DCR-BOFF Forest Management Prescription

Project Name: **Plantation Removal & Restoration Year 1**	Date Proposed: 2/01/2022
Property Name: Manuel Correllus State Forest	Town(s): Edgartown
Acres: 79	Landscape Designation: Reserve
Forestry District: Southeast	Rec Complex/District: Manuel Correllus / Cape Cod
Forester: Gregory	FOTL/F&P Supervisor: Laffey (both)

Approved by:
Management Forestry
Program Supervisor _____ Date: _____
Thomas Brulé

MASSACHUSETTS FOREST ACTION PLAN GOALS

***** Manage forest ecosystem health and biodiversity

GENERAL LOT DESCRIPTION

Acres	Forest Type		Stand Description
79	Overstory: Eastern white pine plantation	Understory: Ranging from no understory to heath species and white pine saplings.	32-acre plantation is closed canopy with little to no ground cover or understory. 47-acre plantation has a more open canopy with tree oaks and shrubs. Sizes range from highly dense pole sized (6" to 10.9" diameter at breast height (dbh)) to large sawlog (>15" dbh).

Description of Project Area: The plantations range from heavily stocked closed canopy to sparsely stocked with open canopy where either past treatment (salvage, thinning, and shelterwood) or insects/diseases have occurred. The plantations do not consist entirely of just one species but a variety of species to various degrees. Dead red pine (cut stumps, existing snag, or coarse woody material) can be found in the plantations.

SOILS AND TOPOGRAPHIC FEATURES

Acres	Soil Type	Drainage Characteristic
41	Carver loamy coarse sand	Excessively drained
31	Riverhead sandy loam	Well drained
7	Klej loamy coarse sand	Moderately well drained

Average Slope Percent:0-5%	Terrain Consistency: Constant
General Aspect: South	Terrain Position: Flatland
Description of Soils and Topographic Features: The project area is comprised of mainly flat terrain. The soils are the result of glacial outwash.	

WETLAND FEATURES

	Present	Crossing	Work within Filter/Buffer
Wetlands:	No	No	No
Regulated Streams:	No	No	No
Non-Regulated Streams:	No	No	No
Vernal Pools:	No	No	No
Seeps:	No	No	No

Description of Wetland Features: No wetland features are in project area.

CULTURAL RESOURCES

	Present	At Risk	Work Within Buffer
Stone Walls:	No	No	No
Foundation / Cellar Hole:	No	No	No
Well:	No	No	No
Structures:	No	No	No
Cemetery:	No	No	No
Other: Click or tap here to enter text.	No	No	No

Description of Cultural Resources: The project will have an archeological review and evaluation by DCR's archeologist. Any recommendations will be incorporated into the final scope of work.

NATURAL HERITAGE / WILDLIFE-HABITAT MANAGEMENT / OTHER RESOURCES

Natural Heritage Polygon: Yes	Natural Heritage Restrictions: Possible
Restrictions on Harvest Description: Will adjust management to NHESP recommendations.	

Wildlife Specific Management: Yes	Targeted Species: Several State-listed plant and animal species.
Goals: To increase rare species habitat.	

Additional Habitat Management: Yes	Habitat Type: Native sandplain heathlands and pitch pine – scrub oak barrens habitats.
Goals: Increase habitat type.	

State Forest Action Plan: Yes	State Wildlife Action Plan: Yes
ACEC: No	Public Water Supply: Yes
BIO Map2: Yes	Current Resource Management Plan: Yes
Additional Detail: A portion of the project area is within a DEP Approved Wellhead Protection Area Zone II.	

FOREST HEALTH / INVASIVE SPECIES

Forest Health Concern: No	Species Affected: Click or tap here to enter text.
Management Considerations: Click or tap here to enter text.	

Plant Invasive Species Present: Yes	Species Present: Spotted Knapweed
Management Considerations: Invasive is located just outside the southeast corner of the 47-acre plantation. DCR's Ecology program will treat invasive.	

Insect Invasive Species Present: Possible	Species Present: Click or tap here to enter text.
Management Considerations: Forest Health trapping program may result in invasive insect being present. Will revise project if necessary.	

INFRASTRUCUTRE / RECREATION/ AESTHETICS

Access Road: Fire Road 11	Ownership: DCR
Condition: Good	Road Repair/Upgrade: No
Existing Landing: No	Landing Repair/Upgrade: No
Project Access and Landing Site: Landings will be within the 32-acre stand and on Edgartown – West Tisbury Road (State Highway). Fire Road 11 may need to be stabilized during operations and graded following operations due to soft areas. All forest roads will be continually maintained in order to preserve them in their current condition. Forest roads will need to be passable for emergency vehicles. No new gravel will be used to maintain forest roads.	

Existing Skid Trail Network: No	Pre-Harvest Repair/Upgrade: No
Skid Trail Network Description: Click or tap here to enter text.	

Shared Infrastructure: No	Road/Trail Names: Click or tap here to enter text.
Management Considerations: Click or tap here to enter text.	

Official Trail Present: Yes	Condition: Good
Illegal Trail Present: Possible	Condition: Click or tap here to enter text.
Existing Trail Head: Yes	Condition: Good
Recreation Facility: No	Condition: Click or tap here to enter text.
Recreation and Aesthetic Concerns/Opportunities: Landings will be within 32-acre stand and on Edgartown – West Tisbury Road (State Highway). Fire Road 11 may need to be stabilized during operations and graded following operations due to soft areas. Paved bike path will be closed during active operations.	

SILVICULTURE

Acres	Silviculture Type	Silviculture Description
47	Seed Tree	All white pine and Scots pine will be removed. The canopy will be thinned in some areas, to complete overstory removal in other areas depending on the density of existing tree species. All tree oak and pitch pine will be retained.
32	Patch Cuts	Stand will be partially treated with patch cuts of 3 acres initially to observe if any native seed stock is present. Patches will be located at least 75 feet from the nearest road. All tree oak and pitch pine will remain.

General Comments on Silviculture Proposed: The overstory removal of non-native conifer plantations will facilitate the establishment of native species and to allow for future prescribed burning and/or mechanical mowing. The desired future condition is an open canopy of tree oak and scattered pitch pine above a dense understory of scrub oak with scattered openings of heathland species. This will allow for the safe application of prescribed fire as well as reduce the wildfire risk.

CLIMATE ADAPTATION AND CARBON CONSIDERATIONS

Action Type	Identified Issue	Action Description
Resilience	Existence of non-native conifer plantations and their inability to provide high-quality native habitats.	Restore native sandplain heathlands and pitch pine – scrub oak barrens habitats through the removal of existing non-native conifer plantations and subsequent application of prescribed fire. Restoring these fire dependent natural communities will provide habitat for a diversity of rare species.

Adaptive Management Strategies:
• Maintain or restore a diversity of native tree and understory plant species.
• Use prescribed fire and mechanical treatments to manipulate structure and composition to reduce the risk of wildfire.
• Increase fuel reduction treatments in the wildland-urban interface.
• Restore fire-adapted ecosystems using fire-tolerant and drought-adapted native species that are expected to be resilient to future climate and fire regimes.

Climate Change Considerations	
DCR has determined the decision to implement this project is consistent with EEA climate goals and guidelines and agency land management objectives. Carbon and climate change considerations specific to the activities proposed for this project are discussed below.	
Proposed Activity	**Alignment of Activity with Climate Oriented Strategies and Recommendations**
13: Full overstory removal, complete stand, plantation conversion to native species. Examples: a. Silvicultural clearcut with subsequent regeneration by natural seeding from adjacent forests or assisted seeding/planting. b. Removal of plantation overstory to release advanced regeneration of native species. Partial plantation removal (strips, patches) to stimulate regeneration, followed by removal of remainder of plantation.	Long considered a critical practice on agency lands to improve biodiversity and forest resilience, the **conversion of single-species conifer plantations** to more diverse mixes of native species has also been encouraged as a climate-smart practice by The Northern Institute of Applied Climate Science and other climate adaptation experts. Tree monocultures, intensively managed throughout the world to produce much of the wood we all use, are **highly vulnerable** to the kinds of **pest and disease** impacts that are likely to worsen as climate changes. Conversion of monoculture plantations aligns with many climate-smart forestry practices highlighted in the Climate Forestry Committee report, including but not limited to: • Improving **resistance to pests and pathogens**. • Increasing resiliency by promoting **diversity of plant species.** • Providing age class/**structural diversity**. • Improving conditions for a wide variety of local wildlife through the creation of temporary **young forest** habitat. • Promoting **future-adapted tree species** in the regeneration mix.

16: Full overstory removal, partial stand, patch regeneration cut.	Patch cutting is a regeneration technique that straddles the boundary between classic even-aged and uneven-aged forest management systems. Foresters select appropriate areas ('patches' or 'groups') covering a portion of the stand to harvest rather than removing the entire stand and then return periodically to repeat the process in other portions of the stand. In using patch cutting there is no final regeneration cut. Patch size and shape are determined by many different factors including overstory condition, desired species composition in the regeneration layer, other desirable herbaceous and woody vegetation, location, stand re-entry period, etc. Harvesting in patches aligns with many **climate-smart forestry practices**: • Increasing **structural diversity** improves resiliency by reducing the impact of age/size related disturbances. • Extending regeneration periods minimizes short term impacts to groundwater and nutrient cycling. • Partial stand overstory removals more closely align with **natural disturbance patterns**. • More **carbon is left on the landscape** for longer periods, and within-patch live tree, snag, and coarse debris retention allow for development of old forest characteristics. • Can also be used as opportunities to increase the stocking of **future climate adapted species, current climate imperiled species**, or other types of desirable vegetation.

STAND EXAM DATA

Stand/Type: 32 acre - White pine plantation		
Overstory: Comprised mainly of white pine (*Pinus strobus*) (Table 1 and Figure 1). There is a total of 459 overstory trees per acre of which 427 are white pine. The total basal area is 179 ft^2/acre. The median overstory tree diameter is 11.4 inches.		
Understory: Tree regeneration consists mainly of white pine with small amounts of oak species (Table 2).		
Shrub/Herbaceous: Consists mainly of lowbush blueberry (*Vaccinium angustifolium*), black huckleberry (*Gaylussacia baccata*), and scrub oak (*Quercus ilicifolia*), with traces of bracken fern (*Pteridium aquilinum*) (Table 3).		
Snag/Acre: 28	**CWD: 72 cu.ft./acre**	Click or tap here to enter text.
Stand/Type: 47 acre - White pine plantation		
Overstory: Comprised mainly of white pine and white oak (*Quercus alba*) (Table 4 and Figure 2). There is a total of 310 overstory trees per acre of which 218 are white pine and 75 are white oak. The total basal area is 159 ft^2/acre. The median overstory tree diameter is 12.6 inches.		
Understory: Tree regeneration consists mainly of white pine with small amounts of oak species with traces amounts of black cherry (*Prunus serotina*) (Table 5).		
Shrub/Herbaceous: Consists mainly of lowbush blueberry and black huckleberry, with small amounts of wintergreen (*Gaultheria procumbens*), scrub oak, and highbush blueberry (*Vaccinium corymbosum*), with traces of Mayflower (*Epigaea repens*), Pennsylvania sedge (*Carex pensylvanica*), sheep laurel (*Kalmia angustifolia*), and spotted wintergreen (*Chimaphila maculate*) (Table 6).		
Snag/Acre: 81	**CWD/Acre: 412 cu.ft./acre**	Click or tap here to enter text.

MARKING INSTRUCTIONS

Project Level: 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 project boundary will be marked by three diagonal blue stripes. Sale boundary trees will be cut. As all trees greater than or equal to 4" in dbh will be removed, only the sale boundary will be marked. Flagging will define any areas not to be treated.

PERMIT REQUIREMENTS / OPPORTUNITIES

	Description
Seasonal Restrictions: Possible	A Natural Heritage time of year restriction is possible.
Equipment Restrictions: Yes	Equipment will be restricted to its ability to process whole trees.
Recreation Restrictions: Yes	Roads, trails, and the paved bike path will be closed during mechanical operations. Wooden benches existing in the project area will be temporarily removed.
Green Docket: Possible	Depending on Natural Heritage review.
In-kind Services: No	Click or tap here to enter text.

Potential Local Economic Benefits: The harvesting of wood products may provide an opportunity for the trees harvested to be utilized locally. Benefits for the visiting public include improved birding and wildlife viewing, and improved hunting opportunities.

Table 1 – Stocking Diagnostics (32-acre stand)

Species	Trees/acre	BA/acre	% BA/acre by species	Relative density
White pine	426.7	166.7	93%	75.59
White oak	7.2	5.3	3%	4.48
Black oak	17.5	2.7	1%	2.88
Scots pine	7.4	4	2%	4.65
Total	458.8	178.7	100%	88

Figure 1. Stand Species Composition (32-acre stand)

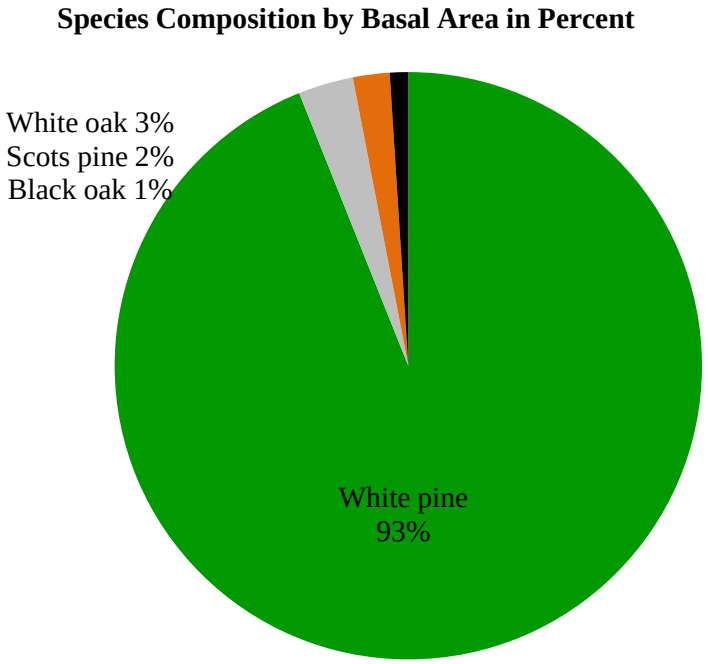


Table 2 – Regeneration (32-acre stand)

Species	1	2	3	4	Total
white pine	80	60	80	360	580
white oak	60	20	40	20	140
black oak	20	0	20	40	80
Total	160	80	140	420	800

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

Table 3 – Ground cover (32-acre stand)

Species	% Plot Observed	Average % Cover
Black huckleberry	33%	22%
bracken fern	7%	10%
Low bush blueberry	33%	18%
Scrub oak	20%	5%

Table 4 – Stocking Diagnostics (47-acre stand)

Species	Trees/acre	BA/acre	% BA/acre by species	Relative density
White pine	218.4	126.7	80%	51.19
White oak	75.0	29.2	18%	26.21
Black oak	16.0	3.3	2%	3.31
Total	309.5	159.2	100%	81

Figure 2. Stand Species Composition (47-acre stand)

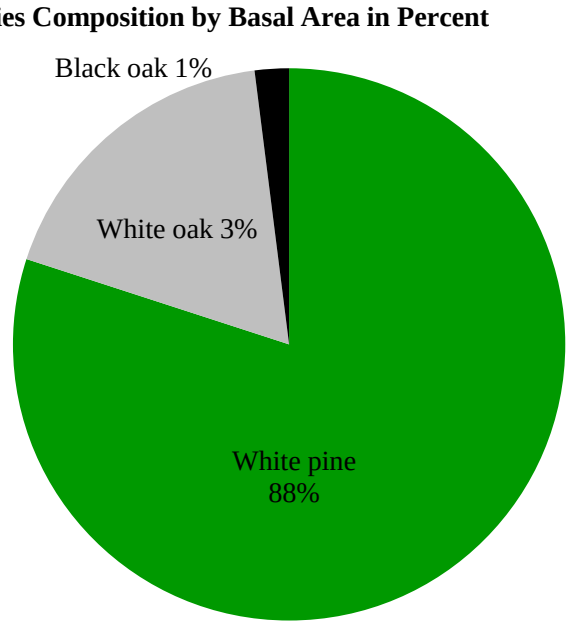


Table 5 – Regeneration (47-acre stand)

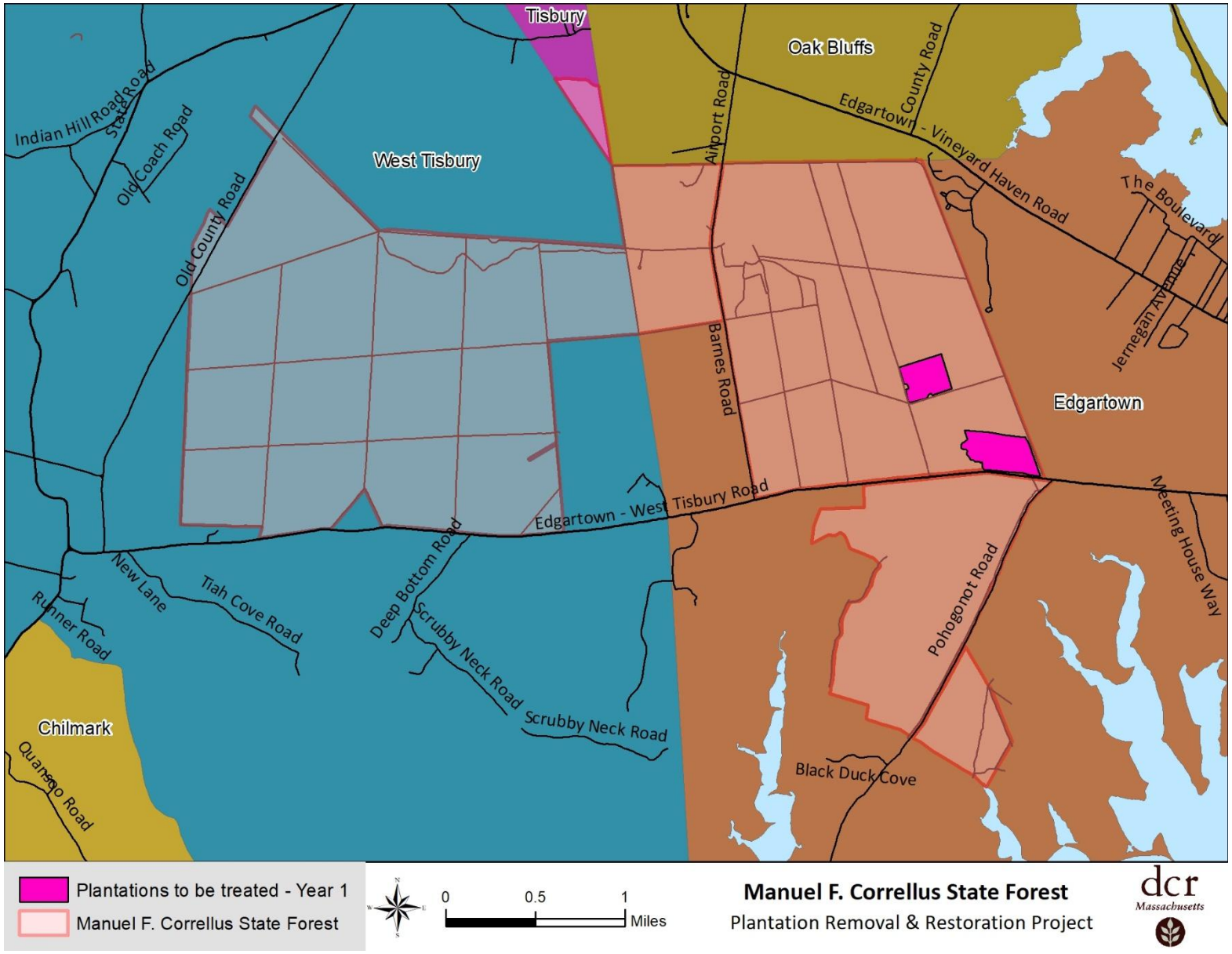
Species	1	2	3	4	Total
White pine	975	675	288	338	2,276
white oak	288	13	13	0	314
Black oak	38	13	0	13	64
Black cherry	13	0	0	0	13
Total	1,314	701	301	351	2,667

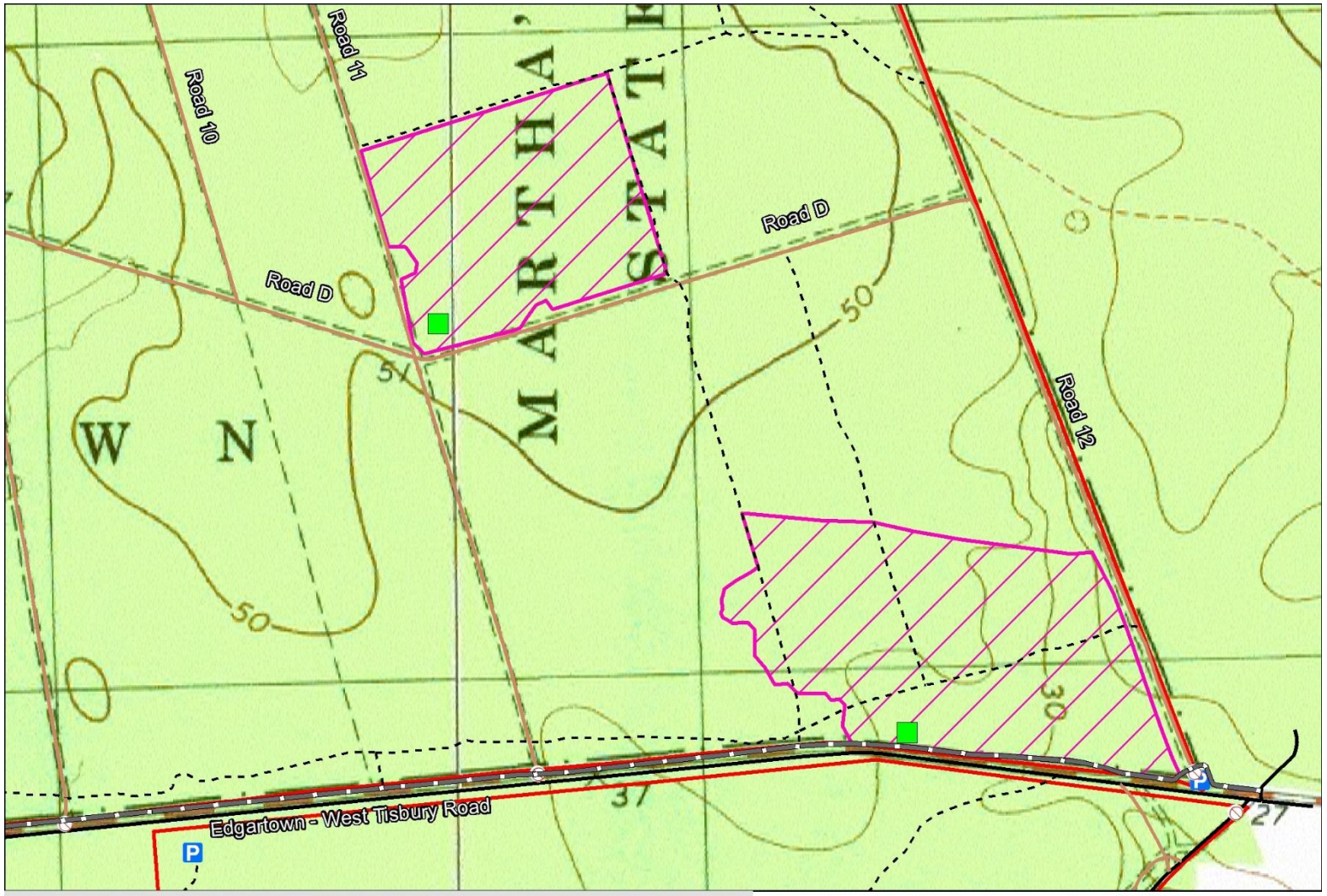
1= ≥ 3” to < 1’ in height; 2= ≥ 1’ to < 4.5’ in height; 3= ≥ 4.5’ to <1” dbh; 4= ≥ 1” dbh to <5”dbh

Table 6 – Ground cover (47-acre stand)

Species	% Plots Observed	Average % Cover
Black huckleberry	75%	34%
highbush blueberry	17%	15%
Lowbush blueberry	100%	25%
Mayflower	8%	1%
Penn. sedge	4%	1%
Scrub oak	25%	6%
Sheep laurel	4%	20%
Spotted wintergreen	4%	1%
Wintergreen	33%	4%

Attachments:
Locus Map & Prescription Map


Tisbury
Oak Bluffs
West Tisbury
Edgartown
Chilmark
Indian Hill Road
State Road
Old Coach Road
Old County Road
Airport Road
County Road
Edgartown - Vineyard Haven Road
The Boulevard
Jernegan Avenue
Barnes Road
Edgartown - West Tisbury Road
Meeting House Way
Pohogonot Road
New Lane
Runner Road
Tiah Cove Road
Deep Bottom Road
Scrubby Neck Road
Scrubby Neck Road
Quansoo Road
Black Duck Cove
Plantations to be treated - Year 1
Manuel F. Correllus State Forest
0
0.5
1
Miles
Manuel F. Correllus State Forest
Plantation Removal & Restoration Project
dcr
Massachusetts


Road 10
Road 11
Road D
Road D
Road 12
MARTHA'S
W
N
50
50
30
37
27
Edgartown - West Tisbury Road
P
P
Plantations to be treated - Year 1
Proposed landing
Manuel F Correllus State Forest
Parking area
Gate
Bike path
Trail
Public road
Forest road
Manuel F. Correllus State Forest
Plantation Removal & Restoration Project
dcr
Massachusetts
0
500
1,000
Feet