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Silviculture Prescription
Charge Pond Campground Complex Protection Plan

Massachusetts Department of Conservation and Recreation
Bureau of Forestry

Southeast District
Myles Standish State Forest
Plymouth, MA

Prepared by:

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Approved by:

Management Forestry

Program Supervisor _____ _____ Date: 02/07/2022

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The Charge Pond Campground Complex Protection Plan consists of establishing a North and a South Safety Zone, each being 3.3 acres to be cleared of all vegetation (excluding ground cover), and 25 acres of upland forest to be thinned. The Safety Zones are not MESA exempt and will require a separate filing of a MESA Checklist (MESA# 21-40055).

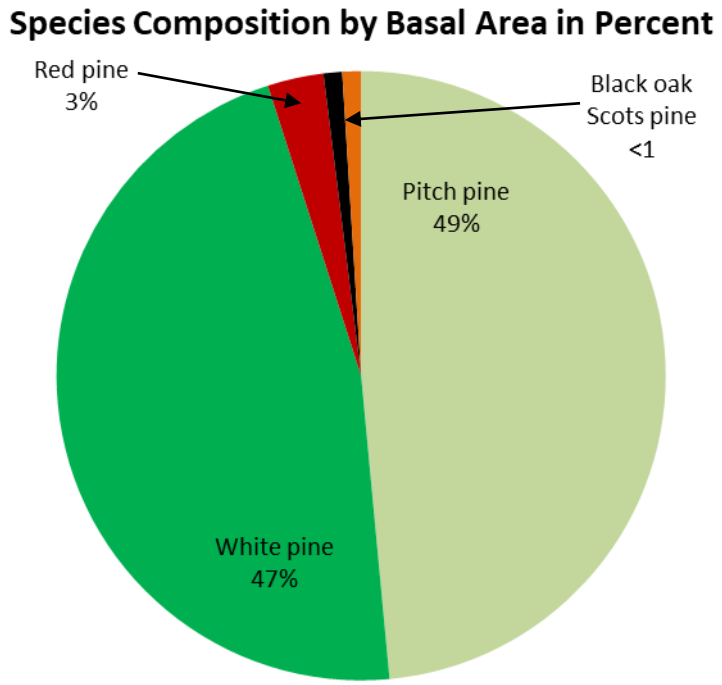
Forest Stand Attributes

The upland forest area is divided into 6 subunits ranging from 1.4 acres to 15.4 acres. These subunits are comprised mainly of pitch pine (*Pinus rigida)* and white pine (*Pinus strobus*) (Table 1 and Figure 1). There is a total of 228 overstory trees per acre of which 143 are pitch pine. The total basal area is 74.6 ft2/acre. The median overstory tree diameter is 9.4 inches.

Table 1 – Stocking Diagnostics

Species	Trees/acre	BA/acre	% BA/acre by species	Relative density
Pitch pine	142.6	36.5	49%	49.5
White pine	78.5	35.0	47%	15.4
Red pine	4.6	2.3	3%	1.2
Black oak	1.2	0.4	<1%	0.4
Scots pine	0.9	0.4	<1%	0.5
Total	227.8	74.6	100%	67

Figure 1. Stand Species Composition



The only tree regeneration species found were pitch pine and white pine (Table 2).

Table 2 – Regeneration

Species	1	2	3	4	Total
Pitch pine	35	58	58	254	405
White pine	231	46	12	12	301
Total	266	104	70	266	706

1= ≥ 3" to < 1' in height; 2= ≥ 1' to < 4.5' in height; 3= ≥ 4.5' to <1" dbh; 4= ≥ 1" dbh to <5"dbh

Ground cover consists mainly of low bush blueberry (*Vaccinium angustifolium*), black huckleberry (*Gaylussacia baccata*), wintergreen (*Gaultheria procumbens*), and scrub oak (*Quercus ilicifolia*) with small amounts of bearberry (*Arctostaphylos uva-ursi*), bracken fern (*Pteridium aquilinum*), and reindeer lichen (*Cladonia rangiferina*). Trace amounts of shadbush (*Amelanchier canadensis*), Pennsylvania sedge (*Carex pensylvanica*), and sheep laurel (*Kalmia angustifolia*) were also found (Table 3).

Table 3 – Ground Cover

Species	% Plots Observed	Average % Cover
Bearberry	38%	20%
Black huckleberry	96%	37%
Bracken fern	15%	26%
Penn. sedge	4%	3%
Low bush blueberry	100%	51%
Reindeer Lichen	35%	15%
Scrub oak	100%	34%
Shadbush	8%	1%
Sheep laurel	4%	1%
Wintergreen	77%	11%

Wildlife Habitat Conditions

The areas of Charge Pond Campground Complex Protection Plan are within priority habitats of rare species. The pitch pine-scrub oak barrens scattered throughout the project area provide habitat for a diversity of state-listed animals and plants, including 13 species of moths and butterflies: Barrens Daggermoth (*Acronicta albarufa*), Frosted Elfin (*Callophrys irus),* Gerhard's Underwing Moth (*Catocala herodias Gerhard*), Melsheimer's Sack Bearer (*Cicinnus melsheimer),* Slender Clearwing Sphinx Moth (*Hemaris gracilis*), Barrens Buckmoth (*Hemileuca maia*), Buchholz's Gray (*Hypomecis buchholzaria*), Coastal Swamp Metarranthis Moth (*Metarranthis pilosaria*), Pink Sallow Moth (*Psectraglaea* carnosa), Pine Barrens Speranza (*Speranza exonerate*), Pine Barrens Zale (*Zale Lunifera*), Pine Barrens Zanclognatha (*Zanclognatha martha*) and one other moth species*; two tiger beetle species: Purple Tiger Beetle (*Cicindela purpurea*), and one other tiger beetle species*; and two species of plant: Reed Bentgrass (*Calamagrostis pickeringii*) and New England Blazing Star (*Liatris scariosa* var.

novaeanglia). * Natural Heritage and Endangered Species Program (NHESP) does not publicly reveal the name or location of this species in property-specific documents.

Water Resources

No wetland resources occur in the project area. The project area is not within 100 feet of a certified vernal pool according to the NHESP datalayer downloaded February 7, 2022, available from MassGIS. The upland forest area and the two Safety Zones are more than 100 feet from Charge Pond.

Evaluation of Data and Projected Results

Objectives

The primary objective is to reduce the fuel load in the Charge Pond Campground Complex to protect campers in the event of a wildfire. The Complex is imbedded in a fire-dependent ecosystem with high fuel hazards. This operation will lessen potential wildfires thereby increasing public safety as well as provide safe access for firefighters and fire apparatus.

The secondary objective 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 an understory of scrub oak and other native shrubs. These communities are often referred to as 'pine barrens'. Reducing the canopy cover will result in an open habitat benefiting a variety of rare, declining, and common species.

Silvicultural Prescription

Targeted removal of pitch pine and the removal of white pine, red pine, and Scots pine to achieve an approximate 80 to 90% reduction in canopy cover. This will reduce the fuel load and thereby reduce the threat of a wildfire from affecting campers.

Future treatments of mowing and/or prescribed burning will be employed to maintain these unique communities.

Specifications

Thinning between campground loops will occur and spacing will be based on a tree's diameter. Research conducted at the University of Massachusetts under the direction of Dr. Patterson-Fire Ecologist found a forest with a basal area of 12 square feet/acre and with a wind of 60 mph did not result in a crown fire. This translates to spacing a 12 in. diameter tree 33 ft. from any other tree to restrict a crown fire from occurring. Overstory density will be reduced by mowing or mulching in place using a forestry mulching head. All tree oak will be retained. Pitch pine retention will focus on large, fullest-crowned trees. All white pine, red pine, and Scots pine will be removed. Standing dead trees within a tree length of any road, bike path, or trail will be removed.

Areas with large diameter trees: large diameter trees will be removed to meet the retention/spacing guidelines by whole-tree harvesting and chipping, with all logs and chips removed from the site to allow for future use of mowing and/or prescribed fire in maintaining the

pine barrens habitat. Removal, rather than mulching in place, of large diameter trees will occur to limit the accumulation of material, as it would inhibit the development of shrubs.

All work should occur from November 1 to April 1 in order to protect rare species. If work outside of this timing window is needed, further coordination with NHESP will be necessary to develop protective measures for rare species.

Desired and Expected Results

The desired future condition is an open canopy of large pitch pine and tree oaks above an understory of scrub oak and heath species.

Anticipated Future Treatments:

This project will promote regeneration of pitch pine, scrub oak and heath vegetation. Future treatments will be mowing and/or prescribed fire to kill white pines that typically regenerate in such areas and to stimulate sprouting and growth of native shrubs. Active management will be planned in coordination with NHESP.

Logging System Requirements

The method to remove the larger trees will be whole tree harvesting and chipping, with all chips removed from the site to allow for future use of mowing and/or prescribed fire in maintaining the pine barrens habitat.

In order to facilitate post-treatment mowing and/or prescribed burning, resulting mulch from the mulching operation will need to consist of shredded, non-compacted woody material (<3" deep) that will minimize packing and will maintain air space to promote drying and decomposition. A flail mulching head on a rubber-tired tractor is the preferred type of equipment for mulching stems up to about 6" dbh, and a forestry mulching head mounted on a tracked excavator is the preferred type of equipment for mulching stems greater than 6" dbh.

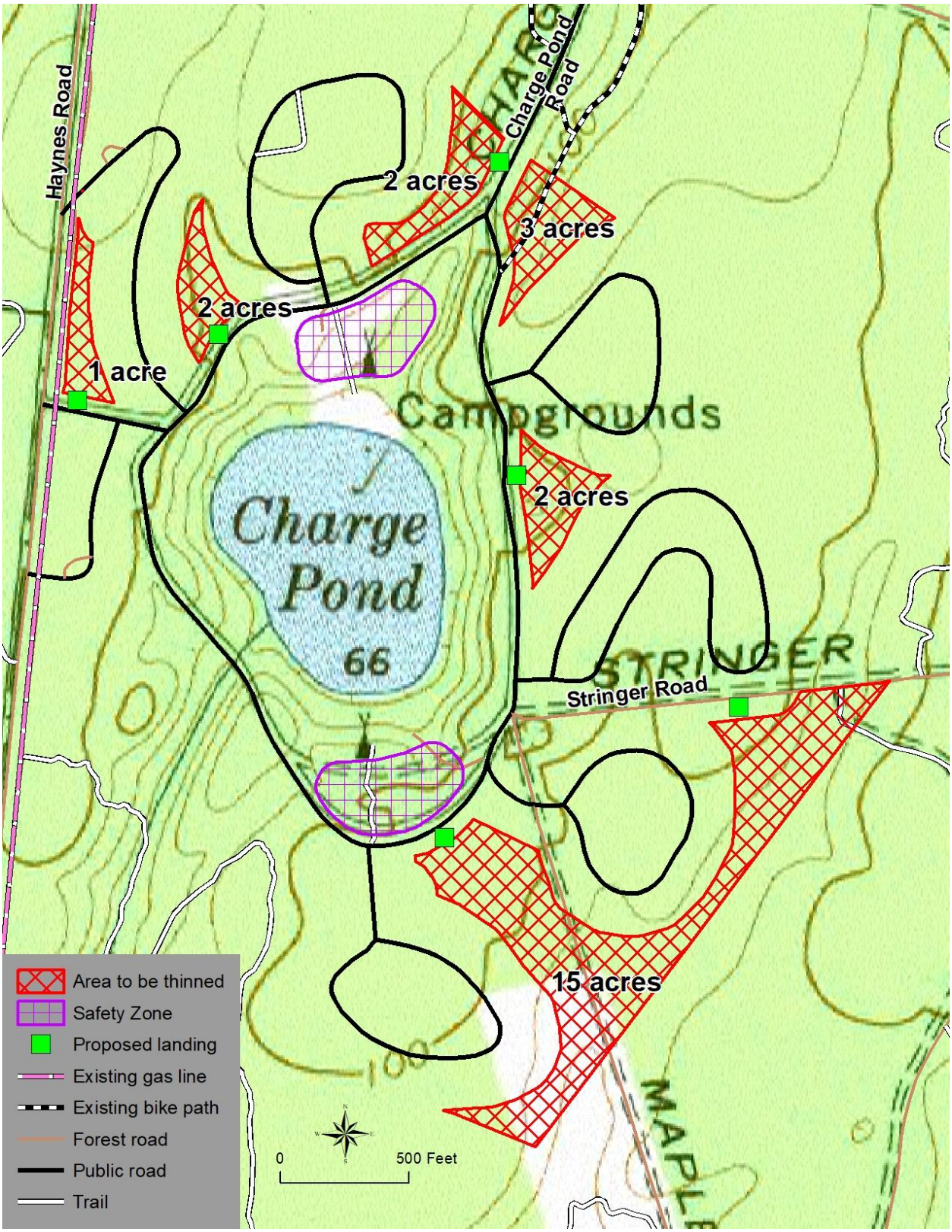
A steel plate (or another approved method) will be necessary for crossing the paved bike path. The project will have multiple landings which are indicated on the Harvest Map. Signs will be displayed to close the sale area during timber harvesting operations. Dirt roads will be graded if damage, e.g. ruts, has occurred from timber harvesting operations.

Prescription Documentation

Timber Marking Guidelines

The sale boundary will be marked with triple paint dots. As this project involves restoring disturbance dependent natural communities there will be no set skid roads, but rather a directive to broadcast travelled routes throughout the project area. The trees will be designated for removal with the "Save Tree" marking method. Trees to be retained will be marked/painted with red paint. All other trees will be mulched in place or removed.

Charge Pond Campground Complex Protection Plan Harvest Map



Charge Pond Campground Complex Protection Plan Locus Map