



# ***Knight's Pond Preserve Management Plan***

**Final April 4, 2016**

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## **Introduction**

Tucked among the rolling hills and fields of Cumberland and North Yarmouth, Knight's Pond Preserve is a natural treasure for many surrounding communities. At approximately 212 acres in size, Knight's Pond Preserve is the largest undeveloped property in Cumberland and contains many natural resource values important to the region, including a 46 acre great pond, forested uplands, a ridgeline with views of Casco Bay, a network of connecting trails, unique natural community types, and critical wildlife habitat. It is a keystone parcel in a multi town recreational and conservation corridor and has been a conservation priority for the Towns of Cumberland and North Yarmouth for decades.

Located less than 12 miles from downtown Portland and less than 1 mile from the Cumberland and North Yarmouth town centers, Knight's Pond Preserve is a magnificent natural area in an increasingly urbanized setting, providing refuge and tranquility for people and wildlife alike. Over the past 50 years, Knight's Pond has drawn local residents for impromptu hockey games and ice-skating in the winter months. More recently, an established trail network has helped Knight's Pond Preserve become a central component of a regional recreational corridor. Hikers, mountain bikers, snowmobilers, cross country skiers, and snowshoers all use this parcel as not only a destination place in itself, but also as a connection to a larger trail network.

In addition to being a recreational asset to the community, Knight's Pond Preserve contains impressive ecological value considering its location in a rapidly developing area in Southern Maine. The Pond is designated as ecologically significant in state and federal assessments, and the upland areas on Blueberry Hill form part of a 1,600 acre undeveloped forest block containing a rare Oak-Hickory (SI) natural community. For these reasons, Knight's Pond Preserve is identified as a conservation priority in multiple statewide, regional, and local conservation plans.

The 212-acre preserve was owned by Rebecca Leland Swigget, who inherited the property from her parents Richard and Helen Knight. The Trust for Public Land, the Chebeague and Cumberland Land Trust, and the Royal River Conservation Trust, worked with the Town of Cumberland and Town of North Yarmouth, to purchase and preserve Knight's Pond Preserve in October 2015.

## **Purpose of Management Plan**

At the direction of the Cumberland Town Council and North Yarmouth Board of Selectmen, the Joint Standing Committee was directed to establish a management plan. The Joint Standing Committee's primary focus was to provide guidance to the two towns regarding matters related to the management of this community resource by developing a management plan for the Knight's Pond Preserve consistent with the conservation easements on the property.

The purpose of the management plan is to incorporate the mission statement and stewardship principles into a living document that will be used as a guide by the citizens of the towns of Cumberland and North Yarmouth pertaining to the use, improvement, and preservation of Knight's Pond Preserve.

## **Knight's Pond Preserve Mission Statement**

Knight's Pond Preserve is a unique tract of land with natural beauty, diverse wildlife, and varied ecosystems that provides a variety of opportunities for outdoor recreation and scenic enjoyment for the public and shall remain forever in its natural and undeveloped forested state by being jointly managed by the Towns of Cumberland and North Yarmouth.

## **Knight's Pond Preserve Principles & Objectives**

1. The Joint Standing Committee shall:

- report to the Cumberland Town Council and North Yarmouth Board of Selectmen.
- propose an Annual Budget to the Cumberland Town Council and North Yarmouth Board of Selectmen.
- provide an Annual Report to the Cumberland Town Council and North Yarmouth Board of Selectmen which outlines the progress made toward maintaining the Knight's Pond Preserve Stewardship Principles, with copies to Chebeague & Cumberland Land Trust, Royal River Conservation Trust, and, once the funds come through from the state, to Land for Maine's Future Program.

2. The Joint Standing Committee endorses the maintenance of the preserve to assure its present undeveloped state and high quality habitat of the forest, pond, and associated ecosystems and will, within limits established by Cumberland Town Council and North Yarmouth Board of Selectmen, request the human and fiscal resources necessary to do so, consistent with the conservation easements.

3. A Forest Management Plan may be created by a licensed forester, adopted, and updated at the direction of the Joint Standing Committee.

4. Within the scope of the management plan, areas determined to be environmentally sensitive and vulnerable shall receive timely attention.

5. A network of trails including a new parking area off Greely Road Ext. may be built, maintained, and improved when approved by the Joint Standing Committee.
6. The public is encouraged to participate in low impact outdoor recreation within the property's boundaries while respecting its natural environment.
7. Community involvement in and educational use of the preserve for individuals or organizations shall be encouraged.
8. A list of acceptable uses of the preserve will be created and incorporated into a "Use Policy" in the Management Plan.
9. An informational brochure outlining the preserve's environmental attributes, a map of trails and other related issues of interest may be published and maintained.
10. The two previously existing buildings will be removed, replaced, and maintained in accordance with the Conservation Easement and the goals and objectives of the Joint Standing Committee.
11. Future acquisition for connectivity is encouraged, and the Joint Standing Committee is agreeable to acquiring neighboring land. Future planning shall be coordinated between the two towns.
12. The Joint Standing Committee will work cooperatively with Chebeague & Cumberland Land Trust and Royal River Conservation Trust to ensure ongoing compliance with the conservation easements on the property.
13. When the Annual Budget is recommended by the Joint Standing Committee and approved by both towns, it will be shared 50:50 with the exception of the expenses related to the onsite dams. Town of Cumberland will be responsible for the dams' maintenance and upkeep.
14. Income from the Preserve will be held in a dedicated fund to be used for the exclusive benefit of Knight's Pond Preserve outside of the normal budgeted items and approved by the Joint Standing Committee.
15. Facility Request Applications for using the Preserve for an activity or event will be available at both town halls to be submitted in writing to either the Cumberland or North Yarmouth Town Manager at least three (3) weeks prior to the scheduled activity. The receiving Town Manager will notify the other Town Manager and the Joint Standing Committee to review and respond to the application within two (2) business days. The Town Manager(s) will sign off after careful review and may take follow-up actions as necessary, such as holding public hearings.

16. Volunteers for projects and work days are encouraged to submit completed application forms, available at both town halls, to the Cumberland or North Yarmouth Town Manager who will then notify the other Town Manager, the Joint Standing Committee, Chebeague & Cumberland Land Trust and Royal River Conservation Trust so they can review and respond to the application.

Possible projects may include:

- Put up interpretive and trail signage that enhances the public's safety and enjoyment.
- Maintain and improve trails.
- Maintain and improve bridges associated with the dam.
- Build an informational kiosk with a place for Preserve maps.
- Monitor and manage invasive species.
- Create sitting areas where views can be enjoyed and wildlife observed / photographed.
- Control erosion to ensure trail safety and protect water quality.

April 4, 2016



## Description of Land & Natural Resources



Knight's Pond Preserve has outstanding and unique natural resources and conservation value of local, regional, and statewide significance. The property supports critical wildlife habitat, wetlands of special significance, rare and endangered natural communities, large upland forest block, vernal pools, and serves as the headwaters to the East Branch Piscataqua River.

### **Aquatic Resource Values**

#### *Inland Wading Bird and Waterfowl Habitat*

The Maine Department of Inland Fisheries and Wildlife has designated Knight's Pond as high value Inland Wading Bird and Waterfowl. It stands out as one of the very few Inland Wading Bird and Waterfowl Habitats identified in the Lower Presumpscot River Watershed, which encompasses 12 towns. This habitat type protects many types of ducks, geese, herons, egrets, ibis, and bitterns and also serves as an important migratory stop for many other kinds of birds and waterfowl.

#### *Rare and Declining Species of Birds and Fish*

U.S. Fish & Wildlife Service ranks Knight's Pond Preserve as high value habitat (within top 25 percent) for rare and declining species of birds and fish. The parcel not only provides Inland Wading Bird and Water Fowl Habitat, but also habitat for 33 U.S. F&W Service priority trust species. According to U.S. F&W Service, Knight's Pond Preserve has particularly high value habitat in comparison to the rest of Gulf of Maine watershed for 13 of those priority species - including American Bittern, Blue Heron, Pied-billed Grebe, Wood Ducks, Northern Goshawk, Red-Shouldered Hawk, Solitary Sandpiper, and many songbirds.

Other wildlife using the Pond include; beaver (several beaver lodges are found on the property), muskrat, deer, turtles, and frogs. There is a deer wintering area designated on the Beginning with Habitat maps just across the street from Knight's Pond.

#### *Headwater Streams*

Several streams, which travel in different directions, exist on the property. Blueberry Hill is the rise of land between two watersheds - Presumpscot and Royal Rivers. The largest stream feeds Knight's Pond and then flows into the East Branch Piscataqua River, which supports a native brook trout and may support other native fish now that the Smelt dam has been removed in Falmouth creating passage for alewife, Atlantic salmon, herring and shad. U.S. F&W states that "Protecting upland habitat in the watershed helps protect water quality these fish rely on during various states of their lifecycle." Deer Brook flows on the northern side of the parcel to the Royal River. Both streams are designated as important for water quality and fish habitat in municipal comprehensive plans and regional planning

reports. A third stream flows down the western side of Blueberry Hill into two small ponds on the property and beyond.

#### *Wetland of Special Significance*

The Maine Department of Inland Fisheries and Wildlife has designated Knight's Pond as a Wetland of Special Significance. The ranking reflects extremely high regional value and one point away from statewide significance due to its size, undeveloped shoreline, quality of wetlands, habitat values and uniqueness in Cumberland County. Kristen Puryear, of the Maine Natural Areas Program, visited the property on June 20, 2013 to conduct a site assessment. Ms. Puryear evaluated the ecological functions and values of the wetlands and pond, ranking the flow alteration, nutrient removal, production export, wildlife habitat, recreation, and educational/scientific value of Knight's Pond as being high value.

#### *Vernal Pools*

The Town of Cumberland worked with the University of Maine in 2009-2010 to map and inventory 250 potential vernal pools. Six of those vernal pools are located on the Knight's Pond Preserve. Four of the six have been identified as biologically significant and were submitted to the State of Maine in 2011 for official designation. The State has not made any decisions to date. Vernal pools provide habitat for breeding wood frogs, spotted salamanders and fairy shrimp, and serve as important areas for other species as well.

### **Terrestrial Resource Values**

#### *Beginning with Habitat - Large Forest Block*

The State of Maine Beginning with Habitat Program has mapped Knight's Pond Preserve as part of a larger 1,600 acre block of forest habitat. "Large blocks of forest provide core habitat blocks and habitat connections that facilitate species movements between blocks. Undeveloped habitat blocks provide relatively undisturbed habitat conditions required by many of Maine's species. Habitat connections provide necessary opportunities for wildlife to travel between preferred habitat types in search for food, water, and mates. Roads and development fragment habitat blocks and can be barriers to moving wildlife. By maintaining a network of interconnected blocks, towns and land trusts can protect a wide variety of Maine's species, both rare and common, to help ensure rich species diversity long into the future. Maintaining a network of these large rural open spaces also protects future opportunities for forestry, agriculture, and outdoor recreation." In rapidly developing southern Maine communities, forest blocks such as the one with Knight's Pond Preserve are becoming a scarce and critical resource.

#### *Forest Type - Red Oak-Northern Hardwoods-White Pine Forest*

Blueberry Hill includes 179 acres of forested upland of Red Oak-Northern Hardwoods-White Pine Forest. According to the Maine Natural Areas Program, Hemlock and White Pine are co-dominant along with a mix of hardwoods such as Red Oak, Red Maple and White Oak. Beech is also found. The forest is fairly mature. Old stone walls are indicators of an agricultural past and some selective timber harvesting has occurred over the years. Before the option agreement, the property owner apparently was planning to conduct a large scale harvest (as indicated by recent blue blaze markings on trees).



The understory consists of wintergreen, Indian cucumber root, sessile-leaved bellwort, wild sarsaparilla and witch hazel. See the description of the rare Oak-Hickory community below.

**Rare, Threatened, or Endangered Natural Communities, Plants or Wildlife Habitat**

A rare Oak-Hickory (S1) forest type has been identified on Blueberry Hill by the U.S. Forest Service and the Maine Natural Areas Program. This rare community type is restricted to the Southern part of the State and is characterized by a strong component of shagbark hickory mixed with oak. Its presence on Blueberry Hill adds to the uniqueness and diversity of the property. This habitat type is known to support a variety of wildlife and plants, including Ovenbird, Scarlet Tanager, Whip-poor-will, red-winged sallow, southern flying squirrel, in addition to several species of wild Aster, Canada Mayflower, Wild Sarsaparilla, Whorled Loosestrife and Wild Oats.

Spotted Wintergreen (S2), an endangered plant species in the State of Maine, has been identified on the southern portion of the property; however, several recent inspections have not resulted in locating the plant. According to the Maine Natural Areas Program, known wild populations of spotted wintergreen are rare and vulnerable and should be protected, if possible.

## **Historic Uses of the Land**

The rock underlying the glacial soils at Knight's Pond Preserve has its own unique history. Over 300 million years ago granitic magma forced its way into the existing rock in an area extending from Cumberland, westward to the New Hampshire border; an area greater than 700 square miles. Remnant rock with ties to a chain of volcanoes in an ancient ocean remains in the areas surrounding Knight's Pond Preserve. When the glacier moved through coastal Maine, it scoured and eroded these rocks. The thin layers of soil that covers the rock consists of ground up pieces of these underlying island arc and granitic rocks.

Thirteen-thousand years ago the land of Knight's Pond was covered with over a mile's thickness of glacial ice. Beneath the immense weight of the ice, the land was depressed to elevations below sea level. Subsequent warming of the earth caused the ice to begin melting and as the weight of the ice was removed and the ground surface began to rebound. Over time, the rising land surface emerged from the ocean. Soil, trapped in the melting ice, settled, and mantled the rock over which the glacier had previously slid. For a short time, Knight's Pond was a marine cove at the ocean's edge, much like Back Cove in Portland. Ocean beach and shallow marine sand and gravel deposits can be found at the northern and southern ends of Knight's Pond and the low lying areas around Blueberry Hill and Walnut Hill. As the land surface continued to rise and the ocean's edge moved further eastward to its current location, the cove was cut-off from its marine environment, and the current landscape of Knight's Pond had been formed. Over time, Knight's Pond has filled with fine grained sediments from nearby hillslopes and thick deposits of peat. Manmade alterations to the landscape, particularly the construction of dam and berms have resulted in an increase in the size of Knight's Pond, which now encompasses areas that have been previously forested.

Stonewalls on the property indicate agricultural use of the land. Selective timber harvesting has occurred on the property over the years with the most recent cut completed in the mid-late 1990's.

The entire preserve (including the 50 acre North Yarmouth property) has been privately owned and undeveloped. Over time, Richard Knight acquired several properties to create the existing configuration. In the late 1950's, Richard Knight built the impoundment to create the pond for wildlife habitat and recreational purposes. Mr. Knight encouraged Boy Scout troops and other youth groups to use the Property and explore the outdoors. Two rustic cabins and a privy were built near the pond for Boy Scout use, as well as a lean-to and privy on the western side of Blueberry Hill located near two small ponds. A dock used to be located on Knight's Pond and also on the adjacent small pond by the dam. Mr. Knight encouraged neighbors and friends to come for ice skating parties in the wintertime and enjoy the outdoors.

The preserve transferred to Mr. Knight's daughter, Rebecca Leland Swiggett, upon Mr. Knight's passing in 1998. After a community-wide campaign, the Towns of Cumberland and North Yarmouth purchased the property in October 2015 and granted a conservation easement to Chebeague & Cumberland Land Trust and Royal River Conservation Trust at the time of purchase.

## **Current & Prohibited Uses**

Knight's Pond Preserve provides an ideal site for low impact outdoor recreation by the general public, educational activities, and natural resource management activities that do not adversely affect its important natural, ecological, and habitat values. Low impact recreation includes, but is not limited to, nature observation and study, hiking, running, biking, snowshoeing, cross-country skiing, ice skating, horseback riding, hunting, fishing, trapping, kayaking, canoeing and snowmobiling on designated trails.

Knight's Pond Preserve is open to the public during daylight hours only. In an effort to preserve the conservation values of the property, uses may be subject to change or suspension when overuse or negative impact to the preserve is identified. The list of current and prohibited uses is below:

### **Current Acceptable Uses**

- Walking, Running, Biking, and Hiking
- Horseback Riding
- Picnicking
- Nature Observation & Study
- Educational Activities
- Canoeing & Kayaking
- Ice Skating & Hockey
- Cross-Country Skiing & Snowshoeing
- Snowmobiling on designated trails
- Fishing
- Hunting & Trapping

### **Prohibited Uses**

- Fires, except when in designated fire pits authorized by the Joint Standing Committee
- Fireworks, sparklers, firecrackers
- Use of unauthorized motor vehicles, motorized watercrafts, and ATV's
- Littering or trash disposal; all users to carry out all refuse
- Except for maintenance of approved trails, cutting/removal of trees, brush, vegetation or application of herbicides, pesticides, or fungicides without committee approval
- Construction or improvements without the approval of Joint Standing Committee, Cumberland & Chebeague Land Trust and Royal River Conservation Trust
- Defacement, injury, removal or destruction of fences, signs, gates or any other structure
- The use, consumption or sale of alcoholic beverages, tobacco products or illegal drugs at Knight's Pond Preserve is prohibited.

## Management Matrix

### A. Current Acceptable Uses

Current Use	Potential Nature Conflict	Potential Neighbor Conflict	Management Activities
Walking, Running, Biking, Hiking	<ul style="list-style-type: none"> <li>•Habitat disturbance</li> <li>•Tree carving</li> <li>•Erosion</li> <li>•Soil compaction</li> <li>•Sedimentation of streams, wetlands, and ponds.</li> </ul>	<ul style="list-style-type: none"> <li>•Disturbance of solitude-seekers, littering</li> <li>•Trespassing onto private property</li> </ul>	<ul style="list-style-type: none"> <li>•Evaluate condition of trails on a yearly basis.</li> <li>•Repair natural or human damage in a timely manner.</li> <li>•Develop limited number of trails including some loops.</li> <li>•Close trails to give the land time to recover, if necessary</li> <li>•Encourage users to stay on trails with trail markers and boundary signs.</li> <li>•Establish 'Carry-in/Carry-Out' policy for litter management</li> <li>•Pick up after pets and abide by Maine's leash laws.</li> </ul>
Horseback Riding	<ul style="list-style-type: none"> <li>•Soil erosion adjacent to trails</li> <li>•Sedimentation of streams and wetlands</li> <li>•Additional width may degrade trail edge</li> <li>•Nutrient loading from waste to streams, wetlands, and ponds</li> </ul>	<ul style="list-style-type: none"> <li>•Waste left by horses in trails</li> <li>•Surprised encounters with walkers and other non-horse users</li> </ul>	<ul style="list-style-type: none"> <li>•Develop guidelines for horseback use if/when the need arises, e.g. pick up waste near the water.</li> </ul>

## A. Current Acceptable Uses (cont.)

Current Use	Potential Nature Conflict	Potential Neighbor Conflict	Management Activities
Picnicking	<ul style="list-style-type: none"> <li>•Soil compaction</li> <li>•Localized habitat disturbance</li> <li>•Over-collecting of wood in fire pit area</li> <li>•Forest Fire</li> </ul>	<ul style="list-style-type: none"> <li>•Littering</li> </ul>	<ul style="list-style-type: none"> <li>•Establish strict regulations regarding fire.</li> <li>•‘Carry-In’/‘Carry-Out’</li> <li>•No open fires; only in designated fire pits.</li> </ul>
Fishing, including ice fishing (commercial and recreational), Hunting & Trapping	<ul style="list-style-type: none"> <li>•Erosion of pond banks</li> </ul>	<ul style="list-style-type: none"> <li>•Hunting could disturb the neighbors</li> <li>•Trespassing onto private property</li> </ul>	<ul style="list-style-type: none"> <li>•Shared forest with hunters-warning signs posted</li> <li>•Subject to Maine IF&amp;W laws</li> <li>•Shot guns only</li> <li>•No Sunday hunting allowed</li> <li>•Wear blaze orange when in forest</li> <li>•Post boundary areas with “You are leaving Knight’s Pond’ signs</li> <li>•Coordinate with ice fishermen to ensure safety of ice skaters.</li> </ul>
Educational Activities, Nature Observation & Study	<ul style="list-style-type: none"> <li>•Over-collecting</li> <li>•Minor habitat disturbance</li> </ul>	<ul style="list-style-type: none"> <li>•Noise</li> <li>•Trail crowding</li> </ul>	<ul style="list-style-type: none"> <li>•Discourage active collecting of live materials</li> <li>•Group sizes over 25 require a permit</li> </ul>
Canoeing & Kayaking	<ul style="list-style-type: none"> <li>•Milfoil</li> <li>•Erosion of pond banks</li> </ul>		<ul style="list-style-type: none"> <li>•Signage to properly prevent milfoil</li> <li>•Designate a launch area</li> </ul>
Ice Skating & Hockey			(Warning signs are not needed on a great pond.)
Cross-Country Skiing & Snowshoeing	<ul style="list-style-type: none"> <li>•Wildlife disturbance</li> <li>•Habitat disturbance</li> </ul>	<ul style="list-style-type: none"> <li>•Trespassing beyond preserve boundaries</li> </ul>	<ul style="list-style-type: none"> <li>•Encourage use of marked trails</li> </ul>

## A. Current Uses (cont.)

Current Use	Potential Nature Conflict	Potential Neighbor Conflict	Management Activities
Snowmobiling on designated trails	<ul style="list-style-type: none"> <li>• Minor habitat disturbance</li> </ul>	<ul style="list-style-type: none"> <li>• Noise</li> <li>• Trail crowding</li> <li>• Encounters with those seeking quieter forms of recreation</li> </ul>	<ul style="list-style-type: none"> <li>• Limit to existing snowmobile trail</li> <li>• Post/maintain warning signs alerting skiers to snowmobiles and vice-versa</li> <li>• Signage at entrance points directing snowmobiles to existing trails</li> <li>• Ongoing review for connectivity and subject to local agreements with local snowmobile club</li> </ul>
Blueberry Hill Scenic Viewsheds to Casco Bay and the White Mountains	<ul style="list-style-type: none"> <li>• Negative impact on rare hickory community</li> </ul>	<ul style="list-style-type: none"> <li>• Removal of vegetative barrier to existing houses</li> </ul>	<ul style="list-style-type: none"> <li>• Work with CCLT &amp; RRCT to selectively cut viewshed corridors within the designated viewshed area while maintaining the hickory stand.</li> <li>• Consult with neighboring property owners prior to tree removal</li> </ul>

## B. Prohibited Uses

Prohibited Use	Potential Nature Conflict	Potential Neighbor Conflict	Management Activities
Fires, fireworks, sparklers, firecrackers	<ul style="list-style-type: none"> <li>•Runaway fires</li> <li>•Disturbance of wildlife</li> </ul>	<ul style="list-style-type: none"> <li>•Unwanted loud noise and odor</li> <li>•Accidental injury and property damage</li> </ul>	•Prohibition of use; fires only in designated fire pits.
Use of unauthorized motor vehicles, motorized watercrafts, and ATV's	•Disturbance of wildlife and habitat	<ul style="list-style-type: none"> <li>•Unwanted noise</li> <li>•Accidental injury and property damage</li> </ul>	•Prohibited except in designated areas
Littering or trash disposal	<ul style="list-style-type: none"> <li>•Soil compaction</li> <li>•Localized habitat disturbance</li> <li>•Forest Fire</li> </ul>	<ul style="list-style-type: none"> <li>•Littering</li> <li>•Disturbance to users</li> </ul>	•'Carry-In'/'Carry-Out'-all users to carry out all refuse.
Cutting/Removal of trees, brush, or vegetation or application of herbicides, pesticides, or fungicides without Joint Standing Committee approval	<ul style="list-style-type: none"> <li>•Soil erosion</li> <li>•Impact to water quality</li> <li>•Disturbance of wildlife habitat</li> </ul>		•Prohibited except for maintenance as approved by the Joint Standing Committee.
Construction or improvements without the approval of Joint Standing Committee, Cumberland & Chebeague Land Trust, and Royal River Conservation Trust			•Prohibited except for construction or improvements as approved by the Joint Standing Committee, Cumberland & Chebeague Land Trust, and Royal River Conservation Trust
Defacement, injury, removal or destruction of fences, signs, gates or any other structure			•Prohibited subject to law.
Alcoholic beverages, tobacco products, illegal drugs			•Prohibited subject to law.