Massachusetts Department of Conservation and Recreation
Bureau of Forest Fire Control and Forestry
Forest Management Proposal
Name: Myles Standish Complex Ten Year Pine Barrens Restoration

Date Posted:	November 1, 2018
End of Comment Period:	December 15, 2018

Region:	**South**
Recreation District:	**Cape Cod**
Forest Management District:	**Southeast**
State Forest:	**Myles Standish State Forest**
Closest Road:	**Several**
Town:	**Plymouth**

Contact Information:

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Overview:

The principal objective is to complete ecological restoration of pitch pine (*Pinus rigida*) and scrub oak (*Quercus ilicifolia*) natural communities on portions of the Department of Conservation and Recreation (DCR) Myles Standish State Forest. These communities are often referred to as 'pine barrens', and this forest management proposal is designed to reduce hazardous fuel loads and reduce the risk and/or spread of wildfire. Pine barrens are open, fire-adapted natural communities, and in the future prescribed burning will be employed to maintain these unique communities. Human effort to exclude fire in these pine barrens over the past half-century has favored the development of dense tree canopies of pitch pine and white pine, and has favored the growth of white pine over pitch pine and scrub oak in some areas. This is part of a larger joint project with MassWildlife to restore over 2,000 acres of pine barrens across Myles Standish State Forest, the Camp Cachalot Conservation Easement, Maple Springs Wildlife Management Area, and the Southeast Pine Barrens Wildlife Management Area.

The ecological restoration project was selected for forest management at this time because:

- For pine barrens management it is a high priority to improve and maintain habitat quality for pine barrens species, and to reduce the potential for wildfire – as discussed in the 2007 Biodiversity of Myles Standish State Forest report from the Natural Heritage and Endangered Species Program (NHESP);
- The (draft) Myles Standish Planning Area Fire Management Plan recommends implementing fuels reduction around campgrounds at Charge Pond, the removal of white pine forest to restore pine barrens habitat, and the reintroduction of fire to help achieve habitat restoration goals;
- It will build upon previous pine barrens restoration work on the Southeast Pine Barrens WMA and the Camp Cachalot Conservation Easement;
- High fuel loads exist in close proximity to the Charge Pond and Fearing Pond campgrounds;

The joint ecological restoration project endeavors to:

- Use a combination of mechanical fuel reduction and prescribed fire to restore native pitch pine-scrub oak barrens, to provide habitat for a diversity of endangered species as well as common species;
- Reduce fuel loads;
- Demonstrate harvesting techniques and silvicultural operations that restore native communities; and
- Fulfill management approaches for Reserves as directed by the Forest Futures Visioning Process (2010) and subsequent Management Guidelines (2012). From page 20 of the Guidelines "...Fire adapted Reserves in Southeastern Massachusetts may require active restoration and management to maintain habitat for rare species and reduce the risk of catastrophic wildfire that can threaten human health and safety."

Project Area Description:

Stand Information:

The project area within Myles Standish State Forest is divided into 13 units ranging from 29 acres to 159 acres and surrounds the Charge Pond and Fearing Pond campgrounds. Over the next ten years 1-2 units a year will be treated for a total of 1,171 acres in the state forest. See the attached map for location and timeline. The numbers on the map indicates which year a particular unit will be treated. An additional 16 units are within the Camp Cachalot Conservation Easement, the Maple Springs Wildlife Management Area, and the Southeast Pine Barrens Wildlife Management Area.

Many of the units in the State Forest and the surrounding area were influenced by a 1964 wildfire. As a result, much of the organic layer was burned away leaving a harsh environment tolerable mainly for pitch pine. As such, these areas consist mainly of pole sized pitch pines. Stocking is highly variable ranging from a dense canopy of pitch pine to more open areas of scrub oak and heath species. White pine can be found among the pitch pines in these units in variable densities. White pine is dominant mainly in those units not part of the 1964 wildfire, which are the more north central units. It appears some white pines may have been planted. Understory vegetation consists mainly of black huckleberry (*Gaylussacia baccata*), low bush blueberry (*Vaccinium angustifolium*), and scrub oak.

The northeast unit 2 and unit 7 are within the Quail Management Area, and as such have a matrix of small trails to enable hunters to traverse between mowed fields. These fields are release areas for quail and are excluded from this project. A 66 foot wide ditch runs southwest from Charge pond, once serving cranberry bogs down slope.

Topography and Soils:

The project area is comprised of gentle to rolling terrain. Small bowl-shaped depressions are found throughout. The soils are classified mainly as coarse sands that are excessively drained and derived from glacial outwash.

Previous Silvicultural Treatments:

A 1933 management plan for Myles Standish State Forest shows portions of the project area being planted with Austrian pine, Jack pine, Red pine, Scots pine, and White pine. Highly scattered remnants of these species, excluding white pine, can be found in the project area.

Approximately 143 acres in the Camp Cachalot Conservation Easement in 2015 and 2016 and approximately 115 acres in the Southeast Pine Barrens Wildlife Management Area in 2017

were treated similarly with pine barrens restoration management.

Aesthetics, Recreation, Wetlands, Cultural, Rare Species and Wildlife Considerations:

Aesthetics:

Tree density will be significantly reduced to promote native pitch pine, scrub oak, and shrubs. As whole tree mulching and removal (in white pine dominated units) of the forest canopy will occur, the resulting landscape will have a dramatic change in appearance from a high density forest to a more open woodland and shrubland savanna.

To minimize adverse aesthetic impact to recreational users of the area, all trails, forest roads, and paved bike paths will be cleared of all debris following operations. Given the objective to reduce most of the tree canopy there will be no retention of trail, road, or pave bike path buffers.

Recreation:

Basketball, bicycling, boating, canoeing/kayaking, dog walking, fishing, geocaching, hiking, horseback riding, hunting, nature study, picnicking, running/jogging, skiing- cross-country, snowmobiling, snowshoeing, swimming, and volleyball occur in Myles Standish State Forest throughout the year.

Several paved roads, forest roads, hiking trails, and paved bike paths are abutting or located within the project area. These roads, trails, and paths will be closed during harvesting activity. Legal trails will be reestablished once the unit is treated. DCR Management Guidelines of 2012 state that all trails that interface with forest management will include a 50 foot wide corridor on each side of the road or trail. However, the Guidelines also state that if deemed appropriate by DCR and reviewed by the Forest Reserves Science Advisory Committee (FRSAC), removal of hazardous trees directly adjacent to official DCR trails and abutting properties may be allowed.

Wetlands:

All required BMP's set forth in the most recent edition of the "Massachusetts Forestry: Best Management Practices Manual" will be implemented across the project area. A few small unnamed ponds are within the project area. Doctor's Pond, Grassy Pond and New Grassy Pond are just outside the limits of the project. The project area is not within 100 feet of a certified vernal pool according to the Natural Heritage & Endangered Species Program (NHESP) datalayer downloaded October 19, 2018 available from MassGIS. Wetlands will not be treated, however wetland buffers will be treated as permitted. No equipment will cross wetland boundaries.

Cultural Resources:

The project will have an archeological review and evaluation by DCR's archeologist. Any recommendations will be incorporated into the final silvicultural prescription.

Rare and Endangered Species & Wildlife

The proposed project area is within priority habitats of rare species as published in the current 14th Edition of the Massachusetts Natural Heritage Atlas. (https://www.mass.gov/service-details/regulatory-maps-priority-estimated-habitats.)

The pitch pine-scrub oak barrens within Myles Standish State Forest provide habitat for a diversity of state-listed animals and plants, including many species of moths and butterflies, tiger beetle species, and plant species. Most of these barrens species rely on a habitat with an open vegetation structure, such as scrub oak shrublands and heathlands.

Myles Standish State Forest is also an Important Bird Area (IBA) as designated by Mass Audubon. An IBA is a site providing essential habitat to one or more species of breeding, wintering, and/or migrating birds. The state forest is a significant breeding site for regional high conservation priority species such as: Whip-poor-will, Brown Thrasher, Prairie Warbler, Eastern Towhee, and Field Sparrow, all of which will benefit from the proposed treatment.

Refer to pages 165 to 179 of the Massachusetts Wildlife Action plan at: https://www.mass.gov/service-details/state-wildlife-action-plan-swap. This document provides detailed description of animals found in Pitch pine-Oak Upland forests.

Project Layout and Harvesting Limitations:

Project access: As the project will be spread out over ten years, access to the project area will be from several roads. Paved road access will be from Charge Pond Road, Fearing Pond Road, Circuit Drive, and Cutter Field Road. Dirt road access will be from Haynes Road Southwest Line Road, Sasemine Way, East Line Road, Southeast Line Road, Stringer Road, South Line Road, Spring Road, Maple Springs Road, and Doctor's Pond Road. Not every road will be accessed every year.
Landings: Landings will be utilized in those units scheduled to remove white pine.
Skid Road and Trails: Portions of existing forest roads may be utilized as skid roads for the removal of white pine. Additional skid trails may also need to be created.
Wetland & Stream Crossing: None anticipated.
Road and Trail Buffers: All trails, paved bike paths, and forest roads will be closed during harvesting activity. Trails, paved bike paths, and roads (paved and unpaved) will not be buffered to allow for direct experience of the restored pine barrens. All vegetation within 10 feet of paved bike paths, within 16 feet of forest roads (unpaved), and within 50 feet of paved roads with be mulched in place. This will allow for maintenance as well as the establishment of fire breaks.
Equipment limitations: Timber harvesting equipment will be restricted to its ability to process whole trees. Skidding of white pine will be permitted to provide scarification for pitch pine and scrub oak regeneration.
Excluded areas: No harvesting will be allowed in wetlands.
Erosion and Sedimentation: All work will be limited to dry, frozen, or otherwise stable soil conditions. Unwanted movement of soil will be controlled by following recommendations in the Massachusetts Forestry: Best Management Practices Manual.
Site Restoration: Upon completion of harvest activity all forest roads, skid trails, and landings will be stabilized with water bars to the recommendations found in the Massachusetts Forestry: Best Management Practices Manual.
In-kind Services: Sections of unpaved forest roads are in need of maintenance and repair. Services may include gravel, grading, and drainage work where needed.

Silviculture:

Primary and secondary goals:

The primary silvicultural goal is to restore and maintain native pitch pine and scrub oak natural communities with a focus on a savannah condition of individual, larger diameter, full-crowned pitch pine trees in the overstory with a dense understory of scrub oak and other native shrubs.

Pitch pine dominated units: This will be accomplished through targeted mowing/mulching in place of pitch pine, white pine, and occasional hardwoods to achieve an approximate 70 -80% reduction in tree canopy cover. The resulting savannah condition will be maintained with disturbance generated from prescribed fire and mechanical mowing.

White pine dominated units: Overstory removal of white pine to reduce the accumulation of material that would otherwise occur through mowing/mulching. These units will have follow up mowing/mulching, if needed, to achieve the desired 20-30% tree canopy cover.

Reducing the canopy cover will result in an open habitat benefiting a variety of rare, declining, and common species. The secondary goal is to reduce the fuel load thereby reducing the wildfire danger and enabling the application of prescribed fire.

Silvicultural Method:

The pitch pine-scrub oak barrens are a disturbance dependent globally rare ecosystem. This ecosystem depends on disturbance, historically fire, to maintain its open structure. To that end to sustain the function and two storied structural composition of the pine barrens, reduction in overstory density through mowing operations, white pine removal, followed by prescribed burns are needed.

Pitch pine dominated units: Overstory pitch pine density will be reduced / thinned by mowing or mulching in place using a forestry mulching head. The largest diameter, most full-crowned pitch pine will be retained. Some pitch pine dominated units have a small proportion of white pine that may be removed by whole-tree harvesting and chipping.

White pine dominated units: White pine will be removed by whole-tree harvesting and chipping, with all logs and chips removed from the site to allow for future use of mowing and prescribed fire in maintaining the pine barrens habitat. From page 22 of the Landscape Designations for DCR Parks & Forests: Selection Criteria and Management Guidelines (2012) "Habitat manipulation, silvicultural treatments and commercial harvesting operations are not permitted in Reserves. However, if deemed appropriate by DCR and reviewed by the FRSAC, the following exceptions may be allowed: a) Implementation of NHESP recommendations to restore, maintain or enhance habitat for rare and endangered species and exemplary natural or rare communities."

To facilitate the removal of the white pine and to maximize the in-kind services to the state forest one timber harvest across the units within the state forest will occur. Approval from the DCR Commissioner will be required for openings above 1/3 acre that harvest all merchantable trees.

Desired Future Conditions:

The desired future condition is an open canopy of large pitch pine and tree oaks above a dense understory of scrub oak, heath, and interstitial grassy glades. This will allow for the safe application of prescribed fire. The project will reduce wildfire risk to Charge Pond campground, Fearing Pond campground, Camp Cachalot and neighborhoods to the south.

Anticipated Future Treatments:

This project will promote regeneration of pitch pine, scrub oak and heath vegetation. Future silvicultural treatments will be prescribed burning, mowing, and a combination thereof to kill white pines that typically regenerate in such areas and to stimulate sprouting and growth of native shrubs. Active management using these methods will be planned in coordination with NHESP and done at variable frequencies and intensities to encourage a mosaic of pine barrens, shrublands, and woodland communities. DCR anticipates applying for a US Forest Service Wildfire Risk Reduction grant to mitigate fuel loads within the Charge Pond Campground.

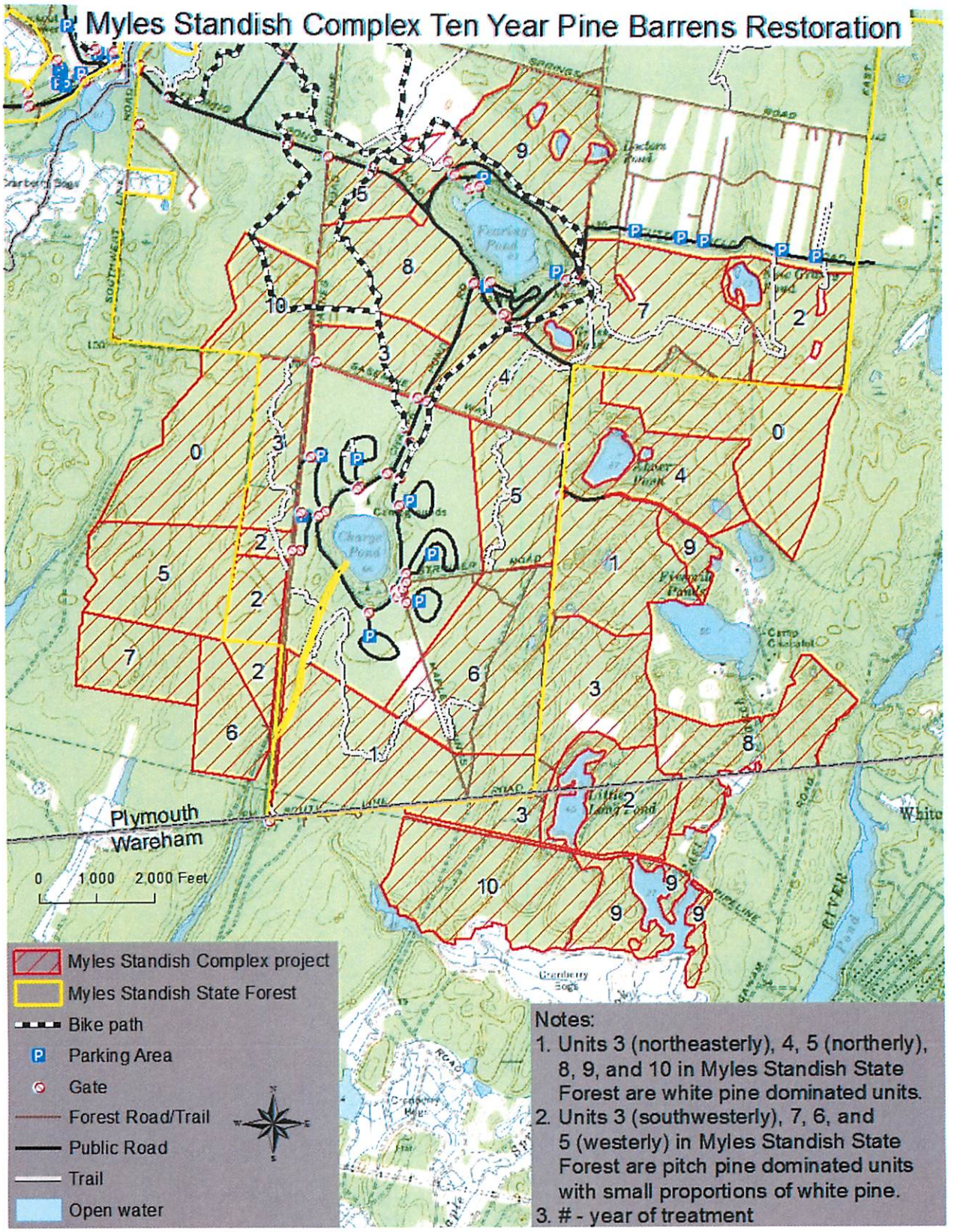
District Forester: Paul Gregory **Date:** 10/30/18

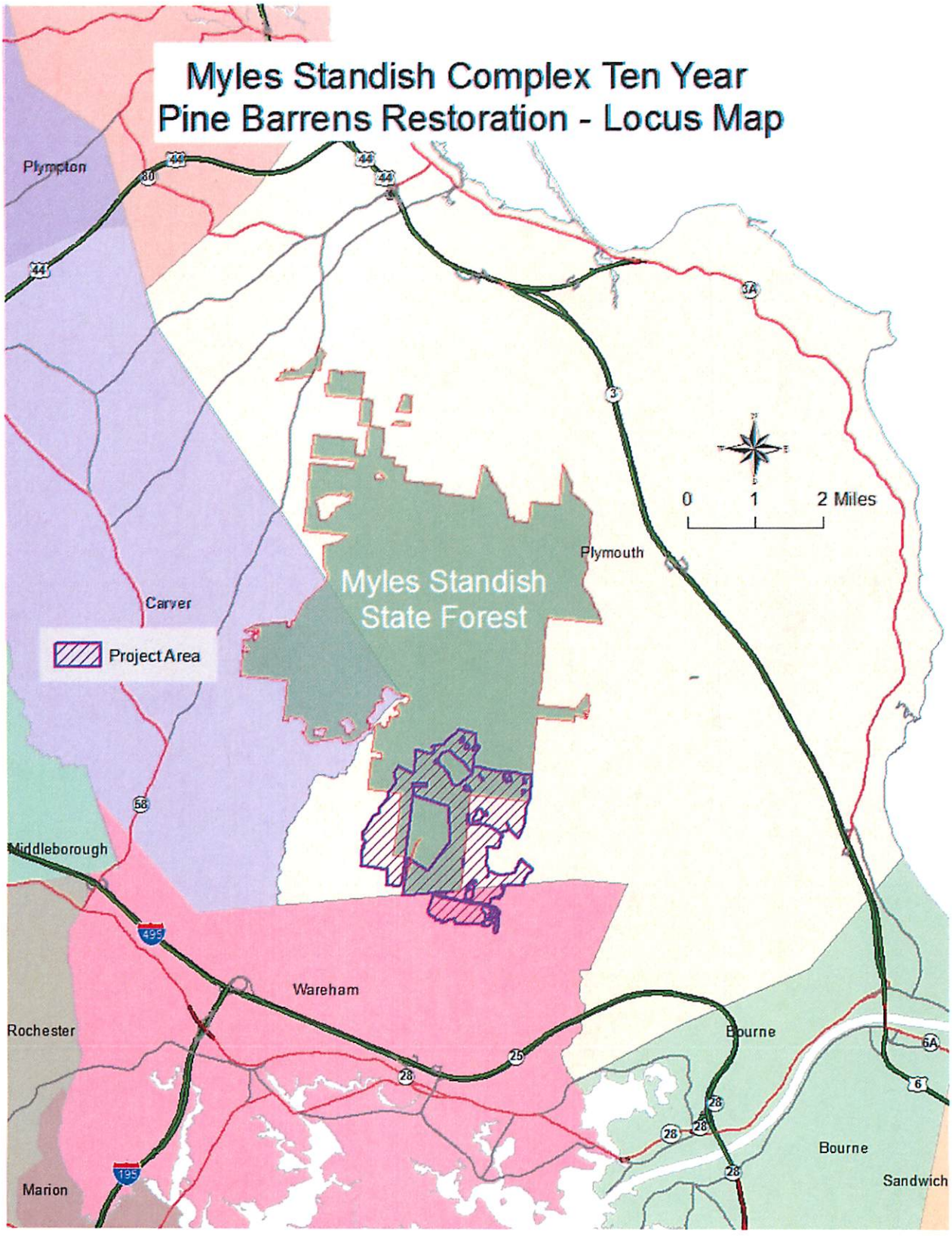
Field Operations Team Leader Or Park Supervisor: John C Roberts **Date:** 10/30/18

Regional Director: [signature] **Date:** 10/30/18

Management Forestry Program Supervisor: William Hill **Date:** 10/31/2018

Attached: Topographic map showing project details. Locus map showing project location within regional context.




Myles Standish Complex Ten Year
Pine Barrens Restoration - Locus Map
Plympton
Carver
Plymouth
Middleborough
Wareham
Rochester
Marion
Bourne
Sandwich
Myles Standish
State Forest
Project Area
0
1
2 Miles