall, activity picks up again as tree swallows stage in great numbers prior to migration.

#3 Sweet Pepperbush (*Clethra alnifolia*): This wetland loving plant is abundant on both sides of the trail at this spot. This shrub dominates many wetland area soil types on the LLNF property. When it blooms, usually in mid-July, the smell is heavenly and the white flowers brighten the landscape with massive numbers of blossoms on each plant. Attractive to many insects and butterflies, this native plant is not only sweet to one's sense of smell, but an important plant for many native pollinators.

#4 Osprey (*Pandion haliaetus*): These highly migratory raptors are always a thrill to watch. Their nest pole is an iconic symbol of the LLNF. Their diet is more than 99% fish that they capture live in spectacular plunge-dives in both Long Pond and the nearby Nantucket Sound. This site has been one of the most successful at raising chicks on Nantucket for the past few decades. Most years, but not always, the adults will successfully fledge 2-3 young. Both the adults and young migrate to South and Central America, departing as early as September. The adult birds reappear at the nest pole sometime in late-March for another breeding season.

#5 Research at LLNF: LLNF research focuses on studies that promote our mission to preserve, protect, and understand Nantucket's biologically diverse ecosystems. Our research program includes in-house studies on the island's flora and fauna while also supporting the research of others who use the property as a "living laboratory". Current and past research projects include phenology (study of nature's timing), native pollinator diversity, snake diversity, climate impacts, and rare species monitoring. As you walk along the trails, you may observe small survey flags, data loggers, snake cover boards, or other scientific equipment as evidence of research in progress. Please do not disturb, as these instruments are vital to helping us reach our research goals. To learn about our current research projects, check out the research page at llnf.org.

#6 North Head of Long Pond: Looking to the southeast you are gazing at the North Head of Long Pond; a brackish body of water with a slight tidal flow, connected to the rest of Long Pond by a culvert under the Madaket Road. It is one of the best ponds on Nantucket for observing many species of wintering waterfowl. This hill is also prime real estate for turtles inhabiting the North Head of Long Pond and nearby ditches. They come to this hill to lay their eggs starting in mid-May to early July. With a south-facing slant and the proximity to water, it is a favorite of Snapping Turtles (*Chelydra serpentina*) who dig a nest and deposit their eggs each year. A smaller number of Painted Turtles (*Chrysemys picta*) and rarely Spotted Turtles (*Clemmys guttata*) may be seen on the trails. Look for sandy areas devoid of vegetation as a possible nest site.

#7 Wild Black Cherry Grove (*Prunus serotina*): Black Cherries play an important role in the ecology of Nantucket. These hardy trees are found across the island and are one of the few trees able to withstand the fierce winter winds of the sandplain. They host many species of insects and are a favorite food plant of Eastern Tent Caterpillars (*Malacosoma americanum*). Tent Caterpillars are sensitive to temperature and can be used as indicators of our changing climate. The LLNF studies these and the Black Cherries as part of the phenology research project. You may be able to find an Eastern Tent Caterpillar egg mass on the Black Cherry trees if you look closely enough. Laid in mid-summer, these shiny, black egg masses withstand rain, snow, and freezing temperatures all winter to hatch out when temperatures warm in spring.

#8 Sandplain Grassland: The view to the west is a look at a globally rare habitat: sandplain grasslands. This landscape is dominated by Little Bluestem grass (*Schizachyrium scoparium*) and Pennsylvania Sedge (*Carex pennsylvanica*) interspersed with native wildflowers and low

shrubs. These *early successional* habitats require disturbance to be maintained. Wind and salt spray as well as grazing and browsing by white-tailed deer work to maintain the grasslands and low-growing heathlands. These habitats are important conservation priorities due to their relative rarity, limited geographical range, and the diversity of uncommon plant and animal species they support.

#9 Pollinators and Butterflies: The sandplain grasslands and coastal shrublands provide ideal habitat for more than 20 species of butterflies from April through November on the LLNF property. The Brown Elfin (*Callophrys augustinus*) is the first butterfly to emerge in the spring while the Leonard's Skipper (*Hesperia leonardus*) is the last to emerge in the fall. Other species like the Pearl Crescent (*Phyciodes tharos*) and the American Copper (*Lycaena phlaeas*) are multi-brooded and occur periodically throughout the warmer months. Similarly, native bees, flies, and other insects are beneficial pollinators and an important part of the biodiversity at the LLNF.

#10 High View Point and Harriers: If the weather is clear there is much to see from this vantage point. To the southwest you can see the tip of Smith's Point and Esther's Island; to the northwest is Muskeget Island and Martha's Vineyard; to the north is Nantucket Sound; to the northeast you can see the beach at Coates and vessels departing Nantucket Harbor. You may also catch a glimpse of a **Northern Harrier** (*Circus hudsonius*). These raptors require large expanses of open landscape for hunting and nesting. This is a great spot to see these rodent-hunting specialists as they forage low over the grasslands and heathlands.

#11 Shrublands: The native shrubland habitat is an important component of the ecosystem of the LLNF. The dominant shrubs of this property are Black Huckleberry (*Gaylussacia baccata*), Northern Bayberry (*Morella caroliniensis*), Low-

bush Blueberry (*Vaccinium angustifolium*), Scrub Oak (*Quercus ilicifolia*), and Beach Plum (*Prunus maritima*). These hardy plants are all able to grow in our nutrient poor, sandy soils, and tolerate some degree of wind and salt spray. The fruit of the Blueberries, Huckleberries, and Beach Plum are all important food plants for many insects and bird species. The acorns of the Scrub Oak are favored by the resident White-tailed Deer population.

#12 White-tailed Deer (*Odocoileus virginianus*): The paths and trails you can see all over the LLNF property, especially to the west, are the work of White-tailed Deer. They choose the path of least resistance to move between feeding and bedding down areas creating well-worn trails, often devoid of vegetation. You can look for other clues of the deer at LLNF: deer lays in the grass, tracks in the sand and dirt, and scat in the paths.

#13 Pitch Pines and the Knoll: To the north is a small rise called "the Knoll". Until 2018, this area was dominated by non-native invasive Japanese Black Pine (*Pinus thunbergii*). Clearing of these invasive trees opened up the vista to the sea and increased the natural wind processes that helped create this landscape. From this vantage, you may see the Osprey fishing near shore or fishing boats trolling for a day's catch.

At the top of the knoll there is still a small stand of Pitch Pines (*Pinus rigida*). These trees are native to Nantucket and are an important part of the life cycle for the Northern Long-eared Bat (*Myotis septentrionalis*), a federally endangered species. Research has shown that on Nantucket, these bats use Pitch Pines as maternity roost trees. While you are not likely to see the bats, their calls have been recorded using acoustic detectors on the LLNF property. Protecting the Pitch Pines, as well as the bat habitat, is an important part of our mission.