



WHELAN CONSERVATION AREA

Sandplain Grassland Walking Trail



Barnstable
Conservation
Commission

Little Bluestem

Sandplain Grassland Walking Trail

STATIONS 1-15

1. A CHANGING LANDSCAPE

Where Human and Natural History Meet - The 12.91 acre Whelan Conservation Area was acquired by the town of Barnstable in 1985. Once extensively grazed, this area, like much of Marstons Mills and the Cape in general, has at least partially succeeded back to a young, second growth woodland. Well into the early years of this century, agriculture, grazing and recurrent, regular wildfires historically helped keep much of Cape Cod an open, wind-swept grassland or shrubby heath.

For two hundred years, a growing population's need for timber in ship building and house construction, salt works and even boot black during the Civil War rendered Cape Cod's landscape into, as Henry Thoreau described it, "a torn and threadbare garment". Then, as farmland was abandoned during and after the Great Depression, the scraggly Cape forest began a slow but steady reclamation project. This natural succession has changed the face of Cape Cod, with pitch pines and red cedar taking over the open sandplain grasslands and the oaks succeeding the coniferous pioneers.

The Sandplain Grassland Trail is a half mile loop of easy walking through a changing landscape which reflects the ongoing effects of both natural succession and human habitation. It is a stitchwork of open fields, grassland, orchards and young woodland exhibiting a mix of native and introduced plant species. It may surprise the walker to discover which plants are indigenous to the Cape and which have been introduced, either purposely or accidentally, by European settlers since the seventeenth century.

2. SPRING EPHEMERALS

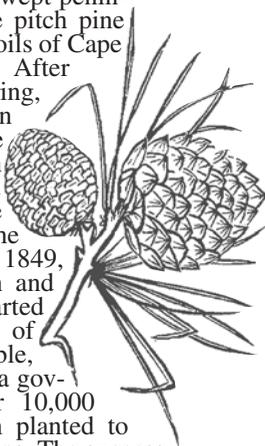
Before the overhead leaves fully expand to block the sunlight, the springtime forest floor comes alive with a short-lived but sprightly community of herbaceous wildflowers. The most common of these include Maystar (*Trientalis borealis*) and Wild lily-of-the-valley or Canada mayflower (*Maianthemum canadense*). Along with wild sarsaparilla (*Aralia nudicaulis*), sessile bellwort (*Uvularia sessilifolia*) and pink moccasin flower (*Cypripedium acaule*), these "spring ephemerals" bloom within a relatively short period from mid May to early June.

The Canada mayflower carpets moist undisturbed forest floors with its solitary, oval-shaped leaf and short spike of crystalline white flowers. The maystar blossom is starry indeed, with seven to nine sharply-pointed petals held by a slender stem above a delicate whorl of dark green leaves. All flower quickly and noticeably to attract pollinators, then fade away to fruit as the early summer warmth closes the forest canopy above.

3. Pitch Pine

The "Anchor" of Cape Cod - The most important pioneer conifer of Cape woodlands is the pitch pine

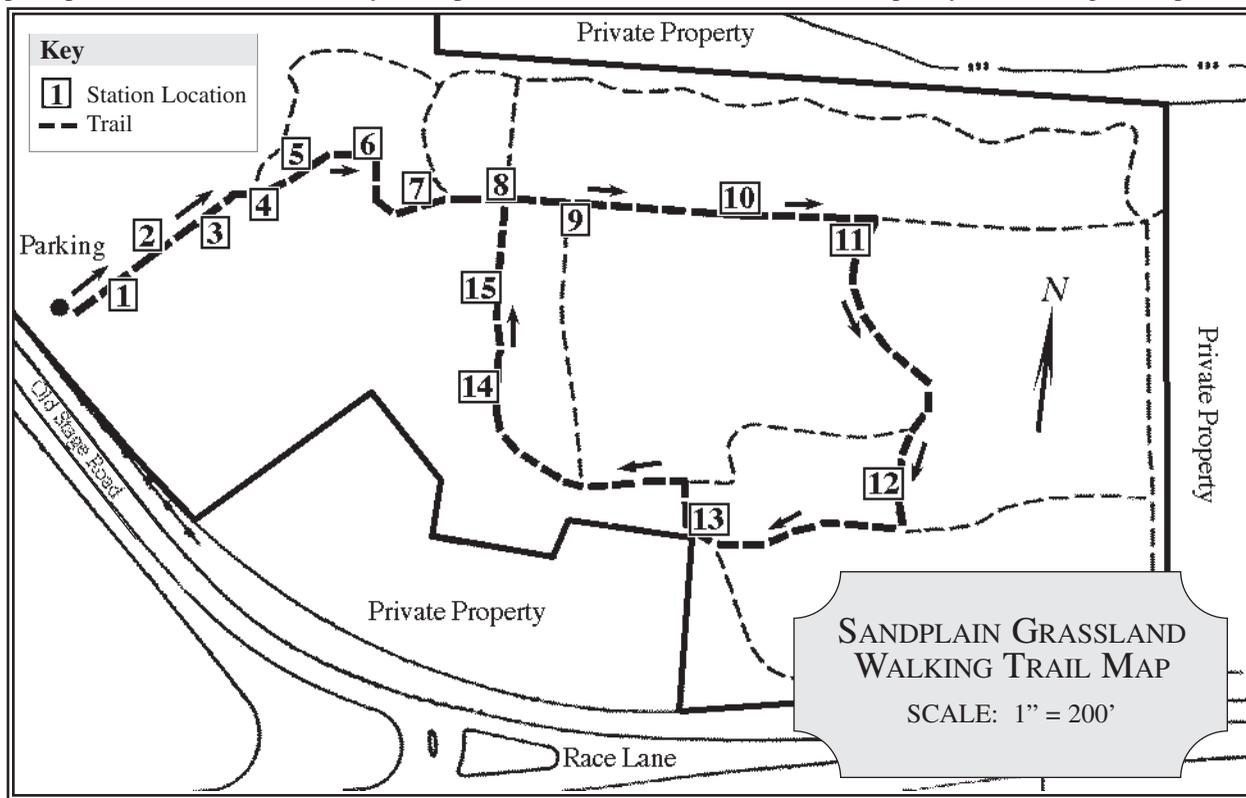
(*Pinus rigida*). This *serotinous* three-needled pine is fire dependent and specially adapted to the harsh growing conditions of this wind-swept peninsula. Despite popular belief, the pitch pine grew on the sandy impoverished soils of Cape Cod long before white settlement. After two hundred years of land clearing, the thin “garment” of vegetation and forest duff which anchored the sandy soils was rent, resulting in migration of dunes and wind blown sand into the very village streets of Cape Cod towns. By the time Thoreau traveled the Cape in 1849, the first attempts to halt erosion and sand migration had already started with the planting of large tracts of pitch pine in the towns of Barnstable, Yarmouth and Dennis. By 1884, a government report stated that over 10,000 acres of waste ground had been planted to pitch pine in three lower Cape towns. The success of these programs is evident in the large number of pitch pine barrens still extant today on Cape Cod.



southern United States. The aromatic leaves of pignut hickory are compound, with five to seven leaflets arranged along the central axis. The fruit is a hard nutlet covered in a tough, hide-like husk which splits open along four seams or valves after dropping to the ground in late summer. The wood is tough, heavy and shock-resistant and was used during the early years of white settlement for axe handles, wagon wheel hubs and textile looms. Hickory trees are also tenacious survivors in natural succession, being able to push through the dense shade of other trees and, once established, seem to form colonies or groves to the exclusion of other hardwoods. Though the nut meat is somewhat bitter, it is an important mast producer for wildlife including deer, wild turkey and grouse.

5. TRAILING ARBUTUS-SPRING HARBINGER

Even before the spring ephemerals, the trailing arbutus or mayflower puts forth its fragrant pink or white flowers even as the last snows of winter melt away. Actually a creeping evergreen shrub, the mayflower was once over-collected for spring garlands and wild flower gardens; up to a few years ago it was sold from temporary stands along the Cape Cod



4. PIGNUT HICKORY GROVE

The wiry-branched tree in the small grove before you is pignut hickory (*Carya glabra*), an uncommon Cape Cod tree more at home in the richer soils of the

Canal. Today with the Cape woodland more plentiful than at any time since the 1700's, the mayflower is again a locally common but beautiful harbinger of the flowering season. It is the state flower of Massachusetts. (See flip side for illustration)

6. LEUCOTHOË-SWITCH-IVY

The Whelan Conservation Area supports an array of introduced or non-native plant species which are the calling cards of former human habitation. Among the most exotic and noticeable is the large, showy evergreen shrub switch-ivy (*Leucothoë catesbaei*), widely planted throughout the Whelan Conservation Area. A native of the southern United States, this plant, like all members of the Heath Family, enjoys acidic, well-drained soils in partial shade. The long drooping racemes of white flowers begin to form in winter, resembling in fragrance and form the lily-of-the-valley. Look for other introduced plants which are quite at home here growing with the *natives*; they are mute evidence of the human history of the property.

7. AMERICAN HOLLY

The American Holly (*Ilex opaca*) is Cape Cod's only broad leaved native evergreen. A common floodplain tree of the southern U.S., American holly reaches the northern limit of its range just south of Boston. While it is local and uncommon through much of the Cape, here in Marstons Mills holly becomes a sub-dominant understory species in moist woodlands, usually growing beneath the higher canopy branches of red maple, white and pitch pine. The remnants of the oldest holly forest on the Cape are found just west of here near Route 149. It was from this holly population that Winifred Wheeler, the Commonwealth's first commissioner of agriculture, procured scions for the Ashumet Holly Audubon Sanctuary in Falmouth.

American holly has for centuries been associated with the Christmas holidays, with its brilliant scarlet berries and thorny evergreen leaves commonly used to adorn holiday wreaths and decorations. This festive association has led to over-collection and fractured limbs, cut bark and access paths for boring insects and fungal blights. Please enjoy the Whelan Conservation Area hollies and refrain from collecting the distinctive leaves and berries.

8. SANDPLAIN GRASSLANDS

Cape Cod Prairies - Sandplain grasslands were once much more extensive on Cape Cod when the business of the typical Cape Codder involved land use such as agriculture and grazing. In the open areas cleared in the first two centuries of white settlement, native bunchgrasses colonized and established what are in effect Cape Cod prairies. In fact, the dominant grass in this field is little bluestem (*Schizacharium scoparium*), the very same grass which the pioneers in their Conestoga wagons ("the sod-busters") met with in the Kansas mid-grass prairie during the western expansion of the 1800's. On Cape Cod, little bluestem is the indicator species of a habitat which is fast being lost under the twin threats of development and forest succession.

Grasses, unlike most plants, can regenerate from their base via buds called "tillers". If a grass plant is mowed, burned or cropped, it regenerates from its base even though the leading shoot is gone. Bunch grasses such as the little bluestem are particularly well



adapted to regrowth after fires and grazing. Now that much of the Cape is suburban, wildfires and grazing are artifacts of the past, meaning that large tracts of sandplain grasslands may also soon disappear under trees or buildings.

Natural succession is at work here at the Whelan Conservation Area. Notice the march of red and ground cedars, bayberry and pitch pines into the once open grassland. Were it not for the efforts of the town resource management professionals, these pioneers would soon out compete the bunch grasses for critical sunlight and the sandplain ecosystem would pass into history.

9. Highbush Blueberry

Blueberries are as much a part of wild fruit gathering on the Cape as cranberries or beach plums. Though typically found in peaty bogs and red maple swamps, highbush blueberry (*Vaccinium corymbosum*; *V. atrococcum*) can grow wherever the soils are acidic and not too dry. In some bogs, highbush blueberry can grow to fifteen feet with a stem diameter of over six inches. Ring counts have indicated that this plant can live for a very long time, well over a century if left undisturbed. The highbush blueberry ripens in early July just after the lowbush variety. While there is no accounting for taste, many wild fruit gatherers swear that the highbush is more juicy but less sweet than the lowbush blue. There is no question, however, that the highbush is easier on the back to pick!

10. Black Locust/Scotch Pine

A Naturalized Duo - Two common Cape trees which are not indigenous to this region are found in the Whelan Conservation Area woodlands: the black locust (*Robinia pseudo-acacia*) and Scotch pine (*Pinus sylvestris*). Both are naturalized, meaning they have been a part of the Cape's landscape for so long that they no longer need human cultivation and proliferate generally in the sandy, nutrient poor Cape soils.

Scotch pine is native throughout Eurasia, from Scotland to Siberia, occupying a range larger than any pine species in the world. This adaptability to a wide range of habitats led foresters in the early years of this century to plant scotch pine in plantations as an erosion control agent and to quickly establish a cover crop in stripped land. Superficially resembling the native pitch pine, scotch pine has needles in bunches of two and a distinctive orange bark on the upper half of the trunk and higher branches.

Black locust was discovered by English settlers in 1607 near Jamestown, Virginia and was immediately extolled as a superior, rot-resistant wood for a variety of uses such as fence posts, timber supports and even ship planking nails. Indeed, black locust wood will not rot or succumb to termite infestation even in direct contact with the ground. Word of its admirable longevity came north with the pilgrim settlements in Plymouth and Barnstable Counties and soon black locust was cultivated widely throughout southern New England. Today, black locust is a common invader of dry, sandy soils throughout the Cape but is eventually

shaded out by other hardwoods. Look for its beautiful wisteria-like racemes of white flowers in early June and the long flat seed pods later in the summer.

11. WHITE PINE (*Pinus strobus*)

The King's Pine - At one time the white pine was New England's grandest timber tree, with some ancient specimens rising over two hundred feet in height with trunk diameters of ten feet or more. Though trees of this stature probably never grew on the impoverished soils of Cape Cod, William Bradford and his fellow pilgrims were still astounded at the great grove-like forests, including white pines, at Provincetown when they landed in 1620. By the time of the American Revolution, the tall straight trunks of white pine were so valued by the English monarchy that any white pine greater than 24 inches in diameter was given the "King's Broad Arrow", a blaze burned on to the trunk which forbade any harvesting but by the colonial government to provide masts for the King's navy. This prohibition engendered more outrage than the tea tax, and many a rebellious colonist under cover of disguise and darkness would cut down any unfortunate white pine which bore the King's blaze. The first flag of the New England revolutionary forces displayed the emblem of this noble giant.

White pine, the only five needled species, is relatively common in Marstons Mills but diminishes in number and size as the soils become more sandy on the lower Cape. Many white pine seedlings cover the floor of the woods, waiting for their chance to take over if the canopy of red maple, pitch pine or black oak is removed.

12. TUPELO (*Nyssa sylvatica*)

The "Beetle-bung" tree - Named by the Cree Indians *eto opelwv* meaning "tree swamp", the tupelo or black gum is a rugged appearing tree usually found ringing an old bog, river or salt marsh. Its place here on the Whelan Conservation Area, which lacks true wetlands, may be as a result of the somewhat "tight" sandy loam found in some glacial outwash deposits of the mid-Cape. In autumn, its deep blood-red leaves are arrayed in horizontal ranks of branches growing straight out from the trunk.

Tupelo wood is legendary for its hardness and was practically impossible to split even with the sharpest ax. It had some commercial use however, in the manufacture of industrial rollers, chopping blocks and factory flooring. On Nantucket and Martha's Vineyard it's still known as *beetle bung*; the tough wood was made into wooden mallets known as "beetles" and stoppers called "bung", which were pounded into holes in casks of whale oil.

13. HUMAN ALTERED VS.

NATURAL ENVIRONMENT

After emerging from the woodland, two worlds meet; the managed world of cultivation and the native community in the sandplain grassland. Compare the manicured lawn with the native bunchgrass field. Which has greater diversity of species? Growing

within an old orchard of crab apple and cherry, ornamental “escapes” such as myrtle and ground ivy cover the ground. This meeting of two communities is called an *ecotone* and provides edge habitat for many birds such as bluebirds, song sparrows and Carolina wrens. The open sandplain area provides habitat for other bird species such as meadowlarks, bobwhite quail and tree swallows.

14. RED CEDAR

Fragrant Pioneer - The slow but steady march of Eastern red cedar (*Juniperus virginiana*) into the sandplain here indicates that this field was probably used formerly as pasture land for grazing and not as a plowed cultivated farmland. All over the Cape, abandoned farmland succeeded to the graceful spires of red cedar and in some old pastures a veritable forest of red cedars crowds together. Apple growers do not look kindly upon any encroaching red cedar near their orchards, as it is the alternate host to the destructive cedar apple rust (*Gymnosporangium juniperus*) which can decimate apple fruit. Look for its strange, orange-tentacled fruiting bodies after a spring rain.

As other trees such as black and scarlet oak, pitch and white pine become established, the red cedar is eventually shaded out. Many dead and dying red cedars can be seen along this trail just inside the edge of the invading woodland. Eastern red cedar is actually a juniper; there are no native cedars in New England. The red heart wood, saturated with aromatic oils, was once used in the manufacture of pencils and cedar chests.

15. GROUND JUNIPER OR OLD FIELD CEDAR

The sprawling cousin of red cedar is ground juniper (*Juniperus communis* variety *depressa*). Commonly used as an ornamental planting for shrub borders, true native ground juniper is rare on the Cape, occurring naturally only in the town of Barnstable (Svenson and Pyle, 1979). Like red cedar, ground juniper is an old field pioneer and with low, spreading growth form, provides habitat for a variety of ground-feeding birds and small mammals. The blue berries are actually modified cones which have a pungent flavor and the scent of gin. They're a favorite of the shrub's namesake, the cedar waxwing. ❀

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Trailing Arbutus

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