

Boston Nature Center



Sensory Trail

FOR ALL SENSES, ALL PEOPLE

April to November



Mass Audubon
Protecting the Nature of Massachusetts

Welcome to Boston Nature Center & Wildlife Sanctuary and the George Robert White Environmental Conservation Center, where connecting people to nature is our mission. This Sensory Trail is here for your enjoyment. Please take only pictures and leave only footprints. Enjoy your visit.

SANCTUARY IN THE CITY

Today, Boston Nature Center is a dynamic wildlife sanctuary. Look closer and you'll see that this landscape tells the stories of the people who lived and worked on this land for the past two centuries. Some of those people included early farming families, pioneering birdwatchers, and the residents and staff of the Boston State Hospital.

In 1997, Mass Audubon acquired this land from the Commonwealth of Massachusetts. We began environmental education programs in 1999, reaching out to Boston residents in the surrounding neighborhoods and introducing the natural world to new audiences. Through a successful partnership between the City of Boston and Mass Audubon, this first "green" municipal building was constructed and opened in 2002. It serves as a regional model for environmentally responsible building principles and practices.

This 67-acre sanctuary was created to protect the wildlife living in this precious open space and provide access to nature for everyone. We invite you to experience the beauty and wonder of nature as you explore this sanctuary in the city, learn about past and present stewards of this land, and discover these wetlands, woods, and meadows. We created this fully accessible self-guided nature trail so that everyone could experience the very special nature that thrives here at Boston Nature Center. By creating this sensory trail, we continue two legacies—supporting wildlife and habitat conservation in this resilient urban landscape and connecting people to nature.

Approximately one mile long around the George Robert White Environmental Conservation Center and through the 67-acres, the trail is universally accessible and follows a wide, primarily level crushed stone path. The trail may be traveled in either direction, starting at the front or rear of the Boston Nature Center.

An audio tour is available by calling 617-618-1182 on a cell phone from April through November. The audio tour is available year-round at www.massaudubon.org where you can download it to a personal audio player. The audio tour is also available on audio players that you can borrow during Boston Nature Center hours.

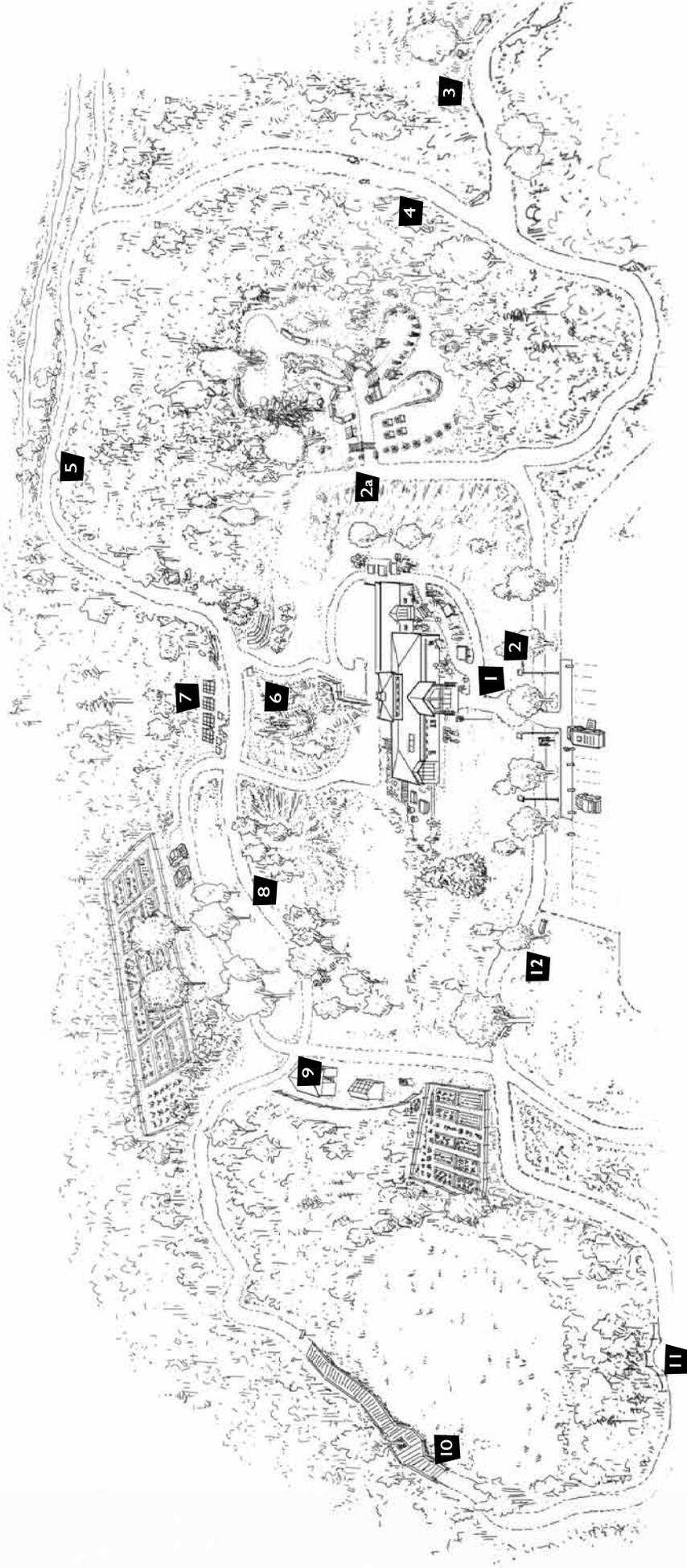
All narrated stops along the trail are clearly marked by three-foot tall signposts with the stop name and number in print and in Braille. Individual copies of the trail map are available in printed or tactile formats. Copies of the printed or Braille guide are available in the Boston Nature Center.

On this trail, you can listen for songbirds and chipmunks, visit meadow, forest, and wetland habitats, and learn about the cultural and natural history of the Boston Nature Center & Wildlife Sanctuary and surrounding areas. We hope you'll enjoy your visit and that this trail will enrich your senses in new ways.

If you need assistance during Nature Center hours, please see the visitor services desk or call 617-983-8500. The Nature Center is open Monday through Friday, 9am to 5pm, Saturday, Sunday, and Monday holidays, 10am to 4pm.

Senosry Trail

FOR ALL SEASONS, ALL SENSES, ALL PEOPLE



1 Monarchs and Milkweed

2 Generations of Sugar Maples

2a The Nature Nook

3 Wetland Wonders

4 Home in a Tree

5 Rockberry Rocks

6 A Pond Study

7 Energy at Work

8 Apples, Pears, and More

9 Gardens and Gatherings

10 A Walk over the Wet Meadow

11 Quaking Aspens and Eastern Cottonwoods

12 Marvels of the Meadow

1 Monarchs and Milkweed

We're beginning in one of the most attractive spots at the Boston Nature Center, especially if you're a butterfly! The butterfly garden is a collection of about thirty types of perennial plants, each selected because they provide food, water, shelter, and a place to reproduce for many species of butterflies and bees.



From June through October, the garden bursts with color, from the deep red tufts of bee balm to the golden petals of black-eyed Susan. Towering over everything are the dark purple clusters of butterfly bush flowers, each one rich in nectar. Many species of butterflies take advantage of these plants, and visitors of all ages are delighted when they see the orange and black monarch butterflies.

As you sit on the bench, there is a tactile sign to your right. Touch this sign to explore the shape of a monarch chrysalis, which is the shape of an oval grape. The chrysalis protects the caterpillar as it goes through its wonderful transformation. Feel the plants behind the bench. Break a piece of the leaf to feel a milky substance. This is milkweed, essential to the butterfly's life cycle. Although a butterfly is nearly silent as it flies, you might be able to hear bees buzzing. Don't worry – the bees are much more interested in the flowers than you!

A nature center is often thought of as a wild, untouched place where nature is left to take its course. But what does "untouched" mean? People have been interacting with the landscape in Massachusetts for ten thousand years. Imagine the changes in this land over time: Native Americans may have burned the forests here to make it easier to hunt deer and other game. Others may have cleared the land to grow corn, beans, and squash. We know that colonial farmhouses were built nearby, and pigs were raised near this spot when it was a state hospital. Over thirty large brick buildings stood on this site up until the late 1990s. At times when people weren't using the land intensively, different species of plants and animals proliferated, and the most successful are the ones that still grow in our meadows and woods today.

With the perspective that a landscape is ever changing, leave aside the idea of an ideal wilderness and realize that people have an opportunity to choose how land can be used to benefit all living things. The butterfly garden is an excellent example. It provides habitat for pollinators, who perform an essential function in an ecosystem. Over 80% of plants need pollinators in order to produce fruits and seeds. By creating this habitat, we also provide a peaceful place where people can spend time surrounded by some of nature's most lovely and mysterious creatures.

2 Generations of Sugar Maples

Two generations of sugar maple trees are growing here. You are standing between two rows of maple trees. Each row has six trees, and each tree is about 30 feet away from the next one in the row. These trees tell a story about the relationship between people and nature that has been going on for thousands of years. The row on the right contains older trees, at least 50 years old and about 50 feet tall. The row on your left contains younger trees, planted in 2002 and about 25 feet tall. It's pretty unusual to find a straight line of anything in nature, so this is an obvious clue that humans have been here! The older trees lined one of the roads of the Boston State Hospital, a mental institution that occupied this land from 1892 to 1980.

What clues can we find that these old trees are still important to plants, animals, and people? Feel the bark at about waist height, all the way around the tree. What do you notice? If you feel a papery or leathery growth, you've found lichen. Lichens are a combination of plant and fungus that often grow on bark. The large branches above your head are popular spots for downy woodpeckers, who drill for insects and grubs. You may be able to hear one pecking. One of these trees has a tennis ball-sized hole where a northern flicker excavated a nesting spot. Gray squirrels also build their nests in these trees.

How are these trees important to people? If you're visiting on a hot day, you're probably appreciating their shade. Thousands of children and adult visitors take advantage of this shade each year. You might have felt a dime-sized hole in the tree where we've tapped it for sap. Each year, after collecting the sap, we plug the holes with properly sized sticks. Can you find a hole with a wooden plug? These sugar maples are named for their high sugar content. Boiling syrup from sap connects us to the land as well as an agricultural practice with a rich history in New England.



What will happen when these trees die, either from insect damage, disease, storms, or a combination of these factors? That's where the row of younger sugar maples comes in. They say that the best time to plant a tree is twenty years ago. Imagine how tall the younger trees will be twenty years from now. With this row of trees, we have chosen to provide habitat and enjoyment for the plants, animals, and people of the future.

3 Wetland Wonders

You're at the edge of a wetland that also borders an urban stream called Canterbury Brook. The stream flows into Stony Brook that merges with the Charles River, and eventually flows into Boston Harbor. For many years, people saw wetlands as wastelands and did whatever they could to replace them with dry land. In contrast to our other stops, there is little evidence here that the land has gone through dramatic changes. Historical maps and records offer the best clues.

Consider the value of wetlands. Listen for the "conk-a-REE!" of a red-winged blackbird. If you're visiting in late spring or early summer, these very vocal birds are nesting nearby. Many animals use wetlands as nurseries for their young. Many bird species use wetlands as rest stops during migration. At the end of the bench, feel for a cattail. They fill the wetlands and provide nesting areas for the red-winged blackbird.



In addition to providing excellent habitat for animals, wetlands also prevent streams and rivers from flooding by holding water like a sponge. Wetlands hold extra water during storms and when water levels are high. When water levels are low, wetlands slowly release water.

Wetlands have other uses. They filter pollutants such as sewage and heavy metals, which sometimes flow into urban streams during heavy rains. Wetlands also release plant material into streams, which helps feed fish and other aquatic life.

Considering the number of services that wetlands provide for people and animals, it seems strange that people spent about 50 years doing their best to get rid of these wetlands. For a time, farmers valued wetlands. They fed marsh hay to livestock, and then spread the nutrient-rich manure on their fields. However, by the late 1800s, increased development led to a desire for more dry land for roads, farms, and houses. For years, city and state workers as well as Boston State Hospital staff and patients labored by hand to dredge Canterbury Brook and fill in the wetland with soil and other materials. That included this wetland just beyond this bench. Although this created some dry land, it increased flooding in other parts of the property because the wetlands had been providing flood control. In addition, upstream development meant more stormwater flowing into the site. There was more water, and less capacity to handle it.

The flooding problems haven't been solved, but the wetland has reclaimed much of its habitat value. The services wetlands provide are recognized today, and laws at the local, state, and federal level protect wetlands from being filled in or developed. To learn how you can help wetlands, check out Mass Audubon's program called Shaping the Future of Your Community.

4 Home in a Tree

You have stopped in front of an unassuming stand of gray birch trees. You might be familiar with a related tree, the paper birch. What stories can these trees tell us about the land from which they have sprouted?

The gray birch has unusual and striking bark. The relatively smooth, silvery-gray bark is covered with dark, V-shaped furrows called 'chevrons' located at the bases of living or fallen branches.

Gray birch trees tell a story of regeneration and survival that is vital to the healing process that land goes through after being disturbed. Like other pioneer tree species, gray birches thrive on dry, infertile soils. They are among the first hardy saplings to take root on abandoned fields and burned areas. They grow fast and can survive on an exposed, difficult landscape.

You might find a tree sapling that is being "nursed" by this stand of trees. Older gray birches provide shade and shelter for young trees of other species that would never have thrived in such a disturbed landscape. Eventually, as the land heals, gray birches are overtaken by slower-growing, longer-lived trees such as white pine and white ash. This is how forests grow and change.

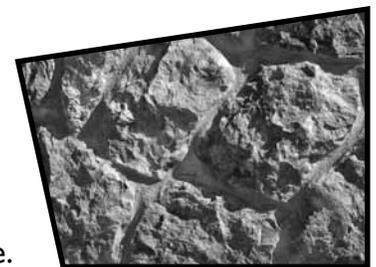
Like much of New England, the land at the Boston Nature Center has gone through tremendous change over the past 400 years. Land used for agriculture or buildings is now home to trees and plants that provide habitat for an abundance of animal life. Gray birches are rarely planted in landscapes because they only live about 20 years. Without tough, pioneer trees like gray birch, the forest before you might never have gotten a start!



5 Rockberry Rocks

Take a moment to feel these rocks. Although much of the surface feels rough, there are smooth stones that protrude, and fist-sized indentations where stones have fallen out. Imagine these smooth, rounded stones are the dried fruits in a British pudding, like a fruitcake. This is how the rock got its name: puddingstone. Some of the rounded stones and the surrounding material are lovely shades of light purple and pink, though much of the rock is gray and tan. This particular boulder is three to four feet in diameter.

This type of rock is the official rock of Massachusetts! English settlers in the 1600s, noticing the many rocky outcroppings in this vicinity, named it "Rockberry," which later became "Roxbury." The rock was dubbed "Roxbury puddingstone." It's a unique formation that forms the bedrock of not just Roxbury, but Mattapan, where the Boston Nature Center is located, as well as Dorchester, Jamaica Plain, and several other neighborhoods and towns. Many walls and building foundations in Boston were built using Roxbury puddingstone.



The history of the rock's formation goes back a long time. Six hundred million years ago, the spot you're standing on was at the bottom of an ocean. These fist-sized stones, which were made smooth by rivers or waves, sank to the bottom of this ocean. The ocean floor eventually hardened into sandstone, trapping the rounded stones.

There are other kinds of stone here that tell a more recent story. Each of the stone slabs are about eight inches thick and six feet across. Just like the puddingstone, this rock has smaller stones embedded in the surrounding material, but these stones are rough. The colors here are all beige and gray. Though most of the

rock feels rough and crumbly, the top surface is uniformly flat and feels like sandpaper. It was previously used as road or sidewalk pavement.

Many roads wound through the Boston State Hospital. Some are still in use, like the one that leads from Walk Hill Street to the community gardens. All the other roads on this property were removed in the late 1990s and reused as base material for our trails. These slabs were left here as a reminder of the land's history. Rock can

be fused together, smoothed, and used to transport people and cars. Those roads can be broken up, buried, and forgotten as plants and animals reclaim the meadow and forest.

6 A Pond Study

In a busy urban area, ponds provide a quiet place for contemplation, where we can slow the pace of city life and allow the songs of wetland birds to quiet our minds. Do ponds serve any other purpose? This one does. This pond was created to catch stormwater that runs over paved, non-porous surfaces. Parking lots, roads, sidewalks and even buildings all create stormwater runoff during a heavy rain.

Stormwater picks up pollutants and trash as it travels, and eventually deposits them into streams, rivers and oceans. To deal with this problem, stormwater at the Boston Nature Center is channeled into two ponds, which retain and filter the runoff water. Instead of running directly into Canterbury Brook, stormwater makes its way through one of nature's natural water filters: a pond. Not only do ponds reduce stormwater pollution, they also help with flood control.

Did you hear and feel gravel underfoot as you walked the trail? Our porous, unpaved trails and parking lot were also designed to absorb and slow the flow of water. Instead of running off of these surfaces, water is soaked up and filtered through the ground.

Like most ponds, the one before you provides habitat for plants and animals. Can you hear the "conk-a-REE!" of the red-winged blackbirds that nest in the cattail plants? Take a moment to press a cattail leaf between your fingers. The squishy, enlarged spaces that you feel are called "aerenchyma," (urr-EN-kuh-muh) and they help these plants to grow in a watery environment. Like scuba tanks, these air spaces send oxygen from the air to the plant's roots, which usually grow in saturated, oxygen-poor soil.

Ponds and wetlands add color and dimension to our landscapes, but their value goes beyond the aesthetic. New construction projects in Massachusetts are required to factor storm water management into the design. To learn more, visit Mass Audubon's website for a brochure on planting your own rain garden.



7 Energy at Work

These large solar panels represent our commitment to green energy. In front of you are four solar panels, also known as photovoltaic arrays or PV arrays, each one 10 feet across and 20 feet tall. The dark blue panels are raised on metal poles so that the bottom of each array is four feet off the ground, and each array is tilted at an angle toward the sun. We believe that solar panels can, and should be, located in many places, including roofs, yards, and nature centers to model responsible practices and contribute toward energy conservation.

To reduce the threat of climate change, we support measures that increase energy conservation and efficiency and policies that result in the responsible production of renewable energy resources. Mass Audubon leads by example statewide; we have cut our carbon emissions by more than 40% since 2003!

How does climate change happen? Normally, the sun's rays shine down and heat the earth, and the heat that is not absorbed is reflected back into space. Additional carbon dioxide emissions released into the atmosphere from the burning of fossil fuels act like a heat-trapping blanket, preventing the excess heat from escaping and causing a rise in global temperatures. Rapid increases in global temperatures will lead to rising sea levels and disruption of habitats for people and wildlife all over the world.

The ground-mounted solar panels in front of you, combined with photovoltaic shingles on the nature center and roof-mounted arrays on our garage, produce about 24 kilowatts of energy. We produce enough energy to power 12 medium-sized, energy-efficient houses, or 5 larger, less-efficient houses. Our solar panels produce about 20% of the energy we need, so we're not able to sell excess electricity back to the utility company. We will continue our efforts to produce all of our own electricity.



Want to lower your energy costs long-term? Mass Audubon has resources that can help you reduce your carbon emissions, save you money, and even increase your quality of life. Since we all need to use energy, we invite you to find ways to be a responsible manager of your part of the world.

8 Apples, Pears and More

This part of the trail winds through a meadow dotted with trees. On the left side are about ten young trees. Each tree is 10-15 feet tall and is planted 10-15 feet away from other trees. This is our urban orchard.

By planting fruit trees on this land, we are continuing an agricultural tradition that dates back at least 250 years. Isaac Williams, an English settler who served as a Revolutionary War captain, owned this land in the late 1700s and farmed it with his wife and nine children. The Williams orchard was located straight ahead, near the present location of the Mass Biologics lab.

English settlers planted the first apple trees on Beacon Hill nearly 400 years ago, so it's likely the history of fruit production in this area goes back before the Williams family.

The variety of apple grown here was the Roxbury russet apple. In Colonial times, most apples were used as hog feed or fermented to make hard cider. They were not eaten fresh or baked. The apples that grow from any random apple seed tend to be small, sour, and green, like the crab apples native to New England. On occasion, the genes in an apple tree combine to form something larger and tastier. By the mid-1600s, English colonists had discovered such a tasty combination: a larger apple with a skin that was green and russet, or brown. The apple was good for fresh eating, baking, and storing over the winter.

Though we can't know for sure, the Roxbury russet was likely grown in orchards of this area for hundreds of years, even after the Boston State Hospital was established on this land in 1897. Staff and patients worked the land and grew large amounts of food, for practical as well as therapeutic purposes. The hospital's 1910 annual report notes 91 barrels of apples, 23 bushels of pears, and 180 boxes of plums. Perhaps someday our orchard will rival those quantities!

9 Gardens and Gatherings

You're sitting in a wooden gazebo, a welcome spot on a hot summer day, especially after hours of hard work in the nearby community gardens. The gazebo is about 30 feet by 40 feet, and is a perfect spot for a large harvest celebration or a quiet chat between garden tasks. Many generations of farmers and gardeners working this land have sought a shady spot like this. There are composting toilets here that do not require water.

Like our orchard, the Clark-Cooper Community Gardens continue a tradition of several hundred years of agriculture on this land. In the mid-1600s, English colonists harvested timber and marsh hay in this area. For the next few hundred years, hard-working families grew vegetables and raised livestock. A team of oxen would have plowed the rocky soil, and a farmhand would have hauled water by hand from the nearby stream.

By the late 1800s, as the city of Boston grew, it was more likely that the families on this land were growing crops to sell, not to eat. The farmland was sold to the Boston State Hospital in 1897. Staff and residents raised cows, pigs, and more than 40 kinds of vegetables. This work provided food for the thousands of people who lived here in the early 1900s. Food scraps were fed to the pigs, an example of sustainable agriculture. For hospital residents, the natural world was a place of personal meaning and, possibly, healing.

For the 250 families who grow food in the community gardens today, the connections between healthy soil and healthy people are as important now as they ever were. In this community garden, people use organic methods, minimize their use of water, and look out for one another. The gardens offer food, friendship, and productive work for people of diverse ethnicities, ages, and incomes.

The most obvious sounds here are the roar of traffic on American Legion Highway and the birds calling from the mature trees nearby. Listen harder, though, and you might hear a gardener calling hello to a friend a few plots over, a rototiller's engine rumbling along, or the repeated chop-chop-chop of a hoe in the soil. You may hear the spray of a hose, unless it's the middle of the day, when the water is turned off for conservation.

In the springtime, you might smell manure being mixed in with soil to enrich it. This rich brown soil dominates in spring, when tiny shoots begin to come up in neat rows. In the summer, it's a carpet of green, with different textures: thick oblong collard greens, winding tendrils of bean vines, or smooth globes of tomatoes and eggplants. In addition to the garden plots, each 20 feet by 20 feet, there is an elevated garden stands just inside the fence. This raised bed makes it possible for people with physical limitations to experience the joy of growing food.



10 A Walk over the Wet Meadow

As we learned in a previous stop, people haven't always valued wetlands. Until the 1980s, the wet meadow around you was mostly dry. Once more, we see the land's resilience in the face of change. This is now one of the most pleasant spots at the Boston Nature Center. Here you can listen for the sharp whistle of the Baltimore oriole, feel the warm breeze on your face, or gaze out at the waving cattails. Stop and rest as long as you would like.

11 Quaking Aspens and Eastern Cottonwoods

You've reached another spot that has undergone swift change. Like the gray birches we talked about on a previous trail, the trees here give us a clue that this land was recently used by humans – in this case, for agriculture. The tall, thin cottonwoods and quaking aspens reach more than 60 feet in height, with their triangular leaves waving back and forth in the breeze. These trees are among the first to colonize disturbed areas, and just as the gray birches do, they protect seedlings of slower-growing trees such as pine and ash. There are four trees in a row here. Reach out and feel the bark. Quaking aspen bark is grayish-white, thin and peeling, and rougher toward the base. Cottonwood bark is silvery-white and smooth or lightly furrowed when young, as these trees are.

12 Marvels of the Meadow

Depending on the time of day, this bench might be shaded by an oak tree. You're in the middle of a sunny and relatively uncommon habitat in Massachusetts: a meadow. Except for a few scattered trees, the plants here are grasses and flowers that grow up to six feet tall.

Why are meadows special? The diversity of plants is one reason. A large number of plants thrive in full sun, including the grasses that make up the base layer of this habitat. You may hear bees buzzing around clusters of pink and white clover flowers. The most visible plant in the summer is tansy, which has a pea-sized yellow flower and a tangy scent when crushed. In the fall, yellow goldenrod is a showy meadow plant. Its tiny flowers grow on finger-like clusters, and are much loved by many insects.

Another unique feature of meadows is one that the resident hawks take advantage of. The meadow's openness makes it relatively easy to spot mice, voles, and rabbits that scurry through the grass.

Can you guess why there are so few meadows left? Most of our state's undeveloped land is forest. In the past 400 years, much of our state was deforested for farming. Abandoned farms slowly become meadows, then forests, as trees become the dominant plant. We mow these meadows every four years or so to ensure that the Boston Nature Center has a diverse mix of forest, wetland, and meadow habitats.

State hospital buildings occupied this site until 2001. Following demolition, some of the area was replanted with grasses and flowering plants. Many species were not planted, but have successfully colonized this spot. These plants are the hardy pioneers; the first to take root when given the chance in a construction site or vacant lot. You might describe this land as "disturbed", but we know that it's more accurate to say "recently disturbed" when you consider the history of the landscape. This land is truly resilient, and its current state reflects our values for people and wildlife.

Listen for birds calling, perched on nearby trees or swooping overhead in search of insects. Northern mockingbirds and tree swallows often inhabit the meadow. Reach out to the plants around the bench, moving slowly so as not to surprise any bees visiting flowers. Feel the different shapes and textures of leaves, flowers, and seeds. Break off part of a plant and crush it between your fingers. How does it smell? Sit and enjoy the sounds and smells of the meadow.



You have completed the sensory trail. To exit the Boston Nature Center, turn to the right and follow the gravel path to the large, flat stone path of the entrance. The Nature Center is to the left and the parking lot is to the right.

We hope you have enjoyed visiting this urban wildlife sanctuary. We want to thank you for taking the time to experience this trail and hope you enjoyed learning more about the sanctuary, and how this landscape has been shaped over time by natural and human activities.

Please give us your feedback on how this trail worked for you. To provide feedback now, please speak with one of our staff or volunteers. To provide feedback at home, you may take a questionnaire and return it at your convenience or visit us at www.massaudubon.org/boston to complete the questionnaire online.

If you borrowed any of our publications, binoculars, or adaptive equipment, please return these items to the office before you leave. Thank you for visiting the Boston Nature Center. Please come back again to experience the trail in another season.

THANK YOU

Massachusetts Department of Conservation
and Recreation - Recreational Trail Program and
Universal Access Program
Perkins School - Talking & Braille Book Library
Jerry Berrier

The many volunteers who continuously restore
our trails

This project is made possible by a grant from the
U.S. Institute of Museum and Library Services.



Boston Nature Center

500 Walk Hill Street
Mattapan, MA 02126
617-983-8500
bnc@massaudubon.org

Nature Center

Monday through Friday, 9am to 5pm, Saturday, Sunday, and
Monday holidays, 10am to 4pm

Trails

Open daily dawn to dusk.

Mass Audubon works to protect the nature of Massachusetts for people and wildlife. Together with more than 100,000 members, we care for 35,000 acres of conservation land, provide school, camp, and other educational programs for 225,000 children and adults annually, and advocate for sound environmental policies at local, state, and federal levels. Founded in 1896 by two inspirational women who were committed to the protection of birds, Mass Audubon has grown to become a powerful force for conservation in New England. Today we are respected for our sound science, successful advocacy, and innovative approaches to connecting people and nature. Each year, our statewide network of wildlife sanctuaries welcomes nearly half a million visitors of all ages, abilities, and backgrounds and serves as the base for our work. To support these important efforts, call 800-AUDUBON (800-283-8266) or visit www.massaudubon.org.



