



Natural Heritage Hikes

Moosehorn National Wildlife Refuge

Edmunds Division Wilderness Trail - 3.5 miles, one way, easy

The Moosehorn National Wildlife Refuge was established in 1937 by Franklin D. Roosevelt, primarily to conserve habitat for American woodcock, a migratory waterfowl species that prefers upland thickets, young forests and old fields. In 1964, Congress passed the Wilderness Act to allow the designation of ‘Wilderness Areas’ on public land and in 1970, Congress designated a 2,782 acre portion of the Edmunds Division of the Moosehorn National Wildlife Refuge as a ‘Wilderness Area’. In the Wilderness Act of 1964, Wilderness areas are recognized “an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain.” In this Heritage Hike, we will explore the common forest types of interior Washington County within the Moosehorn Wildlife Refuge, Edmunds division Wilderness Area, and the natural and human processes that have shaped this forest.

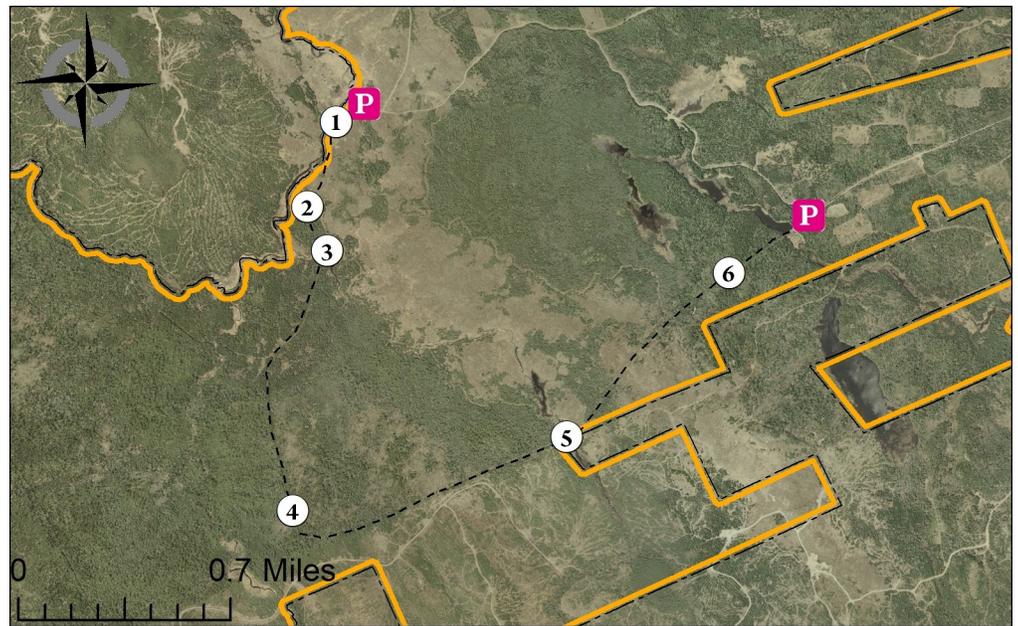
Getting There

Access to refuge hiking trails is via dirt roads across from Cobscook Bay State Park.

Please visit mainetrailfinder.org for more information.



Downy goldenrod (*Solidago puberula*), a common species of dry, open sites



① Fire origin forest stands - 67.21946, 44.84465

The after-effects of a 1985 wildfire are evident at the trailhead.

In Maine, we can typically expect the month of April to be a prolonged mud season as snowmelt and heavy rains keep river and stream levels high. Plants depend on abundant moisture at this time, as they are shaking off winter dormancy and are preparing to leaf out. In April of 1985, abnormally warm, dry conditions in interior Washington County raised red flags. The spruce – budworm tree pest had impacted this area only several years before, killing most balsam fir trees and many spruce, and leading to considerable buildup of woody debris. At the end of the month, an arsonist lit a blaze that ultimately burned over 1,000 acres of the Edmunds Division of the Wildlife Refuge, including about 500 acres of spruce–fir forest within the designated Wilderness Area. The ecological effects of this fire are still very present at the



Even-aged spruce fir forest in an area that was once an open field.

northern trailhead. The forest here is currently dominated by young birch, aspen and pines. Goldenrods, which are shade intolerant and which would have been scarce in the forest before the fire, are very abundant in this area. Habitat here is now more suitable for wildlife species that prefer young forests, such as Magnolia Warblers, Chestnut-sided warblers, Yellow warblers, and American Woodcock.

② **Field to forest** - *67.22149, 44.84061*

The first spruce–fir forest encountered is growing in what was once an old field.

Prior to its designation as a wildlife refuge, the Edmunds division had a mixed land use history which included logging and agricultural use. This portion of the Wilderness Area was an open field in 1940. Little evidence of this past land use remains—today this site is occupied by an even-aged spruce fir forest. Mosses including splendid feathermoss (*Hylocomium splendens*) and red-stemmed feathermoss (*Pleurozium schreberi*) carpet the understory. Over time, these moss species will help develop the deep organic soil layers that are typical of mature spruce-fir forests.



Ripe choke cherry fruits (above) and in bear scat (below).

③ **Wild cherries** - *67.22025, 44.83848*

Animals have no trouble choking these down.

An impoundment, created to enhance waterfowl habitat 30-40 years ago is now rife (and ripe) with choke-cherries. Choke cherry is a tall shrub that grows in a wide variety of habitats, and often occurs in recently disturbed areas, such as roadsides or old fields. Choke cherries are rather astringent when eaten fresh, but can be mashed and dried into a fruit leather. Recipes developed by some indigenous groups would combine choke cherries with meats to make pemmican, a nutritious paste of pounded meat, fat and berries. Choke cherries are an important wildlife food, and are quickly eaten by birds and mammals following the first frost. In late summer, bear scat can be full of choke cherries!

④ **Old forest** - *67.22294, 44.826093*

Late successional forest is a management target within the Edmunds Wilderness Area.

In the interior of the Down East region, areas of old forest are scarce. Prior to European settlement, the region was dominated by old spruce-fir and hardwood forests. This ‘Acadian’ forest burned infrequently, and primary natural disturbances included periodic budworm epidemics and wind/storm events. In the 19th century, heavy logging, human origin fires, and land conversion dramatically altered the forested landscape— the establishment of the Moosehorn National Wildlife Refuge was in part in response to some of these factors. Today, the lands surrounding Moosehorn National Wildlife Refuge are



Very old red spruce will develop 'buttressed' tree roots for stability.



Large rotting logs are an important structural element of mature forests.



An extensive open wet meadow is the result of beaver activity following an arson fire in 1985.

mostly privately managed timberlands. Privately managed forests are typically on a 30– 60 year rotation and older forests (>150 years) are not allowed to develop. Managers at Moosehorn National Wildlife Refuge have identified the importance of the wildlife refuge in providing old forest habitat in the region. The heart of the Edmunds Wilderness Area has not been managed for timber for many years and is beginning to develop many old forest characteristics, including very large live trees, large diameter fallen woody material, and large standing dead trees that provide cavity nesting habitat. Several areas within this mixed spruce– hardwood forest have no evidence of past timber harvesting, and contain red spruce over 150 years old. These are among the oldest spruce trees known from this region of the state.

Very old red spruce can be identified in a couple of ways, in addition to large size. These older trees will develop buttressed roots to help with stability. Red spruce has very shallow roots, and buttressing helps a very large tree to remain wind-firm. Additionally, older spruces will have no lower branches, or evidence of branch scars on the lower third of the trunk. The lower branches on these trees will have senesced many years ago, and bark will have grown over the branch scars.

The American marten is a member of the weasel family that requires old spruce– fir forest. Marten prefer complex forest structure, such as cavity trees or large downed logs for nesting and denning sites, as well as to provide cover to find their prey, which include rodents, birds and insects.

⑤ **Wet Meadows-** -67.20442, 44.82934

Large open wetlands in the Wilderness area are the work of two ecosystem transformers: humans and beavers.

Beginning in the 1950s, the USFWS began to actively create open wetlands and ponds for waterfowl habitat, including at the Moosehorn National Wildlife Refuge. At this location, an expansive freshwater wetland may not have been part of the original plan. Here, beavers have taken advantage of a culvert in an old roadbed to expand their territory into an area that was impacted by the 1985 arson fire. Beavers are well known as habitat transformers. While plugging culverts can be a nuisance, they serve a vital ecological function in natural settings through the creation of a variety of aquatic wetland habitats that benefit a variety of other wildlife species, including cold-water fish such as trout. While beaver dams in culverts may prevent fish passage, beaver dams on natural, free flowing streams are not an impediment to brook trout, which co-evolved with beavers.

⑥ **Bigtooth aspen** - -67.19323, 44.83699

Popple for partridge.

A large stand of Bigtooth aspen is on the east side of the wetland. Bigtooth aspen is one of three species of poplar in Maine sometimes referred to as



Mature stand of bigtooth aspen, an important food source for ruffed grouse.

‘popple’ (the other two are quaking aspen and balsam poplar). Like paper birch, aspen are early colonizers following natural or human disturbance. Bigtooth aspen grow quickly, but are not long lived. Aspen have considerable value for wildlife, and typically account for a disproportionate number of cavity trees in hardwood forests in part because of their soft wood. Bigtooth aspen is also an important food source for ruffed grouse, which feed on flowers and buds.

While Bigtooth aspen is dominant in the canopy, spruce and fir are regenerating in the understory. Over time, in the absence of fire or other disturbance this site will transition to spruce-fir forest.

Natural Heritage Hikes is a project of the [Maine Natural Areas Program](#) in partnership with the [Maine Trail Finder](#) website.

For more Natural Heritage Hikes, please visit www.mainetrailfinder.com.

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Map sources: Maine Office of GIS, Esri