

Longmarsh Preserve

Stewardship Plan



Prepared for the
Durham Conservation Commission

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---Ellen Snyder, Ibis Wildlife Consulting

Chapter 1 Property Description

Location and General Description

The 73-acre Longmarsh Preserve is located in Durham, New Hampshire, about 1.5 miles south on Route 108 from the center of town, then about 1.3 miles east on Longmarsh Road (Map 1). The Preserve consists of three contiguous parcels: the Langmaid Farm (45 acres), Colby Marsh (13 acres), and Horsehide Creek (15 acres). The Preserve is bisected by the class VI portion of Longmarsh Road (Map 2). Parking for a few cars is available at the end of the class V portion of the road; beyond an iron gate the road continues as a class VI woods road/pedestrian trail. This central trail is accessible to mountain bikes, horses, as well as people on foot. Several narrow pedestrian trails branch off from Longmarsh Road, snaking through woodlands of mature oak and pine.

Longmarsh Preserve is within a large unfragmented – by roads or development – block of forest, wetlands, and old field habitats. Much of the Preserve is within the Crommet Creek watershed, an ecologically significant and unique drainage that flows into Great Bay. Within the headwaters of this watershed, the Town of Durham owns the northern section of Colby Marsh, a significant wetland with nesting osprey, great blue heron, wood duck and other birds, active beaver, and a host of other wildlife. The Langmaid Farm includes overgrown fields, stone walls, old foundations, bold rock outcrops, and beaver-influenced wetlands. Crommet Creek wends its way through the Preserve as it makes its way to Great Bay just south of Adam’s Point.

The northern reaches of the Longmarsh Preserve drain north into Horsehide Creek, a small drainage that flows north into the Oyster River. Beaver are active in this creek, as they are in Crommet Creek. A New Hampshire Gas and Electric Company line runs through the Preserve, close to the height of land that creates the watershed divide.

History of the Longmarsh Preserve

As early as the late 1960s, shortly after the Durham Conservation Commission was formed in 1965, members were already recognizing the significance of the Crommet Creek corridor and were talking with interested landowners. The three properties of the Longmarsh Preserve were acquired at different times, between 1972 and 1980.

Colby Marsh

The Colby Marsh parcel (Tax Map M16 Lot 27-0) was acquired through a quitclaim deed from Walter W. Cheney on July 5, 1972 (Book 907 Page 324). The deed states that this land is granted “for and only in the interest of conservation, the same to be managed and controlled by the Conservation Commission...” Longmarsh Road forms the northern boundary. Most of this parcel is Colby Marsh, although the town ownership does not include all of the marsh. Stonewalls bound much of the property; as beaver activity expanded in recent decades, some of the walls are now under water. A copy of the deed is in Appendix A. This property has no recorded boundary survey.

Langmaid Farm

In 1977, then Chair of the Conservation Commission John Hatch wrote an Environmental Assessment (Appendix B) of “...44 acres of property... bisected by the roadway with 26 acres to the north and 18 to the south.” This document references the Langmaid Farm, which was subsequently acquired by the town. Town documents make reference to federal matching funds for the acquisition of this property, but there

is no evidence that a federal grant was ever received. One assumes that without a grant, town funds were still sufficient to proceed with the project.

The Langmaid Farm property (Tax Map M16 Lots 6-1 and 6-2) was acquired on March 29, 1978 from Gerard P. Olivier. The recorded deed (Book 1012 Page 376) described the transfer of 4 tracts: 18.5 acres (“Large Meadow”), 4 acres (“Pinkham Pasture Field”), 7 acres (“Home Place”), and 14 acres (the “wood lot”). The deed states that “This conveyance is subject to the express condition that the above-described property shall not be further sub-divided and shall be used for conservation purposes and as provided for in NHRSA 36-A:4.” The Langmaid Farm was surveyed by O. P. Wallace, Sr. and recorded as Plans 20-152 and 20-153 on March 18, 1980; this survey calculated the Langmaid Farm as 46 acres. A copy of the deed is in Appendix C.

In a summary prepared by Julian Smith (personal communication), it appears that the town implemented stewardship on the Langmaid Farm for a few years following acquisition in 1978. A prescribed fire was apparently used on the Farm in 1980 to clear back the vegetation that had taken over the homestead and surrounding old field. Between then and the present, nearly 30 years, little active management has taken place. Smith and others have voluntarily cut back vegetation and cleared a couple trails that connect Langmaid Farm from Longmarsh Road to the Horsehide Creek tract. The goal was to connect all the way to the town’s landfill/transfer station land.

Remnants of the Langmaid farmstead are still visible on the north side of Longmarsh Road. Julian Smith, a town councilor, has been enthusiastic about maintaining and protecting these cultural features. Still visible are the old stone foundation of the house, a stone barn foundation, a well (missing its cap), pieces of old farm machinery, and a farm dump (see Map 2). Julian Smith contacted state archaeology experts, who advised removing any surficial trash dumped recently in the cellar hole, avoid digging into the trash, and filling in the cellar hole with sand to protect the foundation and its contents for later investigations. From site visits in 2009, it appears that people have been poking around in the cellar hole, pulling out bottles and other artifacts.

Aerial photos from the 1940s of this areas show the Langmaid Farm as much more open field or pasture. Colby Marsh and the marsh to the east of the homestead were hayed or pastured. These low marsh lands were likely drained and fenced with stone walls in earlier days. The 1978 deed transfer of the Langmaid Farm to the Town of Durham provides a glimpse into the land use when the family still farmed here – the parcels included the “large meadow,” the “wood lot,” “Pinkham Pasture Field,” and the “Home Place.” Farming probably began to wane here in the 1950s. Beavers have since re-colonized and flooded the low areas, creating phenomenal wildlife habitat and scenic vistas.

Horsehide Creek

The Horsehide Creek parcel (Tax Map 16, Lot 3-2) was acquired by the Town of Durham from Gibson R. and Alice A. Johnson on April 29, 1980. The recorded deed (Book 1048 Page 478) states that “This property was purchased by Durham Conservation Commission pursuant to the powers conferred by RSA 36-A.” This property was surveyed by O.P. Wallace, Sr., with a survey date of January 18, 1980, recorded as Plan 17B-62. A copy of the deed and survey are in Appendix D.

Stewardship Responsibilities

The stewardship of the Longmarsh Preserve clearly rests with the Durham Conservation Commission, as explicitly stated in the property deeds. Volunteers have maintained trails and built a fabulous boardwalk across a section of Longmarsh Road that was dammed by beavers. The boardwalk gives a near eye-level view of the water surface and beaver lodge.

As with all town-owned properties, the Longmarsh Preserve is open dawn to dusk and is closed to camping, campfires, and hunting. The Preserve receives many visitors and seems to be free of trash. Evidence of small campfires is often found on the rocky outcrops overlooking Colby Marsh; volunteers routinely remove evidence of such fires to discourage further such use. Hunting is allowed on surrounding properties, but not on the Longmarsh Preserve or along Longmarsh Road, including the class VI portion. The town maintains iron gates at each end of the class VI stretch of this road. Just west of the gate is a kiosk with limited information about the area.

The small parking lot just before gate is on private land. The town uses the site as a turn-around for snowplows. In the future, a more secure parking area may be needed to ensure suitable access to the Longmarsh Preserve. The members of the Great Bay Resource Protection Partnership meet periodically to discuss conservation and stewardship within the Crommet Creek watershed. The town should engage in those conversations and collaborate on stewardship efforts.

Purpose of the Stewardship Plan

The goal of this Stewardship Plan is to understand and appreciate the values of the Longmarsh Preserve and to guide the use and management of these resources over time. This is achieved by identifying the soils, topography, plants, animals, habitats, waters and wetlands, historical features, and public uses that occur on the property. An assessment of the environmental health – such as the extent of invasive species – is included since this can affect management decisions.

The information included in this plan was drawn from field work conducted by the plan preparer, review of town documents and natural resource plans for this region, and discussions with town residents involved with the property. This Stewardship Plan is a living document that can be amended and updated as new information is gathered and management actions implemented. The text and maps are provided electronically to make this information readily accessible to present and future decision-makers and others interested in this town resource.

The Piscataqua Region Estuaries Partnership (PREP) Community Technical Assistance Program (CTAP) provided a grant to the Town of Durham Conservation Commission to complete this Stewardship Plan. This funding, through PREP, is from the Otto Haas Charitable Trust 2 Fund of the New Hampshire Charitable Foundation. This grant, with some additional funding from the Conservation Commission, is supporting the development of stewardship plans on four town-owned properties – Longmarsh Preserve, Wagon Hill Farm, Doe Farm, and the Weeks Lot. PREP and the Conservation Commission contracted with Ibis Wildlife Consulting to prepare these plans.

The Stewardship Plan includes the following chapters and materials:

- ❖ **Chapter 2 -- Ecological Features** describes the landscape setting, soils, wetlands, habitats, plant communities, and environmental health of the Longmarsh Preserve.
- ❖ **Chapter 3 – Public Uses and Cultural Resources** describes the trails, allowed and prohibited uses, and other cultural features of the property.
- ❖ **Chapter 4 – Stewardship Recommendations** presents potential management actions that can be implemented at the Longmarsh Preserve to sustain and enhance its ecological features, environmental health, and the public benefits. Some of these actions are a continuation of current management, others include suggested changes to existing management, and some are new actions. Appendix H includes a list of resource people and agencies that can provide further technical assistance or potential grant funding to help implement these actions.
- ❖ **A set of maps** is included in the plan to further illustrate the ecological, recreation, and cultural features of the Longmarsh Preserve.
- ❖ **Appendices A-H** provides additional background material and documents associated with the Longmarsh Preserve.

Chapter 2 Ecological Features

Landscape Setting

The Longmarsh Preserve is within the headwaters of the Crommet Creek watershed, one of the most significant tributaries to the Great Bay estuary. Crommet Creek was identified as one of the highest priorities for land conservation due to its relatively intact natural setting; much of the watershed remained undeveloped even into the 1980s. The Town of Durham was one of the first entities to acquire and protect several tracts of ecologically important lands, known collectively as the Longmarsh Preserve

Durham's Longmarsh Preserve now sits within a large complex of conserved lands (Map 1). Some of these lands are owned in fee by NH Fish and Game Department (NHFG), The Nature Conservancy (TNC), or the Society for the Protection of NH Forests (Forest Society). Other parcels remain in private ownership, but are protected through a conservation easement held by one of these entities. This area has long been a focus of land conservation by the Great Bay Resource Protection Partnership, given the ecological significance and unique character of the Crommet Creek watershed.

The Longmarsh Preserve is bounded on the west by the 50-acre Durham landfill/transfer station parcel, the 60-acre NHFG "Kitfield Tract," and a large parcel in private ownership. To the north is a residential subdivision of five properties. Lands to the east and south are conserved and include the 80-acre TNC Chase preserve, 30-acre "Langley" easement held by the Forest Society, and 97-acre "Minichello" property owned by the Forest Society.

The new 4-mile long "Sweet Trail" begins at the parking lot on Longmarsh Road just west of Colby Marsh. The trail starts out along the class VI portion of Longmarsh Road, turns south just before the boardwalk, crosses the old stone bridge on the Longmarsh Preserve, meanders generally south into Newmarket, and ends at the shores of Great Bay. Other trails on the Preserve offer great views of marshes, open water, rocky outcrops, mature oak and pine forests, and lots of wildlife.

Topography and Soils

The Longmarsh Preserve is characterized by a rolling topography. The only relatively flat terrain on the Preserve is the site of the old Langmaid Farm. The rest of the land is a mix of rocky terrain with bold rock outcrops interspersed with low, wet areas, heavily influenced by beaver activity. Approximately 42 acres or 60% of the Preserve is upland, rocky terrain and 29 acres or 40% is in wetland condition (see Table 1 and Map 3).

The Hollis soils are typically thin soils found over shallow bedrock. Charlton soils form deeper layers in the low pockets and swales between rocky outcrops. Red oak and white pine, both somewhat shade intolerant, are partly an expression of the soils, but also a result of past land uses. Other hardwoods including scattered white ash, sugar maple, black cherry, and shagbark hickory occur in areas with more gentle topography and greater depth to bedrock, where soils can accumulate.

The height of land runs in a general east-west direction near the north end of the Langmaid Farm. This forms the watershed divide between Horsehide Creek and Crommet Creek.

Table 1. Soil types on the Longmarsh Preserve (from NRCS Strafford County Soil Survey Data, 2001)

Soil #	Soil Name	Acres	Drainage	Parent Material
HeD	Hollis-Charlton extremely rocky fine sandy loams, 8-25% slopes	33.7	well drained	glacial till
ScA	Scantic silt loam, 0 to 3% slope	24.7	poorly drained; farmland soils of local importance	marine
HdB	Hollis-Charlton very rocky fine sandy loams, 3-8% slopes	6.1	well drained	glacial till
Mp	Muck and peat	4.3	very poorly drained	organic material
HgB	Hollis-Gloucesterville very rocky fine sandy loams, 3-8% slopes	2.7	well drained	glacial till
HeE	Hollis-Charlton extremely rocky fine sandy loams, 25-60% slopes	0.1	well drained	glacial till
	TOTAL acres	71.5		

Watersheds and Wetlands

The Longmarsh Preserve straddles two watersheds – Crommet Creek and Horsehide Creek (Map 3 and Map 4).

Crommet Creek

Crommet Creek is a small watershed, about 1,700 acres, that drains directly into Great Bay. Tucked between the much larger Oyster River watershed to the north and the Lamprey River watershed to the west, nearly all of the Crommet Creek drainage remains relatively undeveloped. This large unfragmented forest ecosystem is imbedded with multiple beaver flowages and vernal pools. Crommet Creek begins upstream of Colby Marsh, flows into the southwest corner of the marsh and flows out on the eastern side of the marsh. Beavers maintain a large dam at this outlet. From here the Creek meanders easterly through the Langmaid Tract a few hundred feet, flows under an old stone bridge and into another long narrow wetland. From here Crommet Creek flows southeasterly for over a mile where it meets the tidal waters of Great Bay. In addition to a diversity of beaver wetlands and vernal pools, the watershed has several documented rare plant populations (although not on the Preserve).

Horsehide Creek

Horsehide Creek forms a small subwatershed within the Oyster River drainage. The headwaters of this creek are within the Longmarsh Preserve. A beaver-influenced wetland sits at the top of the drainage in the northern most corner of the Longmarsh Preserve. Steep slopes border the wetland to the west and a gradual slope rises to the east; hemlock and white pine create a dense canopy on each side of the wetland. From here Horsehide Creek flows northwesterly onto the Town of Durham landfill/transfer station property, under Durham Point Road and on to the Oyster River, a total distance of about one mile.

Colby Marsh and other Beaver-influenced Wetlands

Beaver-influenced wetlands are dynamic, cycling through successional stages from flooded stream (pond) to marsh, shrubland, young forest, and then back to pond when the beaver return. Other wildlife that benefit from beaver-created habitats, also cycle through these changing habitat conditions. Ospreys have

successfully nested on Colby Marsh since 2002, and were actively using the wetland by the early 1990s. Wood ducks nest in the duck boxes and in natural cavity trees. An active great blue heron rookery is at the south end of the marsh, near the osprey nest. Canada geese, belted kingfisher, double-crested cormorants, and green heron are common summer sightings on the marsh. In addition to wood ducks, many other cavity nesters use the dead trees (snags) in the marsh such as downy woodpecker, tree swallow, and great-crested flycatcher. Painted and snapping turtles can be seen basking on logs on sunny days.

Beaver feed on aquatic plants (e.g., water lily, duck potato, waterweed, pondweed, and duckweed) and shoots, twigs, leaves, roots, and bark of woody plants (e.g., aspen, willow, birches, witch hazel). Eventually beavers abandon their pond, either when preferred food plants become scarce or when silt accumulation makes them too shallow. With beaver gone, the dam begins to break and the pond drains. In the nutrient rich silt, herbaceous plants flourish, forming “beaver meadows.” Over time, shrubs and trees begin to dominate the area, creating ideal habitat again for beaver to return. The extensive interconnected wetland system imbedded within upland forest in the Crommet Creek watershed currently provides excellent habitat for beavers. This industrious rodent will likely be impacting these waters and lands for many decades and beyond.

All of the wetlands on the Lamprey Preserve are influenced by beaver, resulting in extensive *emergent marsh* with such species as yellow pond lily, white water-lily, water-shield, pickerel-weed, duckweeds, among many other aquatic plants. Near shore, the open water-emergent marsh community transitions to cattails, such as at the north end of Colby Marsh, or more commonly to a wetland shrub community. The typical shrub community here is known as an *alder – dogwood – arrowwood alluvial thicket*. The common shrubs include speckled alder, silky dogwood, winterberry, northern arrowwood, and eastern meadowsweet. Red maples are sometimes mixed in with the shrubs or form a separate *red maple – sensitive fern* community along the wetland edge.

Upland Habitats

See Map 4 for location of upland and wetland habitats.

Red Oak – White Pine Forest

White pine and red oak dominate the upland overstory of the Longmarsh Preserve. Tall, mature white pines border the shores of Colby Marsh and grow on the large, rock outcrops overlooking the marsh. Red oak grow throughout, but are most common on the drier sites including gentle slopes, along the stone walls that border Longmarsh Road, and on the rocky terrain in the eastern half of the Horsehide Creek tract and the northeast corner of the Langmaid Farm.

The presence of these relatively shade-intolerant oaks and pines, is a reflection of past land use and droughty conditions. Over time, without fire or some other disturbance, these forests will likely succeed to a *hemlock – beech – oak – pine* community. Among the red oak on the deeper soils are scattered, mature white ash, sugar maple, shagbark hickory, bigtooth aspen, and black cherry. Rock polypody and marginal woodfern grow on or among the exposed rock boulders. Beaked hazelnut, witch hazel, and maple-leaved viburnum grow in a fairly sparse understory. The ground cover of partridgeberry, wintergreen, princess pine, and ferns is also sparse.

Hemlock - White Pine Forest

The northwest-facing slope that borders the Horsehide Creek wetland supports a dense canopy of hemlock and some white pine. The understory is sparse. The slope is steep down to the creek, likely too steep for a trail. Small terraces along the slope support pockets of herbaceous plants including white baneberry and ferns. A stone wall runs along the top of the slope, forming the boundary with the NHFG

Kitfield tract. The southwest-facing slope along the wetland slopes more gently up toward Durham Point Road; it also supports a hemlock-white pine forest. The property boundary is close to the wetland edge on this side.

Early Successional/Old Field Habitat

The old Langmaid Farm north of Longmarsh Road retains some characteristics of early successional-old field habitat. Without regular disturbance this area will gradually succeed to forest. The current condition, with sporadic, volunteer efforts to knock back the woody vegetation, is providing some old field habitat structure, but it is also allowing invasive shrubs to take hold, such as buckthorn and bittersweet. There are wild apple trees and native shrubs, such as sumac, dogwoods, and viburnums, which could be released from competition. A portion of the Langmaid homestead could be managed as an old field habitat in conjunction with clearing back vegetation to better expose and interpret the historic farm features.

Early successional habitat is uncommon in this region. Much of the forest is being allowed to mature, which is a fine management objective. The Langmaid homestead site is still close enough to an old field condition that it might be worth keeping it as such. Many birds prefer this habitat for nesting or rely on the fruits from native shrubs. These include gray catbird, rufous-sided towhee, golden-winged warbler, American woodcock (they probe in the moist soils around field edges), among others.

Rare Plants and Animals

The New Hampshire Natural Heritage Bureau (NHNHB) finds, tracks, and facilitates the protection of rare plants and exemplary natural communities. They also maintain information on rare wildlife in cooperation with the NH Fish and Game Department. Natural Heritage defines a natural community as “recurring assemblages of plants and animals found in particular physical environments.” Each type of natural community has a unique set of environmental conditions that support certain species adapted to those conditions. Exemplary natural communities include nearly all examples of rare types and high-quality examples of common types (Sperduto and Nichols 2004).

Natural Heritage lists one New Hampshire species of special concern for this property (see Appendix F for a copy of the report). A golden-winged warbler was last reported in 1984 from the old field/meadow on the Langmaid Farm north of the road. A least bittern was observed on Horsehide Creek, downstream near the town landfill, in 1995. There are no known exemplary natural communities on the Longmarsh Preserve. Many other rare plants and animals and a few exemplary communities are reported farther downstream within the Crommet Creek watershed.

Longmarsh Preserve supports habitat for several wildlife species that are considered as “species of greatest conservation concern” by NHFG and as described in the NH Wildlife Action Plan (WAP) (NHFG 2006). Fish and Game identified 123 wildlife species and 27 habitats in the WAP that deserved special management attention given risks to their populations and/or habitats in New Hampshire. Longmarsh Preserve supports several species on this list. Blanding’s and spotted turtles are known to occur in the watershed, and given turtle movements, it is likely that they are in one or more of the Preserve’s emergent/shrub wetlands. The osprey and great blue herons that nest on Colby Marsh use all of the marsh and therefore the Preserve. The forests around the wetlands and along the stream corridor offer nesting and foraging areas for red-shouldered hawk. Two woodland thrushes – wood thrush and veery – can be heard singing during the breeding season. In addition, the large unfragmented block of habitat extending from Durham to Newmarket provides room to roam for wide-ranging mammals such as black bear, moose, bobcat, fisher, otter, and likely offers foraging and roosting areas for several species of bats.

Environmental Health

Environmental health, or *ecological integrity*, can be measured in several ways, such as the quality and quantity of surface waters, degree of erosion and runoff, amount of impervious surface, quality of air, presence of forest pests or invasive species, presence of native species and associated habitat elements. Some environmental stressors, such as mercury deposition, air pollution, extreme weather events and climate change, are large in geographic scope and largely outside the influence of land stewardship decisions on individual ownerships.

The environmental health of the Longmarsh Preserve appears to be quite good. This stems, in part, from its location high in a subwatershed that is mostly undeveloped and unfragmented, with little impervious surface (paved roads, houses, other buildings). One negative impact to environmental health on the Longmarsh Preserve is the presence of invasive plant species that degrades native habitats.

Ticks and Lyme Disease

One additional factor at Longmarsh is the presence of a high deer tick population, the tick that is a vector for the organism (the bacterium *Borrelia burgdorferi*) that causes Lyme disease. In a 2007 study of deer ticks in Rockingham, Strafford, and Hillsborough Counties, 50% were found to be infected with the Lyme disease organism (Eaton 2009). Tall grass and brushy areas are prime tick habitat, such as the old field and utility line on the Longmarsh Preserve. The trails through these areas are rather narrow and readily expose visitors to ticks as they brush against the vegetation. Chapter 4 includes recommendations on educating the public about walking in tick areas and also clearing trails so that they minimize encounters with ticks. For more information on ticks see the following publication by Alan Eaton at the University of New Hampshire -- *Biology and Management of Ticks in New Hampshire*, available at http://extension.unh.edu/resources/files/Resource000528_Rep1451.pdf

Invasive Species

An "invasive species" is defined as a species that is non-native (or alien) to the ecosystem under consideration and whose introduction causes or is likely to cause economic or environmental harm or harm to human health (National Invasive Species Council 2001). One report estimates the economic cost of invasive species in the U.S. at \$137 billion every year (Pimentel et al. 2000). Up to 46% of the plants and animals federally listed as endangered species have been negatively impacted by invasive species (Wilcove et al. 1998, National Invasive Species Council 2001).

Invasive species typically have certain traits that give them an advantage over most native species. These traits include producing many offspring, early and rapid development, and being adaptable and highly tolerant of many environmental conditions. Such traits give them an edge over native species. Studies show that invasives can reduce natural diversity, impact endangered or threatened species, diminish wildlife habitat, affect water quality, stress and reduce forest and crop production, damage personal property, and cause health problems.

The New Hampshire Invasive Species Act states that "*no person shall knowingly collect, transport, sell, distribute, propagate or transplant any living or viable portion of any listed prohibited invasive plant species including all of their cultivars, varieties, and specified hybrids.*" Appendix G includes the list of prohibited species referenced in this Act. For more information on New Hampshire's invasive species program see http://www.nh.gov/agric/divisions/plant_industry/plants_insects.htm and http://www.nh.gov/agric/divisions/plant_industry/documents/booklet.pdf.

Invasive plant species are transported by humans and wildlife; many were planted purposefully in the past for wildlife, erosion control, or as landscape plantings. Others came in via international commerce. Many

invasive plants appear first in disturbed areas such as along roadsides and trails, in gravel pits, or edges of fields. They can be moved along roadways by mowing, plowing or other roadwork.

The NH Coastal Watershed Invasive Plant Partnership is an effort among state, federal, and non-profit organizations to monitor and control invasive species. As part of this partnership, The Nature Conservancy has been mapping the locations of invasive plants in the Crommet Creek watershed, including lands around the Longmarsh Preserve. Most of the invasive species that they have mapped are also found on town land (See Table 2). The highest concentration of invasive plants on the Longmarsh Preserve is in and around the old Langmaid homestead and into the surrounding forest. The utility corridor is also a dense thicket of buckthorn.

Table 2. Invasive plant species on the Longmarsh Preserve.

Common Name	Scientific Name
Autumn olive	<i>Elaeagnus umbellata</i>
Burning bush	<i>Euonymus alatus</i>
Bush honeysuckles	<i>Lonicera spp.</i>
Common barberry	<i>Berberis vulgaris</i>
Common buckthorn	<i>Rhamnus cathartica</i>
Common reed	<i>Phragmites australis</i>
Glossy buckthorn	<i>Frangula alnus</i>
Japanese barberry	<i>Berberis thunbergii</i>
Multiflora rose	<i>Rosa multiflora</i>
Oriental bittersweet	<i>Celastrus orbiculata</i>

Water Quality and Erosion

There is little available information on the water quality of the wetlands and streams in the Longmarsh Preserve. Given its location high in an undeveloped watershed and lack of any significant erosion, one would assume that the water quality is good. Despite the network of trails, erosion and soil compaction do not appear to be an issue. The town and other partners have installed sturdy bridges across wetlands to prevent degradation of water quality.

Chapter 3 Public Uses and Cultural Resources

The parking area, trails, and cultural features of the Longmarsh Preserve are shown on Map 2.

Parking and Access

An unofficial parking area is located 1.2 miles down Longmarsh Road from Route 108. A space for 2-3 cars is available here. The class VI portion of the road begins at the large iron gate, just down a slight incline from the parking area. The parking area is on private land and appears to be an informal agreement with the landowner. Parking is available along the class V portion of Longmarsh Road, although turning around is a bit tight. An information kiosk is located just outside the iron gate; limited information is currently posted on this kiosk. This region can also be accessed at the other end of Longmarsh Road off of Durham Point Road. That section also has a small area for parking where the class V portion ends at an iron gate.

Trails

The class VI Longmarsh Road (“woods road”) serves as the main east-west trail, connecting Longmarsh Road to Route 108 on the west and Durham Point Road on the east. At several places along the woods road beaver have dammed large wetlands and flooded all or part of the old road. The Town built a 300-foot long board walk to cross the wetland on the Langmaid Farm parcel. The boardwalk overlies the location of the old road bed as beavers built their dam along the same route. Farther east, the town built another 100-foot long boardwalk to facilitate pedestrian access across another beaver-flooded section of the woods road.

The town maintains several trails accessible from Longmarsh Road. One particularly scenic route starts just past Colby Marsh on the right. The trail follows the contours of the land as it winds along the shore of Colby Marsh and continues along Crommet Creek, where it crosses an old stone bridge, and then back to the main woods road just west of the boardwalk. The Sweet Trail, described below, leads south from the stone bridge.

On the north side of Longmarsh Road, volunteers have created a loop trail on the Langmaid Farm; at two wetland crossings, 30-foot long boardwalks were installed. At the north end of the loop, a spur trail continues on to private property, while another trail heads west onto the Horsehide Creek tract. The goal is to have a trail continue through the Horsehide Creek parcel and onto the town landfill/transfer station property. The woods and topography are quite scenic here, but the slopes and proximity to the wetland and abutting landowners requires some planning to complete a suitable trail through this area.

The Sweet Trail

The Great Bay Resource Protection Partnership, leaders in conserving lands around Great Bay including much of the Crommet Creek watershed, created the four-mile long Sweet Trail. The trail starts (or ends) at the Longmarsh Road parking area just west of Longmarsh Preserve and meanders in a generally southerly direction to the The Nature Conservancy’s Lubberland Creek Preserve on Great Bay in Newmarket. The trail was built primarily by volunteers with assistance from the Appalachian Mountain Club. The Sweet Trail was designed to showcase some of the natural communities and diverse habitats protected through their efforts, while ensuring that visitors have a minimal impact on the area’s natural resources. The first 2,500 feet of the Sweet Trail passes through Longmarsh Preserve. A trail brochure is included in Appendix E.

“Kitfield Trail”

A trail on the abutting Kitfield tract, owned by NH Fish and Game, also hosts a pedestrian trail that leads back to Horsehide Creek. The trail starts at the parking lot on Longmarsh Road, runs north through upland forest, across the utility line, and then drops down onto the town transfer station property near the outlet to the Horsehide Creek wetland. Currently this is a one-way trail, but could be tied into the loop trail on Langmaid Farm. The Kitfield trail is part of a network of trails highlighted by the Great Bay National Estuarine Research Reserve, as part of a geocache “passport to Great Bay.”

Public Uses

As with other town lands, the Longmarsh Preserve is open from dawn to dusk. Camping, campfires, and hunting are not permitted. The class VI road is also closed to hunting, although all of the surrounding conserved lands are open to hunting. Longmarsh Road is popular for walking (with and without dogs), jogging, mountain biking, x-country skiing, snowshoeing, and some horseback riding. There is little evidence that off-road vehicles are used on the Longmarsh Preserve or on Longmarsh Road.

The large rock outcrops overlooking Colby Marsh are ideal rest spots for a picnic lunch while you watch the herons and ospreys on their nests. A remnant of a camp fire is often present here; volunteers remove signs of this as campfires are not permitted. In some winters, people ice-skate on Colby Marsh and some snowmobile through the area.

Cultural Resources

Longmarsh Road

Longmarsh Road takes its name from Longmarsh Brook, which flows south to north along the eastern side of Route 108, draining into Hamel Brook, which then flows to the Oyster River. The road also went by the name of “Langmaid Road,” after the family that lived on what is now part of the Longmarsh Preserve. Still other historic documents, including the deed conveying Colby Marsh to the Town of Durham, refer to this same road as “Hazel Hill Road.” Stone walls border each side of Longmarsh Road along much of its length. Many other stone walls lie perpendicular to the road, extending through what are now upland oak-pine woods and in some cases flooded marsh. These stone walls are a reminder of a burst of agricultural activity in the 1800s, which then faded after the rocky terrain and other pressures forced farming elsewhere.

Langmaid Farm

As described on page 5-6 under History of the Longmarsh Preserve, 45 acres (the four Langmaid tracts) were once a family farm dating back to the 1800s. The foundations of the home and barn are still readily visible on the north side of Longmarsh Road. A narrow meadow path leads left (north) from the woods road and passes the old cellar hole on the right. The bottom of the cellar may have artifacts from earlier days, but more recent household debris was piled on top. People have evidently dug around in the cellar hole looking for artifacts of interest. Julian Smith has contacted state archeologists to inquiry about the best way to preserve the foundation and associated artifacts. They recommended filling the cellar hole with sand to protect the foundation and buried artifacts, until there is time and funding to contact proper research. Nothing has been done as yet.

In addition to the old cellar hole, several other farm features are nearby – a stone barn foundation, an old well (missing its cap), and a few rusting cars. An old farm dump is located east of the cellar hole, on a

slope below a stone wall and next to the wetland. The area around the farmstead was kept cleared even after the family moved on and the land came into town ownership. Volunteers have attempted to cut back the vegetation to maintain a more open field condition. As a result some invasive plants have taken hold. To maintain this as old field will require more regular treatments to cut back unwanted woody growth and to control invasive plant species.

Utility Line

The Horsehide Creek tract includes a utility easement for the New Hampshire Gas & Electric Co. power-line right-of-way. This linear feature which runs east-west through this area, offers some early successional habitat, although it currently supports a near overstory monoculture of invasive glossy buckthorn. I am unaware of the utility company's maintenance schedule and how, if at all, they will handle the buckthorn.

Chapter 4 Stewardship Recommendations

As a community resource the Longmarsh Preserve offers many benefits and values including nature observation, scenic beauty, walking trails, clean air, places for quiet contemplation, wildlife habitat, protection of the Crommet Creek watershed, historic features, among others. Several other conservation partners own land around the Longmarsh Preserve and throughout the Crommet Creek watershed. This provides great opportunity for collaboration and potential expertise available to the town to help implement stewardship actions.

The stewardship of this special place is a long-term commitment by dedicated community members working together. The following stewardship recommendations were developed by conducting site assessments in summer 2009; reviewing historic documents and related natural resource plans, consulting with ecologists, and discussions with town decision-makers. The recommendations are not exhaustive but represent the author's ideas for the most significant actions for the town to consider, given the existing site conditions and the capacity of the resources to provide the desired benefits.

Several of the recommended action items suggest further consultation with or assistance from other resource professionals and agencies or organizations. A detailed list of resource contacts is included as Appendix H.

General Stewardship

- **Boundary Survey, Signage, and Monitoring**

The Longmarsh Preserve was acquired through three separate acquisitions, each with varying levels of boundary surveys. There is not a composite survey of the entire Longmarsh Preserve. Although some of the boundaries are well-marked by stone walls, many of the boundaries are not. Knowing the property boundaries is critical to land stewardship, especially for laying out trails, vegetation management, and other activities. For example, there is a Forest Society property sign near the old stone bridge in the southeast corner of the Langmaid tract. I believe this sign is on town property. A boundary survey would clarify these issues.

Action: Consider hiring a licensed surveyor to compile a composite survey of the Longmarsh Preserve, or to establish boundary lines that are vague. This may be easily done given that many abutting properties have recent recorded boundary surveys. These include the following:

- NHFG Kitfield Track – Recorded Plan 73-69
- Forest Society Minichello property -- Recorded Plan 49-92
- Forest Society Langley Easement – Recorded Plan 88-15
- The Nature Conservancy Meadow Preserve – Recorded Plan 58-3
- Chase Subdivision north of Horsehide Creek -- Recorded Plan 31A-128, although this plan simply refers back to the town survey by Wallace

Unless the Town is interested, the surveyor would not need to survey the interior boundaries of the four Langmaid tracts. Ask the surveyor to install monuments in places where the boundary is not clearly marked by stone walls or other “permanent” features.

Action: As part of hiring a surveyor, ask said surveyor to provide official copies of all recorded deeds that pertain to the Longmarsh Preserve for the Conservation Commission’s permanent file for this property. This includes:

- Langmaid Farm – Recorded Plans 20-152 and 20-153
- Horsehide Creek – Recorded Plan 17B-62
- Other pertinent recorded surveys as noted above

Action: Once a composite boundary survey is completed, immediately thereafter place metal signs along the property boundary (on trees) indicating “Durham Public Land” or “Durham Conservation Land” or whatever is appropriate. Volunteers could probably do this by looking at all the available surveys noted above, but it would be better in the long-term to have a surveyor first do the research and field checking.

Action: Annually or periodically walk the entire boundary (where possible) to re-affirm boundaries and assess conditions.

Managing Public Uses

- **Trail Improvements/New Trails**

The Longmarsh Preserve has a wonderful network of pedestrian trails that are interesting in all seasons. The trails pass by extensive beaver-influenced wetlands, over and around huge rock outcrops, passed historic Langmaid Farm structures and along stone walls, and meander through beautiful forests of red oak and white pine. These trails connect to other longer routes including the continuation of Longmarsh Road east toward Durham Point Road and the 4-mile Sweet Trail that continues all the way to Great Bay.

The town has a skilled crew of volunteers that have installed several sturdy bridges over wetlands and installed the long boardwalk below the beaver dam at the eastern end of the Preserve. Volunteers have brushed out trails through the Langmaid Farm tract extending back toward Horsehide Creek. An opportunity exists to lay out a new or improved trail that connects Langmaid Farm to Horsehide Creek, to the Kitfield property, and on to the Durham landfill/transfer station property and out to Durham Point Road.

Action: First survey or otherwise confirm and erect signs along the northern boundary of the Horsehide Creek tract that abuts private landowners.

Action: Consult with NH Fish and Game on connecting a trail through Horsehide Creek onto their Kitfield property that would then hook into their existing trail. The steep slope on the southwest side of Horsehide Creek requires that a connector trail cut back onto the more level ground of the Kitfield track. I recommend not running the trail on the northeast side of the Horsehide Creek wetland as it would be too close to the wetland and too close to the abutters who have posted their land. See Map 4 for a potential route for this new trail.

Action: More regularly brush out a wider trail through the Langmaid Farm “old field” so that visitors do not brush against vegetation and come into regular contact with ticks. This is a very high tick area, with a potentially high rate of Lyme disease in the ticks.

Action: Continue to monitor impact of trails along riparian areas; modify or re-locate trail as needed to protect shoreline and to avoid compaction in low, wet areas. Continue to remove evidence of campfires when observed.

Action: Once trail routes are updated and finalized, create a new trails map the kiosk, town website, and other materials.

Habitat and Resource Management

- **Invasive Species Management**

Non-native invasive plant species thrive in disturbed areas. Exposed soils offer prime sites for invasive species to colonize and spread. Trails, forest edges, old fields, and recently thinned forest stands are often places where invasive plants first establish, either dispersed by animals and wind or carried unintentionally by people, pets, or vehicles. Invasive species are one of the major threats to the integrity of natural communities, second only to direct habitat loss.

Control and removal of invasive plant species is one of the most difficult management challenges and requires collaborating with others on technical and financial support. Mechanical, chemical, and biological techniques are effective depending on the specific invasive plant. The use of chemicals to control invasive plants requires a pesticide applicators license and requires careful consideration, especially in wetlands. Physical removal can be effective, but usually requires repeated cuttings. Volunteers are often eager to help with the latter.

Longmarsh Preserve has pockets of invasive plants, most are in the old field on the Langmaid tract, in the utility right-of-way; burning bush and buckthorn are spreading out into the forest. The abundance of invasive plants is not so extensive on the Longmarsh Preserve (except in the utility corridor) that repeatedly cuttings by volunteers might be a feasible option. This should be pursued as a primary goal. Management of invasives in the old field should be combined with broader habitat and cultural resource management goals (see below). Without some active management in the old field the invasive problem will worsen.

Eleven state and federal agencies and nonprofit organizations formed an alliance called the Coastal Watershed Invasive Plant Partnership to work collaboratively on invasive species control. The mission is *to protect the ecological integrity of natural habitats and economic vitality of managed lands in New Hampshire's coastal watershed through activities that reduce the threat of invasive plants*. As part of their effort they have developed methods for mapping the distribution of invasive plants on their respective lands. For more information see <http://des.nh.gov/organization/divisions/water/wmb/coastal/cwipp/index.htm>

For more information on identifying invasive plant species in New Hampshire see the following publications and resources at <http://extension.unh.edu/forestry/Docs/invasive.pdf>; <http://www.nashuarpc.org/envplanning/documents/SoRLAC/invasiveplants.pdf>, and <http://nbii-nin.ciesin.columbia.edu/ipane/index.htm>

Action: Host a workshop for volunteers at the Longmarsh Preserve on invasive plant identification and control. Contact UNH Cooperative Extension for assistance in arranging such a workshop – they have access to experts who can lead such a workshop.

Action: Engage the boy scouts in assisting with physical removal of invasive plant species. Given the propensity of these species to spread, proper removal and disposal is essential. Plants should be bagged and disposed of in landfills or burned and should not be cut or moved while they are fruiting.

Action: Contact UNH Natural Resources Department to see if a student project could include mapping with GPS the extent of invasive species on the Longmarsh Preserve. This could be used as a baseline to track future control efforts.

Action: Contact the Coastal Watershed Invasive Plant Partnership to get more assistance with invasives species mapping and consider becoming a partner in that initiative. The coastal partnership has mapped invasives in the Crommet Creek watershed. They have a protocol and could provide technical assistance on any additional mapping.

Action: Avoid introducing any non-native species onto the Longmarsh Preserve when possible. Several local or regional sources of native plants are available if plantings are needed for any future restoration. Consult the New Hampshire State Forest Nursery (<http://www.dred.state.nh.us/nhnursery/>), New England Wildflower Society (<http://www.newfs.org/>), New England Wetland Plants Inc (<http://www.newp.com/>), or other sources of native plants.

- **Habitat and Cultural Resource Management**

Much of the Longmarsh Preserve does not need to be actively managed. The oak-pine forests can be left to succeed naturally over time, some will eventually reach old growth conditions. Beavers will continue to influence and change the conditions in and around the wetland systems. These can be left to natural processes.

The area where active management is needed is the Langmaid Farm homestead tract. If the town desires to expose the old foundations and farm scene, then combine this with maintaining an early successional-old field condition. This would encompass about 3-4 acres, extending from the stone wall on the north side of Longmarsh Road, north to the edge of the Scantic silt loam (ScA) soils. The east and west sides of the old field are bound by stone walls.

Maintaining this in old field requires periodic maintenance to control invasive plants, periodic mowing to knock back woody growth, except for the native fruiting shrubs and apple trees. Prescribed fire is another potential tool for maintaining this area as early successional habitat. Prior to initiating these management activities the town should determine how to secure and interpret the historic farm features. Grants are available to towns to conduct these management activities.

Action: Contact UNH Cooperative Extension and the U.S. Fish and Wildlife Partners for Wildlife Program for assistance on managing the 3-4-acre old field. They have technical assistance and access to or knowledge of grant sources.

Action: Identify and map native shrubs and fruit trees to be kept in the old field.

Action: Continue to research the preservation and interpretation of the Langmaid farm cultural features, which include the cellar hole, barn foundation, well, old cars, and farm dump. The old well may need a cap, and should be closed as soon as possible for public safety.

Action: Contact the NH Gas and Electric Co. to determine their management schedule for the utility right-of-way. Contact the NHFG, TNC, and private landowners, who also own lands under the right-of-way, for potential collaborative efforts to control invasive species.

Education and Interpretation

The management actions proposed in this Stewardship Plan are more likely to succeed if the community is made aware of and given the ability to help with implementation. The town has created and erected nice signs on all of its town-owned lands. This provides a consistency between all the town properties. Some parcels also have a kiosk for posting educational information, maps, and other pertinent information. The kiosk at the Longmarsh Preserve is in need of additional, pertinent information to help inform visitors about the property, its history and ecology, and the stewardship of its resources. Information about the Longmarsh Preserve can also be shared on the town website.

Action: On the Town of Durham website, add folders for each of the town-owned properties. For each property include a trail map, property description, history of acquisition, site-specific rules, and related documents such as management plans, and photos. The more information that people have about a property, the better they are able to help with its stewardship. Add a link to the Great Bay Resource Protection Partnership website map page on Crommet Creek --
<http://www.greatbaypartnership.org/mapcrommet.html>

Action: Place more information on the Longmarsh Preserve informational kiosk such as an aerial map of the Preserve and connections to other trails, description of the habitats and any ongoing management, rules, history of the property, caution about ticks and Lyme Disease, information about hunting.

Action: Continue to collaborate with the Great Bay Resource Protection Partnership on developing joint educational materials and other interpreting activities for the Preserve and the greater Crommet Creek watershed.

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