

Frenchman Bay Forest Hancock

Site Visit Summary Maine Natural Areas Program, 2019

MNAP Ecologist Kristen Puryear and Field Assistant Josie Griffin walked the Frenchman Bay Forest parcel on August 21, 2019. The primary focus of the survey was to 1) conduct a functions and values assessment of the wetlands on the property, 2) identify any potential restoration or enhancement opportunities associated with the parcel, and 3) conduct a rapid natural resource and rare plant survey of the property.



Site Overview

The Frenchman Bay Forest parcel is approximately 1430 acres, located in a large block of undeveloped forest land. The parcel is surrounded by forested uplands and several perennial stream systems and has a northern boundary along the Downeast Sunrise recreational trail. The southern boundary has an entry point from Rt. 182 that leads to a network of logging roads through the property. Much of the property has been harvested over the years, to include areas within forested wetlands. Skid trails, log landings, wetland crossings, and the main logging roads all remain.

Wetland and aquatic features on the property include NWI-mapped forested, scrub-shrub, and emergent wetlands, an extensive network of beaver dams and associated open water areas, and two perennial streams that drain southeast into Taunton Bay (Table 1). The property is also part of a large undeveloped block (Beginning with Habitat) and is located just outside the Taunton Bay Focus Area of Statewide Ecological Significance. Deer Wintering Area has been mapped by the Maine Department of Inland Fisheries and Wildlife (MDIFW) on the eastern, upland, side of the parcel.

Table 1: Wetland acres

Wetland type	Acres*
Forested (PFO)	73.9
Scrub-shrub (PSS)	19.5
Emergent (PEM)	50.7
Unconsolidated Bottom (PUB)	2.2
Total	146.3

*Wetlands determined by NWI and adjusted by field survey

A formal wetland delineation was not completed on the parcel, however any additional wetlands not mapped by NWI were documented. In addition, changes to NWI-mapped wetland types were updated. All changes are reflected in the attached map and Table 1.

Wildlife observations and sign recorded on the property during the site visit include black bear, moose, deer, coyote, beaver, snowshoe hare, wood frog, green frog, garter snake, eastern

newt, cedar waxwing, least sandpiper, belted kingfisher, downy woodpecker, wild turkey, ruffed grouse, and common yellowthroat.

Uplands

Most of the uplands on the property have been harvested somewhat heavily over the past several years. As a result the upland forests are relatively young or in a stage of early succession. Dominant tree species are red maple, balsam fir, yellow birch, gray birch, and quaking aspen. Understory herbs typically include bunchberry (*Cornus canadensis*), bush honeysuckle (*Diervilla lonicera*), and starflower (*Trientalis borealis*). Because of the size of the parcel and the more recent disturbance history of the uplands, most of the survey effort was focused on the wetlands on the property.

The logging roads, old log landings, and other associated clearings remain. The cleared, roadside areas that remain open are now grown into flowering herbs and graminoids (and ubiquitous rabbit-foot clover, *Trifolium arvense*) that at the time of the site visit were abundant with insect, small mammal, and amphibian activity. Based on these limited observations it appears that these early successional fields and meadows currently provide excellent native forage for pollinating insects and cover and habitat for vertebrates.



Forested Wetlands

There are two primary areas of forested wetland on the parcel that form contiguous stands of forested area (as opposed to peripheral to streams or beaver impoundments). The largest is at the southern end of the parcel on either side of the primary logging road. Red maple is the dominant cover type, with signs of historic harvest present – young trees and sprouting stumps. Gray birch and balsam fir are also present, with abundant Sphagnum moss on the ground. Cinnamon fern (*Osmunda cinnamomea*), sensitive fern (*Onoclea sensibilis*), and interrupted fern (*Osmunda claytoniana*) are common herbs, though the herb cover is light. Within the stand there are thick pockets of young (15-20 year old) spruce and fir regeneration as well.

Other portions of the property that have been mapped as forested wetland by NWI have been transformed to emergent or open-water wetlands through years of beaver activity. These are recategorized to reflect current conditions (Table 1).

Table 2: Functions and values of the forested wetlands on the Frenchman Bay Forest project area, Hancock.

Ecological Functions / Values	Rationale*
Groundwater Recharge/Discharge	Groundwater discharged into wetland
Floodflow Alteration	<i>High Value:</i> Wetland can retain water for long periods, absorb water from heavy rain events, and overland flow.
Fish and Shellfish Habitat	N/A
Sediment/Toxicant Retention	Basins and dense vegetation capable of trapping sediment
Nutrient Removal	Slow moving water, vegetation, hold potential for trapping sediment, removing and/or converting nutrients.
Production Export	<i>High Value:</i> Wildlife food sources present in wetland, conversion to higher trophic levels
Sediment/Shoreline Stabilization	N/A
Wildlife Habitat	<i>High Value:</i> Connected to other wetland types and uplands; contains breeding habitat for reptiles, amphibians and invertebrates; Part of large undeveloped block.
Recreation	Wildlife observation, hunting (if permitted)
Educational/Scientific Value	N/A
Uniqueness/Heritage	N/A
Visual Quality/Aesthetics	Contrasts with surrounding land use, plants turn bright colors in fall.
Endangered Species Habitat	None identified
MNAP Natural Community Type	Red Maple Sensitive Fern Swamp

*Principle functions and values are indicated as “High Value”

Palustrine Scrub-shrub Wetlands

As with the forested wetlands, there are pieces of scrub-shrub wetland throughout the parcel that are associated with the edges of beaver impoundments, flooded stream corridors, and in general with the complex of wetland types that result from beaver activity. The largest intact areas of scrub-shrub wetland are described here.

In the southern end of the parcel a core of scrub-shrub wetland is located within a surrounding area of red maple swamp. Here the organic soils support a range of peatland-associated shrubs, primarily rhodora (*Rhododendron canadense*), mountain holly (*Ilex mucronata*), sheep

laurel (*Kalmia angustifolia*), and withe-rod (*Viburnum nudum*). Other associated species include leatherleaf (*Chamaedaphne calyculata*) and lowbush blueberry (*Vaccinium angustifolium*). Field observations (cut stumps) and images from 15-year old aerial photos indicate that timber was removed from this area of wetland. Notably this location was mapped by NWI as “forested” but currently it is scrub-shrub and may remain in that state for some time due to the heavy shrub regeneration and difficult growing conditions.



Table 3: Functions and values of the scrub-shrub wetlands on the Frenchman Bay Forest project area, Hancock.

Ecological Functions / Values	Rationale*
Groundwater Recharge/Discharge	Groundwater discharged into wetland
Floodflow Alteration	<i>High Value:</i> Wetland can retain water for long periods, absorb water from heavy rain events, and overland flow.
Fish and Shellfish Habitat	N/A
Sediment/Toxicant Retention	Basins and dense vegetation capable of trapping sediment
Nutrient Removal	Slow moving water, vegetation, hold potential for trapping sediment, removing and/or converting nutrients.
Production Export	<i>High Value:</i> Wildlife food sources present in wetland, conversion to higher trophic levels
Sediment/Shoreline Stabilization	N/A
Wildlife Habitat	<i>High Value:</i> Connected to other wetland types and uplands; contains breeding habitat for reptiles, amphibians and invertebrates; Part of large undeveloped block.
Recreation	Wildlife observation, hunting (if permitted)
Educational/Scientific Value	N/A
Uniqueness/Heritage	N/A
Visual Quality/Aesthetics	Contrasts with surrounding land use, plants turn bright colors in fall.
Endangered Species Habitat	None identified

*Principle functions and values are indicated as “High Value”

Palustrine Emergent Wetlands and Palustrine Unconsolidated Bottom

There are extensive networks of emergent wetlands across the property, almost entirely due to beaver activity. Other emergent wetlands are those located along the flat, low gradient floodplains of the two streams on the property. Based on aerial photos it appears that beaver most recently moved onto the property around 2005, after which time a series of wetlands with 3 or 4 terraced dams, side channels, and lodges transformed what would have been forested at that time.



Dam, that's big.

Because of the dynamic nature of these wetlands, and the strong association and co-occurrence between the “emergent” and “unconsolidated bottom” (open water portions) elements, they are described together here.

The largest beaver wetland complex is around a tributary that flows north to Egypt Stream, on the northeast end of the property. A large beaver pond and terraced dams are surrounded with emergent meadows of vegetation, open mud, and standing water. The largest dam is 300-400' long and 6' tall in some spots. The associated meadows are characterized by abundant graminoids such as Canada bluejoint (*Calamagrostis canadensis*), common soft rush (*Juncus effusus*), rattlesnake manna grass (*Glyceria canadensis*), and tussock sedge (*Carex stricta*). Several herbs and shrubs are typical including swamp candles (*Lysimachia terrestris*), meadowsweet (*Spiraea latifolia*), and speckled alder (*Alnus incanca*). Snags and downed logs are abundant. Dragonflies and damselflies were also abundant as is habitat for cavity nesting birds, reptiles, and amphibians.



One of a series of beaver wetlands, this one recently dewatered.

A second series of beaver wetlands is located on the western side of the property, associated with tributaries to the Kilkenny Stream. Another set of 3-4 terraced dams, these 3-5' tall and up to 75' long form the complex. The vegetation cover is largely the same as the other beaver wetland, with a mix of meadows, recently dewatered and “greening” platforms, muddy pool and downed wood and snags. These meadows also include abundant rice cut grass (*Leersia oryzoides*), the seeds and rhizomes of which are an important food source for waterfowl, small

mammals, and shorebirds. Dense colonies also provide cover and habitat for fish, reptiles, and amphibians. Again frogs, damselflies and dragonflies were abundant, and a least sandpiper was observed foraging.

Table 4: Functions and values of the emergent and unconsolidated bottom wetlands on the Frenchman Bay Forest project area, Hancock.

Ecological Functions / Values	Rationale*
Groundwater Recharge/Discharge	Groundwater discharged into wetland and recharged into aquifers
Floodflow Alteration	<i>High Value:</i> Wetland can retain water for long periods, absorb water from heavy rain events, and overland flow.
Fish and Shellfish Habitat	N/A
Sediment/Toxicant Retention	<i>High Value:</i> Basins and dense vegetation capable of trapping sediment
Nutrient Removal	Slow moving water, vegetation, hold potential for trapping sediment, removing and/or converting nutrients.
Production Export	<i>High Value:</i> Wildlife food sources present in wetland, conversion to higher trophic levels
Sediment/Shoreline Stabilization	N/A
Wildlife Habitat	<i>High Value:</i> Connected to other wetland types and uplands; contains breeding habitat for reptiles, amphibians and invertebrates; Excellent forage and cover; Part of large undeveloped block.
Recreation	Wildlife observation, hunting (if permitted)
Educational/Scientific Value	N/A
Uniqueness/Heritage	N/A
Visual Quality/Aesthetics	Contrasts with surrounding land use, plants turn bright colors in fall.
Endangered Species Habitat	None identified
MNAP Natural Community Type	Tussock Sedge Meadow, Canada Bluejoint Meadow, Beaver wetland complex

*Principle functions and values are indicated as “High Value”

Restoration Opportunities

The logging road network was walked in order to identify any wetland crossings that may be impacting wetlands or streams on the property. A few locations were noted and are described below (and see attached map).

- 1) In the southeast portion of the property the road runs northeast-southwest and crosses an area mapped as forested wetland. There is a culvert beneath the road from a log landing toward the forested wetland, but the road has collapsed on top, and water is backed up onto the road. The culvert appears to be 18" wide with some channelization of a stream and there is a fan of sediment that has washed from the road into the wetland.



- 2) Approximately 800' to the southwest a second culvert was located. This one also has erosion and road collapse, the culvert is hung, and sediment has washed into the wetland.



Sedimentation into wetland at outlet of culvert.

Both of these culvert locations are associated with forested wetland that borders both sides of the road (or in one case a cleared landing that appears to have hydric soils and vegetation). The road is approximately 20' wide and spans up to 800 feet through this wetland and between the culverts. Although it appears some soil disturbance, or even removal, may have occurred in association with recent logging activities along the roadside, the area adjacent to and under the road is mapped as hydric soils and may have been part of the original wetland area.

If this section of road is no longer needed, this stretch could be considered for restoration. The road bed should be further evaluated to verify hydric soils beneath what is assumed to be road fill. If verified, fill removal and soil stabilization would in that case support the restoration of wetland vegetation and hydrology. At a minimum the two culverts could be removed, and slopes pulled back and stabilized to avoid further sedimentation into the wetland and prevent blockage of water movement.