CONSERVATION MANAGEMENT PLAN

for the property of

THE FUND FOR NORTH BENNINGTON, INC.

Lake Paran Property

Photo 1: A beautiful boardwalk makes enjoying scenic Lake Paran accessible for many!

Bennington & Shaftsbury, Vermont

2022 –2032 Planning Period

Long View Forest MANAGEMENT

Prepared By: Andrew Sheere, CF
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State of Vermont
Andrew Sheere, CF
Lic. #148.0121870
Long View Forest
Licensed Forester

USE VALUE APPRAISAL FOREST MANAGEMENT PLAN
SIGNATURE PAGE

I (we) certify that my (our) forest land, exclusive of any house site or other developed portion, is at least 25 acres in size and is under active long-term forest management for the purpose of growing and harvesting repeated forest crops in accordance with minimum acceptable standards for forest management. These management standards include the practices outlined in the booklet *"Acceptable Management Practices for Maintaining Water Quality on Logging Jobs in Vermont,"* which have been developed to help minimize stream siltation and soil erosion.

This signature page shall constitute an addendum to my forest management plan. By signing below, I understand I am signing my Use Value Appraisal Program, forest management plan and by doing so I agree to manage according to the current approved plan.

Robert Woolmington- President
The Fund for North Bennington, Inc.

3/14/2022
Date

NRCS Approval

Date

February 14, 2022

Andrew Sheere, CF
VT Licensed Forester #148.0121870
TSP 12-8326

Date

Approving County Forester

Date

TABLE OF CONTENTS

II. EXECUTIVE SUMMARY

The Fund for North Bennington's Lake Paran parcel is an ecologically diverse and special place that contains forests, wetlands, and meadows. The imprint of Robert Frost's homesteading remains on portions of this acreage, and the land reaches to the shoreline of a 35-acre lake, a key watershed habitat for birds in Southern Vermont. However, invasive plants heavily infest most of the acreage and threaten that diversity. Recommendations for the coming planning period focus on controlling the invasive plants throughout the property over the ten-year period that the plan covers. Failure to act on controlling invasive plants could result in the collapse of natural ecosystems.

Photo 2: The handsome Frost/Paran Creek Bridge makes crossing the creek a pleasure.

The availability of NRCS funds will be a critical condition for implementing the full range of these recommendations. The restoration of ecological functions here is important and makes this work worthwhile. In addition to invasive plant control, other management recommendations focus on:

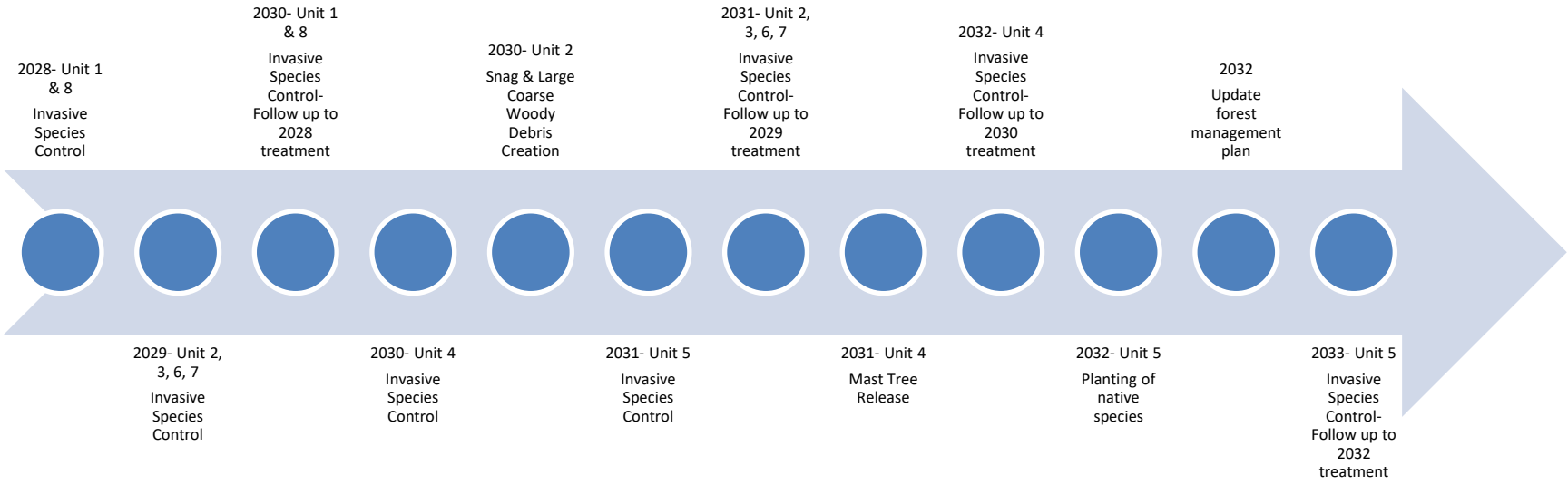
- Forest stand development,
- Wetland and upland habitat development,
- Trail construction, maintenance and enhancement,
- Releasing nut and fruit producing trees like hickory, oaks, beech, and black cherry for wildlife,
- Creating standing dead trees (snags) and large downed trees (large coarse woody debris) for habitat structure, and
- Possibly establishing continuous forest inventory plots (CFI) for ongoing monitoring of local conditions and education.

BACKGROUND

(The following text is quoted from the 2012 Conservation Management Plan)

> *The Property consists of 156.68 acres, including 2976 feet of shoreline along Lake Paran, 2,540 feet of shoreline along Paran Creek, and richly productive Class II wetlands. The poet Robert Frost formerly owned sixty-eight acres of the Property. The Property along Lake Paran's northerly shoreline is characterized by open marsh rising to thick woods. These woods are bordered on the east by a meadow and riparian marsh in the area of the Property that was formerly part of the McCarthy farm. Approximately 3.5 acres of open meadow surround the McCarthy farmhouse. (The homeowners retain two acres immediately around the farmhouse; they also retain the right to mow the meadows on the Property). At the east end of the lake, a slope covered with white birches rises steeply from the shoreline. In the area just easterly of the slope, the Property is generally flat and choked with Japanese honeysuckle, Lonicera japonicai, with some cleared areas populated with young maples and pines. From the inlet upstream to the Shaftsbury town line, Paran Creek's thickly vegetated banks adjoin wooded hillsides. The valley slopes become steeper upstream of the footbridge erected by The Fund for a trail crossing. This narrow valley is isolated from development and, until acquisition of the Property by The Fund, had been generally inaccessible to the public. The valley almost certainly serves as a wildlife travel corridor, but no studies have been undertaken to verify the extent of such use. Beavers often are active in this stretch of the creek, and periodically dam the waters into broad pools filled with small, native trout. Just north of the Shaftsbury town line, a large wetland complex on the Property gives rise to a tributary of Paran Creek. Robert Frost purchased most of this wetland in 1920. Frost's tract included the Stone House on Route 7A in Shaftsbury. Then known as the "Peleg Cole House," the Stone House and several surrounding acres today are owned by the Robert Frost Stone House Museum (the Frost Museum), a Vermont non-profit corporation. In 1920, Frost's land was mostly cleared. Frost maintained an apple orchard upslope from the wetlands.*

MANAGEMENT TIMELINE



III. PROPERTY OVERVIEW

A. Property Summary

Grand List Landowner Name	The Fund for North Bennington, Inc.
Mailing Address	C/O Robert Woolmington, President P.O. Box 803 North Bennington, VT 05257
Street Address	Vermont Route 7A
Coordinates	Robert Frost trailhead parking area adjacent to Robert Frost Stonehouse Museum. 42.933353, -73.210009
Primary Contact:	Robert Woolmington, President
Phone	802-282-3401
Email	thefund@northbennington.org
Town Where Land Is Located	Bennington & Shaftsbury
County Where Land Is Located	Bennington
Grand List Acreage	Bennington: 54.39 Shaftsbury: 102.29
SPAN	Bennington: 051-015-63836 Shaftsbury: 573-180-10023
Orthophoto(s)	092044 & 092048
Document Objective and General Property Description	This 10-year Conservation Management Plan ("CMP") is valid from 2022-2032. The information presented in this management plan will supersede the management plan adopted by The Fund for North Bennington, Inc. in 2012. This plan is a guide to the current condition of the forest, and to scheduled forest management activities for the upcoming planning period. This plan also conforms to the standards adopted by the Current Use Advisory Board for eligibility under Vermont's Use Value Appraisal ("UVA") program.
Adaptive Management	*"Is a dynamic approach to forest management in which the effects of treatments and decisions are continually monitored and used, along with research results, to modify management on a continuing basis to ensure that objectives are being met."* *(Excerpted from the Society of American Foresters "Dictionary of Forestry")*

	Using this adaptive approach, it is important to remember that this Plan is a document used to guide, not dictate, forest management. Changeable conditions like insect or disease outbreak, changes in landowner goals, or changing market conditions are examples of events that may necessitate amending the plan. Requests to amend the plan are subject to approval from the County Forester. Additionally, the plan does not preclude the need for scoping areas in advance of management operations or the need for annual monitoring of the forest.
Purpose of the Use Value Appraisal Program (A.K.A. Current Use)	The purpose of Vermont's Use Value Appraisal law is to: • encourage and assist in the maintenance of Vermont's productive agricultural and forest land, • encourage and assist in the conservation and preservation of these lands for future productive use and for the protection of natural ecological systems, • prevent the accelerated conversion of these lands to more intensive use by the pressure of property taxation at values incompatible with the productive capacity of the land, • achieve more equitable taxation of undeveloped lands, • encourage and assist in the preservation and enhancement of Vermont's scenic natural resources, and • enable the citizens of Vermont to plan its orderly growth in the face of increasing development pressures in the interest of the public health, safety, and welfare. *(Excerpted from the Use Value Appraisal Program Manual dated March 31, 2010)*
Long View's Role in Ongoing Stewardship	As your forester and agent, we strive to represent your best interests. Please call us for a consultation when: • When there is a change of ownership • When you sell or purchase land • When forest management activities are called for in this management plan • If you complete a forest management practice that we were not directly involved with • Anytime you have a question about your forest or what lives in it; we love to hear from you!
Record Keeping	Records of forest management activities should be maintained for a period of at least 5 years. And include such items as • Forestry invoices

	• Contracts and work orders • Timber harvest paperwork & mill slips. • A journal of forest practices completed (harvests, timber stand improvement, invasives management, etc.)
Landscape Setting/Biophysical Region	This property is located in Bennington County, Vermont, in the northeastern United States, and falls within the Vermont Valley biophysical region. Like the greater region, the Lake Paran lands are a mix of forests, fields, wetlands, and other waterbodies. The area has a high number of agricultural fields but also larger blocks of forestland. North Bennington (pop ~1700) and South Shaftsbury (pop. ~400) are the closest towns.
Land Use History	There is no known site-specific evidence of the extent of use of the property by indigenous people prior to European settlement. The many old stone walls present on the landscape nod to the property's intense agricultural history after European settlement commenced in the 1760s. As settlers and their economies changed, fields under cultivation or in pasture were abandoned and grew back to forest. Some meadows are periodically mown to keep them in an open condition. Management other than for recreational purposes has not occurred on the land in a very long time. Extreme populations of honeysuckle and other invasive-exotic plants threaten biological diversity on the landscape.
Forests of Recognized Importance (FORI)	This forest: ☐ - IS; ☒ - IS NOT a FORI Forests of Recognized Importance (FORI) (A.K.A. high value conservation forest, HVCF) represent globally, regionally, and nationally significant large landscape areas of exceptional ecological, social, cultural, or biological values. These forests are evaluated at the landscape level, rather than the stand level and are recognized for a combination of unique values, rather than a single attribute. FORIs may include but are not limited to landscapes with exceptionally high concentrations of one or more of the following: (Definition from American Tree Farm System: https://www.treefarmsystem.org/fori)

Management Goals *(not necessarily listed in order of importance)*

The Property will be managed for purposes of conserving natural habitat, restoring old-growth forest, and improving forest resiliency, providing trails for public use, allowing non-motorized public recreation, maintaining scenic and historic qualities and for serving as a laboratory for scientific study and education.

- There shall be no commercial harvesting of trees.
- Invasive, non-native species such as honeysuckle, buckthorn, bittersweet, multiflora rose, barberry, and euonymus may be removed.
- Except as otherwise specified in this plan, trees shall be cut only for the following purposes:
  - Construction and maintenance of foot trails,
  - Protection of the public safety,
  - Removal of diseased specimens,
  - To foster regeneration of native species in connection with removal of invasive shrubs, to release mast trees or in small, experimental patches,
  - To maintain the historic boundaries of the Property's meadows,
  - To improve views of the lake and village from the top of the slope above the eastern lake shore,
  - To conserve the existing wetlands, and/or
  - To restore landscapes near the Stone House to more closely approximate the farm's qualities at the time it was owned by Robert Frost.
- Historic stonewalls shall be preserved.
- Downed timber shall not be physically removed from the Property.
- To protect aesthetic and environmental values.
- To protect cultural and historical sites.
- To provide diverse habitat for wildlife, including but not limited to endangered shrubland and waterway birds.
- To provide recreational opportunities for the community.
- To provide riparian habitat that will help maintain water quality in Paran Creek and Lake Paran.

Statement on Invasive Plants and Their Proposed Control.

(From the 2012 Conservation Action Plan)

Eradicating invasive species. Long-term restoration of woodlands on the Property will be greatly delayed and impaired by the widespread infestation of Japanese honeysuckle. In areas (particularly on the uplands above the east end of Lake Paran and along Paran Creek upstream from the railroad bed) the honeysuckle is so thick that access can only be gained on hands and knees. This thick web of vegetation chokes out all competition. The Fund consulted with James White, then the County Forester in Bennington County, and with Alan Calfee, of Dorset, a forester and teacher of best management practices. Both strongly recommended that The Fund undertake a systematic effort to eradicate the Japanese honeysuckle as a predicate to long-term restoration of natural habitat. Removal and control of Japanese honeysuckle, barberry and other invasive species may be pursued to the extent financial resources allow, and in accord with the following standards: Japanese honeysuckle will be controlled and removed by (a) mechanical and/or hand cutting and/or (b) the application of glyphosate herbicide (tradenames Roundup, Rodeo or Accord) or Garlon to the foliage and/or to the cut stems of the plant. Removal methods will be consistent with those described in The Nature Conservancy's Elemental Stewardship Abstract for Lonicera japonica. The honeysuckle branches, roots and stems may be burned on the Property, left to rot, or removed. Small trees may also be removed with the honeysuckle as appropriate to aid regeneration. Any application of herbicide shall be done in a manner that will reasonably assure no runoff or discharge to the lake, and appropriate signage will be posted in advance of any spraying to warn the public. Removal of honeysuckle should be documented to allow long-term scientific monitoring of the difference in vegetation between areas where invasive species were removed and areas that were uncut. This will require documentation of appropriate control areas as well. Other invasive species found on the Property include purple loosestrife (Lythrum salicaria) and giant or common weed (Phragmites australis). The loosestrife is currently found in areas along Paran Creek, and the giant reed is growing on the lake's north shore. Both are found in the wetland complex on the old Frost property. As resources allow, the Fund may take steps to control or eradicate these species. The reed may be controlled by seasonal cutting or, if a permit is obtained from the Agency of Natural Resources, by application of glyphosate herbicide. Loosestrife may

be controlled by physical removal or by cutting. If biological controls for loosestrife become generally accepted management tools for conservation organizations in Vermont, the Fund may utilize those as well.

2021 Comments: Andrew Sheere

Since adoption of the 2012 Plan, The Fund for North Bennington has undertaken selective efforts to control and remove honeysuckle from the property. The most intensive effort has occurred on approximately one acre upslope from the east shore of Lake Paran. Other areas where removal was focused are approximately three acres south of Lake Drive; approximately a half-acre near Paran Creek where the Lakeshore Trail intersects the Robert Frost Trail; and on a half-acre near the eastern terminus of The Robert Frost Trail. This work principally involved physical removal of the plants with heavy equipment, with some selective cutting by hand. Deciduous trees that were left untouched have grown substantially since the work first occurred. Selective annual mowing has kept the honeysuckle from re-establishing itself in these areas. In addition, The Fund for North Bennington has regularly mowed approximately five feet on either side of The Robert Frost Trail in areas with concentrations of invasives. This has enhanced the recreational value of the property, helped protect hikers from ticks, and inhibited honeysuckle and other invasive plants from encroaching on the trail.

These efforts have been effective in limited areas but cannot alone address the high to extreme levels of invasive plant infestation remaining on much of the property. Mechanical removal followed as appropriate by selective herbicide applications will be foundational to gaining control of invasive plant populations in many areas and providing opportunity for native plants to reclaim the landscape. Use of herbicides is not taken lightly, but mechanical control alone (mulching, hand pulling) is not an effective way of gaining control of a problem this extensive. **Natural communities present on the property risk collapse if invasive plants are not soon controlled**.

Since the adoption of the original plan in 2012, options for more effective mechanical mulching of the most extreme areas of infestation have become

	available and will limit the amount of herbicide needed. In this case, the first entry consists of the mulching followed by a chemical treatment two years later rather than two chemical entries. Mulching is often a more expensive alternative than chemical control and mulching equipment is limited by the severity of terrain (gentle to moderate slopes), so it is only being recommended on gentle to moderate slopes where the greatest infestation is present (Unit 5- see conservation management map). The use of goats to remove invasive species is another option that may be considered. With appropriate permits, carefully controlled use of fire could be considered. Assisting with removal and disposal of invasives on adjacent properties is encouraged to mitigate the reestablishment of invasives on the Fund's property. In sum, a full range of treatment options is encouraged. Chemical treatment by herbicides is recommended only when other treatments are not practical or will not be effective. If other practical and effective treatment options are identified, developed or refined during the term of this plan, they may be substituted for, or reduce the scope of, chemical treatments.
Access	Vehicular use is restricted to handicapped access and to management purposes (primarily mowing of open areas) in the western part of the property only. Elsewhere, motor vehicles of any kind are prohibited as are bicycles. The well-marked Forest Trail and Shoreline Trail are beautiful assets for the area and are open to the public for foot traffic. A beautiful foot bridge spans Frost/Paran Creek. A parking area exists at the Frost Trails eastern trailhead off VT RT 7A. Parking is also available at the Town of Shaftsbury recreational area on the west side of the property.
Property Boundaries	Like road access, boundary line maintenance is an essential part of excellent forest management and land stewardship. Many property boundaries are evidenced by old stone walls. It is recommended that property boundaries be identified with signage letting users know where the Fund for North Bennington's land begins and ends. Small, aluminum diamond signs are the industry standard here**,** but other signage options may be considered**.**

Cultural & Historic Features and Other Special Sites

The many stone walls present are an historic testament to the land's agricultural history. Another historic feature of note is a group of red pines in Unit 1 (see forest management map) that were planted by the Poet Robert Frost. It is recommended that a trail sign educating hikers be placed along the trail as it passes through the pines.

Photo 3: The suspension from an old wagon lies in Unit 3 near Paran Creek. Flood plains such as this area were often drained and farmed in the 1800's and have since reverted to a semi-forested condition.

Fish & Wildlife Habitat and Rare, Threatened, or Endangered Species

This area has been identified by the State of Vermont as habitat important for:

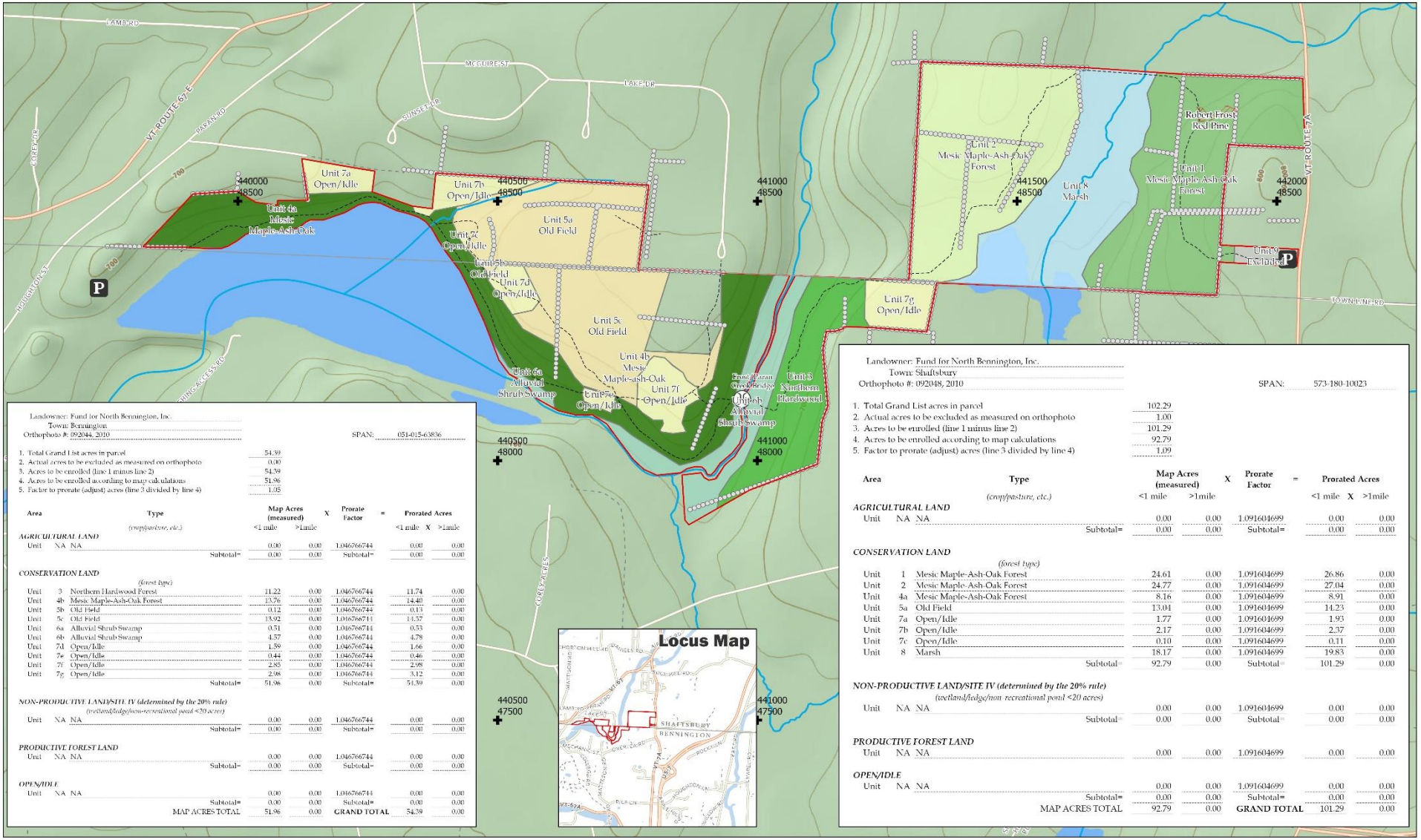
- Black bear-..... YES-☐; NO-☒
- Winter range for whitetail deer-..... YES-☐; NO-☒

Occurrences of rare, threatened,..... YES-☒; NO-☐ or endangered species.

Element Occurrence Reports (EOR) reference a number of instances of rare flora and fauna. The reports are not approved for public circulation and so are not included in the management plan. A copy of the report is on file at Long View Forest. Standard Acceptable Management Practices here will protect the species' habitat and temporal use of special areas.

	(Source: Vermont Center for Geographic Information (VCGI)- http://geodata.vermont.gov/)
Recreation/Aesthetics	Land stewardship for ecosystem resiliency and recreation define the use of this property. Two scenic trails, the Robert Frost Trial and the Shoreline Trail are open to, and frequented by, the general public. Motorized and wheeled vehicles are prohibited as is trapping of animals (with the exception of handicapped access). Recommendations are: 1. Repaint existing trail markers or use small signs to mark the trail. 2. Repair/replace signage as needed 3. Design and install a new marker in the red pines planted by Robert Frost in Unit 1 educating hikers about their historic significance. 4. Consider adding a board walk into the marsh (Unit 8) for wildlife viewing. 5. Consider adding "bog bridges" through the northern part of the marsh (Unit 8) where the trail tends to be wet.  **Photo 4: The Frost Trail and Shoreline Trail provide a nice walk through forest, fields, and waterways.**
Water Quality, Wetlands & Riparian Corridors and Measures to Enhance and/or Protect Functions & Values	Acceptable Management Practices (AMP's) (A.K.A Best Management Practices or BMP's) are essential to ensuring that the benefits for air, soil and water quality are maintained or enhanced for all. Special management zones, including river and stream corridors, steep slopes, fragile soils, wetlands, vernal pools, seeps, and lake and pond shorelines shall follow guidelines set forth in *"Acceptable Management*

	Practices for Maintaining Water Quality on Logging Jobs in Vermont" (Adopted October 16, 2016). There is a state-mapped wetland (marsh) in the eastern part of the property and wetlands flanking Frost/Paran Creek (alluvial shrub swamp) and the shore of Lake Paran.
Management Plan Implementation Constraints	The existence of the Fund for North Bennington's forest stands remains threatened by multiple stressors: • An onslaught of invasives that is overwhelming native trees, plants and destroying beneficial wildlife habit • Severe deer pressure blocking forest regeneration (both through browsing and invasives seed dispersal) • Climate change (alterations in extent and timing of rainfall, heat, cold, storms et alia) Management believes that just letting Nature take its course can no longer be an adequate strategy to maintain a biologically diverse and healthy local ecosystem in the face of these stressors. Management's primary goal is to increase ecosystem resiliency. While this plan focuses on invasives control given the extensive infestations, adaptation on complementary fronts will also be needed to have the best success for long-term ecosystem health. These adaptations include improving food and cover for birds and mammals via better hedgerow and field border management as well as building on recent accomplishments in improving meadow, early successional and shrubland habitat in support of endangered birds and invertebrates (to included pollinator) habitat. The principal constraint on implementation of this plan will be financial resources. If adequate funding from NRCS or other sources is not available, the scope of implementation will be curtailed and/or there may be substantial delays in the prescribed schedule.



Landowner: Fund for North Bennington, Inc.
Town: Bennington
Orthophoto #: 092044, 2010
SPAN: 051-015-63836

1. Total Grand List acres in parcel	54.39
2. Actual acres to be excluded as measured on orthophoto	0.00
3. Acres to be enrolled (line 1 minus line 2)	54.39
4. Acres to be enrolled according to map calculations	51.96
5. Factor to prorate (adjust) acres (line 3 divided by line 4)	1.05

Area		Type (crop/pasture, etc.)	Map Acres (measured) <1 mile	Map Acres (measured) >1mile	X Prorate Factor	= Prorated Acres <1 mile	Prorated Acres X >1mile
AGRICULTURAL LAND							
Unit	NA	NA	0.00	0.00	1.046766744	0.00	0.00
		Subtotal=	0.00	0.00	Subtotal=	0.00	0.00
CONSERVATION LAND		(forest type)					
Unit	3	Northern Hardwood Forest	11.22	0.00	1.046766744	11.74	0.00
Unit	4b	Mesic Maple-Ash-Oak Forest	13.76	0.00	1.046766744	14.40	0.00
Unit	5b	Old Field	0.12	0.00	1.046766744	0.13	0.00
Unit	5c	Old Field	13.92	0.00	1.046766744	14.57	0.00
Unit	6a	Alluvial Shrub Swamp	0.51	0.00	1.046766744	0.53	0.00
Unit	6b	Alluvial Shrub Swamp	4.57	0.00	1.046766744	4.78	0.00
Unit	7d	Open/Idle	1.59	0.00	1.046766744	1.66	0.00
Unit	7e	Open/Idle	0.44	0.00	1.046766744	0.46	0.00
Unit	7f	Open/Idle	2.85	0.00	1.046766744	2.98	0.00
Unit	7g	Open/Idle	2.98	0.00	1.046766744	3.12	0.00
		Subtotal=	51.96	0.00	Subtotal=	54.39	0.00
NON-PRODUCTIVE LAND/SITE IV (determined by the 20% rule)		(wetland/ledge/non-recreational pond <20 acres)					
Unit	NA	NA	0.00	0.00	1.046766744	0.00	0.00
		Subtotal=	0.00	0.00	Subtotal=	0.00	0.00
PRODUCTIVE FOREST LAND							
Unit	NA	NA	0.00	0.00	1.046766744	0.00	0.00
		Subtotal=	0.00	0.00	Subtotal=	0.00	0.00
OPEN/IDLE							
Unit	NA	NA	0.00	0.00	1.046766744	0.00	0.00
		Subtotal=	0.00	0.00	Subtotal=	0.00	0.00
		MAP ACRES TOTAL	51.96	0.00	GRAND TOTAL	54.39	0.00

Landowner: Fund for North Bennington, Inc.
Town: Shaftsbury
Orthophoto #: 092048, 2010
SPAN: 573-180-10023

1. Total Grand List acres in parcel	102.29
2. Actual acres to be excluded as measured on orthophoto	1.00
3. Acres to be enrolled (line 1 minus line 2)	101.29
4. Acres to be enrolled according to map calculations	92.79
5. Factor to prorate (adjust) acres (line 3 divided by line 4)	1.09

Area		Type (crop/pasture, etc.)	Map Acres (measured) <1 mile	Map Acres (measured) >1mile	X Prorate Factor	= Prorated Acres <1 mile	Prorated Acres X >1mile
AGRICULTURAL LAND							
Unit	NA	NA	0.00	0.00	1.091604699	0.00	0.00
		Subtotal=	0.00	0.00	Subtotal=	0.00	0.00
CONSERVATION LAND		(forest type)					
Unit	1	Mesic Maple-Ash-Oak Forest	24.61	0.00	1.091604699	26.86	0.00
Unit	2	Mesic Maple-Ash-Oak Forest	24.77	0.00	1.091604699	27.04	0.00
Unit	4a	Mesic Maple-Ash-Oak Forest	8.16	0.00	1.091604699	8.91	0.00
Unit	5a	Old Field	13.04	0.00	1.091604699	14.23	0.00
Unit	7a	Open/Idle	1.77	0.00	1.091604699	1.93	0.00
Unit	7b	Open/Idle	2.17	0.00	1.091604699	2.37	0.00
Unit	7c	Open/Idle	0.10	0.00	1.091604699	0.11	0.00
Unit	8	Marsh	18.17	0.00	1.091604699	19.83	0.00
		Subtotal=	92.79	0.00	Subtotal=	101.29	0.00
NON-PRODUCTIVE LAND/SITE IV (determined by the 20% rule)		(wetland/ledge/non recreational pond <20 acres)					
Unit	NA	NA	0.00	0.00	1.091604699	0.00	0.00
		Subtotal=	0.00	0.00	Subtotal=	0.00	0.00
PRODUCTIVE FOREST LAND							
Unit	NA	NA	0.00	0.00	1.091604699	0.00	0.00
OPEN/IDLE							
Unit	NA	NA	0.00	0.00	1.091604699	0.00	0.00
		Subtotal=	0.00	0.00	Subtotal=	0.00	0.00
		MAP ACRES TOTAL	92.79	0.00	GRAND TOTAL	101.29	0.00

0 500 1,000 2,000 US Feet

Use Value Appraisal
Conservation Management Map

for lands belonging to

The Fund for North Bennington, Inc.

Bennington & Shaftsbury, VT

State of Vermont
Hale Morrell
Lic. #148.0134002
Long View Forest
Licensed Forester

N W E S

Long View Forest MANAGEMENT

1) Scale is 1:5,000 if printed from original image file at full dimensions (17"x22")
2) Bennington GL Ac: 54.39; Bennington Mapped Ac: 50.57 Shaftsbury GL Ac: 102.29 Shaftsbury Mapped Ac: 124.34
3) Bennington SPAN: 051-015-63863 Shaftsbury SPAN: 573-180-10023
4) Orthophoto(s) # 092048&092044, 2010
5) Revised by H. Morrell of Long View Forest on 11/19/2021
6) Map has layers from VCGI and data collected in the field
7) Projection - Vermont State Plane (US Feet)
8) North American Datum 1983
9) True north
10) This map is not valid for legal description of conveyance

Legend
- Stonewalls
- Hiking Trail
- Streams
- Property Boundary
- Bridge
- P Parking Area
- Robert Frost Red Pines
- VCSGrid

IV. FOREST UNIT DESCRIPTIONS & PRESCRIBED TREATMENTS

A. Unit 1

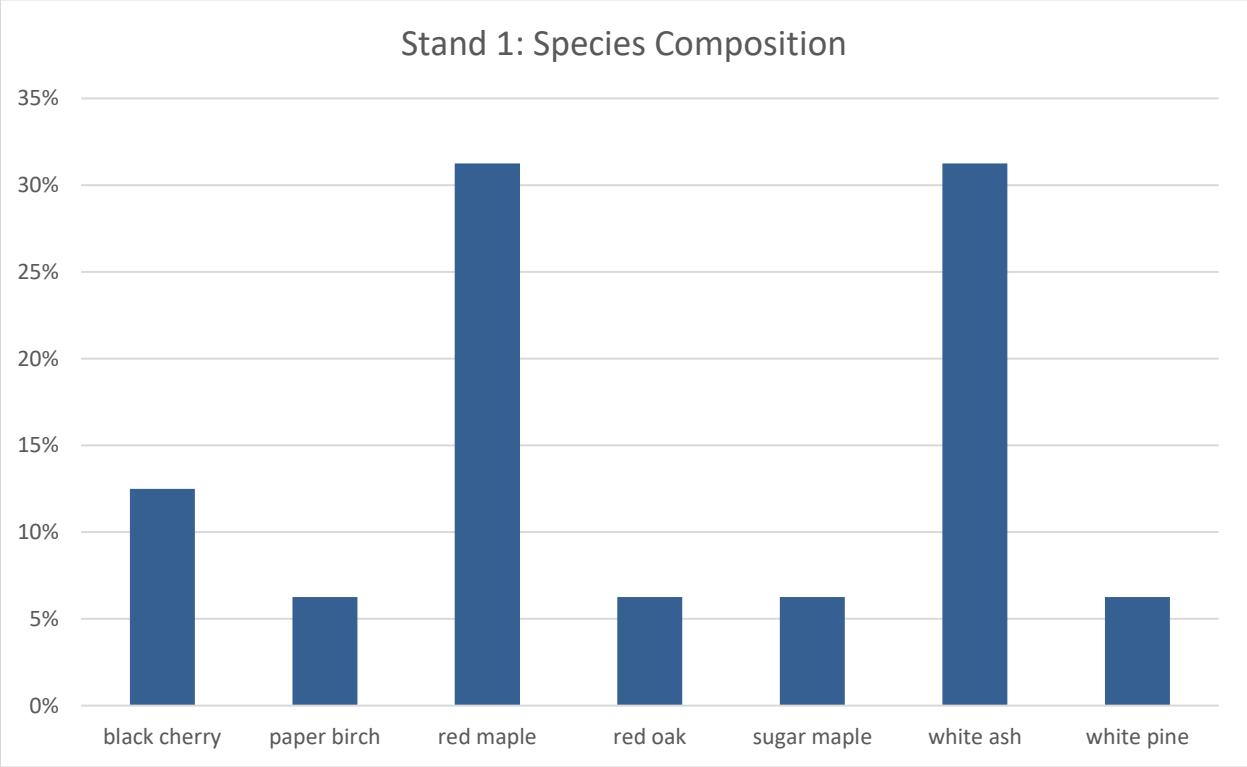
Forest Type:	**Mesic Maple-Ash-Hickory-Oak Forest**	
Pro-Rated Acres:	**Bennington:**	**0.00**
	Shaftsbury:	**18.8**
Location:	**Forestland east of marsh (behind Robert Frost Stone House).**	

Photo 5: While species diversity is relatively good in the overstory, diversity in the understory has been all but wiped out due to an extreme infestation of honeysuckle and other exotic-invasive plants.

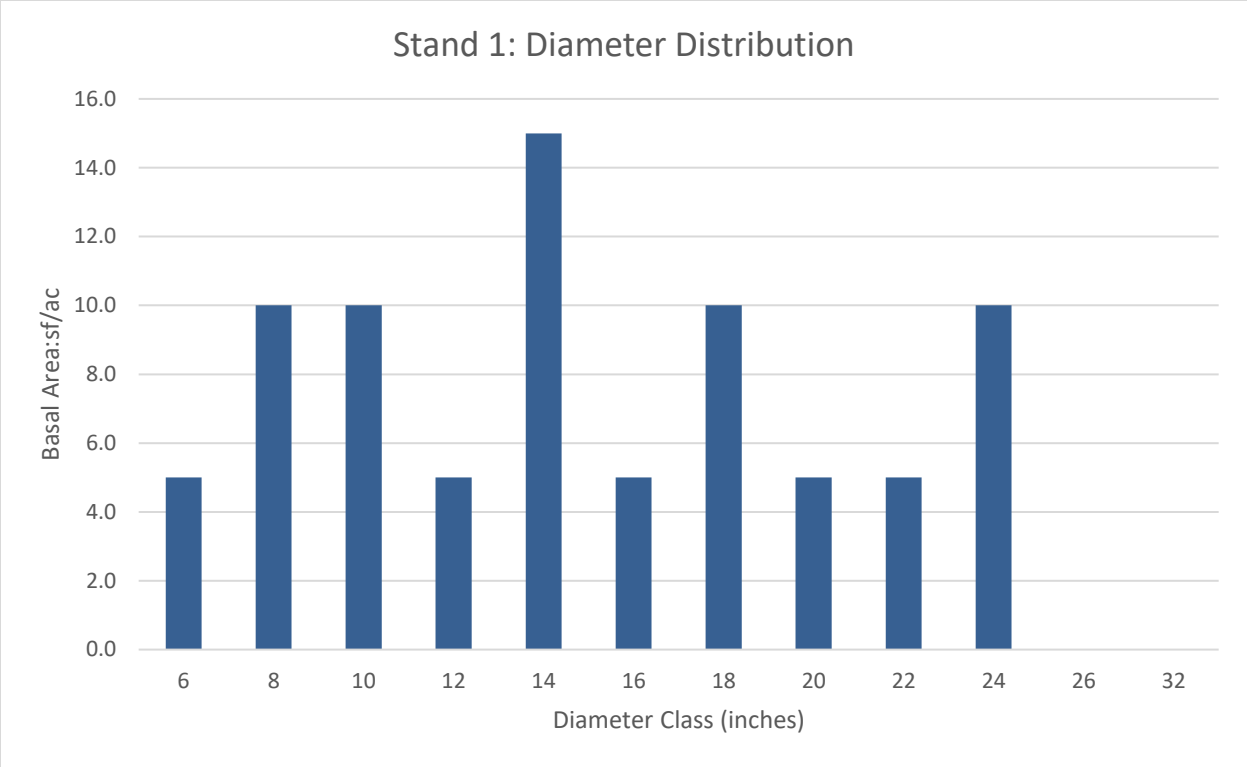
NARRATIVE

This unit lies on the gentle westerly slopes flanking the east side of the marsh (Unit 8). The infestation of invasive plants has been well documented at least since the 2012 conservation plan was written and their continued presence poses a threat to biological diversity in the unit. The primary management objective will be to control invasive plant populations.

Secondary management recommendations are recreational and include re-painting trail markers along the Lake Paran-Frost Trail and adding a sign to educate hikers about the red pines and apple trees planted by Robert Frost.



- As the unit matures, paper birch and black cherry will likely yield to longer lived species like red oak and sugar maple.



- A wide array of tree diameters suggests good structure for wildlife.

EXISTING UNIT DESCRIPTION			
Age Class Distribution	☒ - Even-aged ☐ - Uneven-aged	***Unit History***	• Likely first regrowth after agricultural abandonment.
Site Class *(1-4 with 1 being best and 4 being poorest)*	2	***Soil Map Unit(s)***	67 C: Georgia Loam 64 B, C: Stockbridge Loam
Forest Health Concerns *(Insects, disease, physical damage, or invasive plants)*		Heavy infestation of invasive plants.	
Invasive Species		Primarily honeysuckle but also common buckthorn, glossy buckthorn, bittersweet, and multiflora rose	
Observed level of Impact		☐ Low ☐ Medium ☒ High	
Stand Quality & Health ***(Subjective)***		☒ Poor ☐ Average ☐ Excellent **Invasive plant infestation extreme**	

EXISTING UNIT DESCRIPTION		
Sampling Method	Variable Radius Point Sampling	***Regeneration***
Sampling Date	9/2021	None.
Number of Sample Points	4	
Basal Area Factor	20	
Quadratic Mean Dia. *(inches)*	12	
Total Basal Area *(ft^2/acre)*	80	
Basal Area Range	60-100	***Species to Favor***
Trees per Acre	109	White ash, red maple, sugar maple, red oak, black cherry
Elevation (feet)	720-800 Δ- 80'	
Aspect	Northwest	

PLANT OBSERVATIONS AND CONSIDERATIONS *List below represents qualitative observations. The time of year that the forest cruise was completed (winter, spring, summer, and fall) will have an effect on the types of plants noted.*		
Data collected: during growing season: ☒; during dormant season: ☐; during snow cover: ☐		
• Virginia creeper	• Wood fern (spp.)	• See list of invasive plants in table above.

PLANNED TREATMENTS	
Year	2028
Treatment	INVASIVE SPECIES CONTROL -CHEMICAL • 18.8 acres heavy infestation • Apply for NRCS brush management practice (chemical) #314 • (Block 7- see Appendix A)

PLANNED TREATMENTS	
Year	2029
Treatment	TRAIL MAINTENANCE • Repaint or install new trail markers on Lake Paran/Frost Trail. • Design and install new plaque educating hikers about red pines planted by Robert Frost

PLANNED TREATMENTS	
Year	2030
Treatment	INVASIVE SPECIES CONTROL-CHEMICAL • Follow up to 2028 treatment • 18.8 acres light to moderate infestation

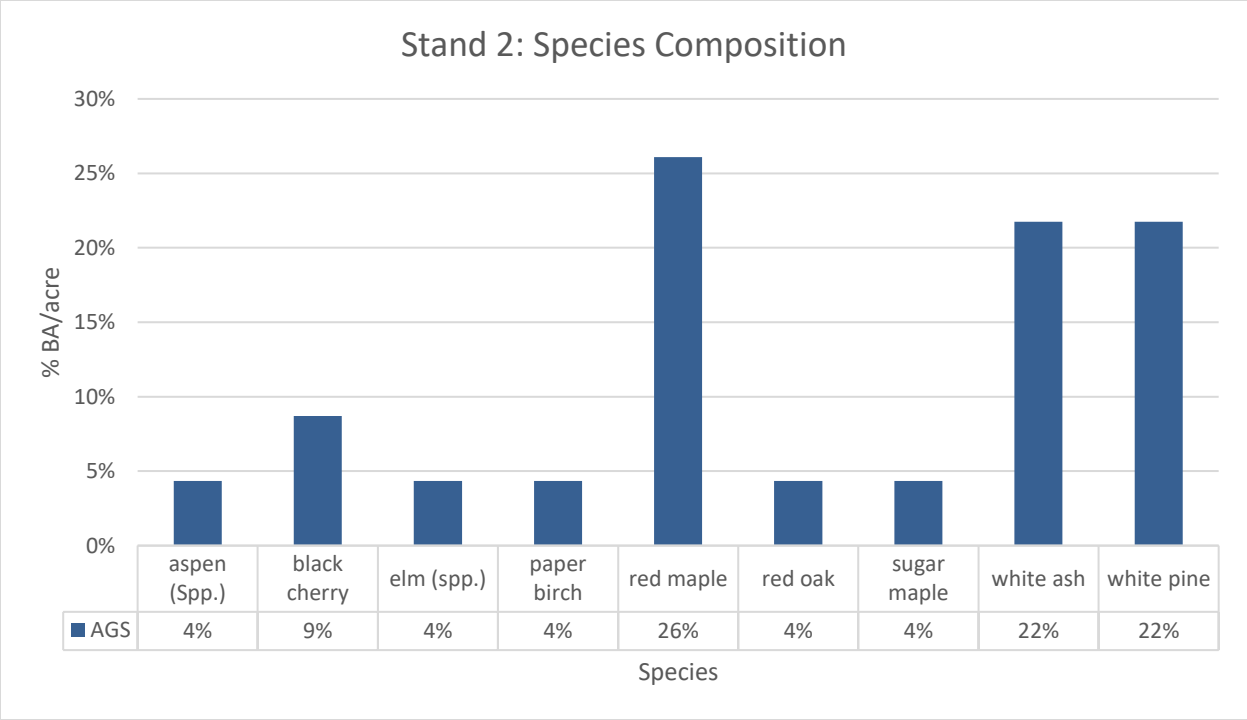
B. Unit 2 (Robert Frost Property)

Forest Type:	**Mesic Maple-Ash-Hickory-Oak Forest**
Pro-Rated Acres:	**Shaftsbury: 20.38**
Location:	**Forestland west of the marsh**

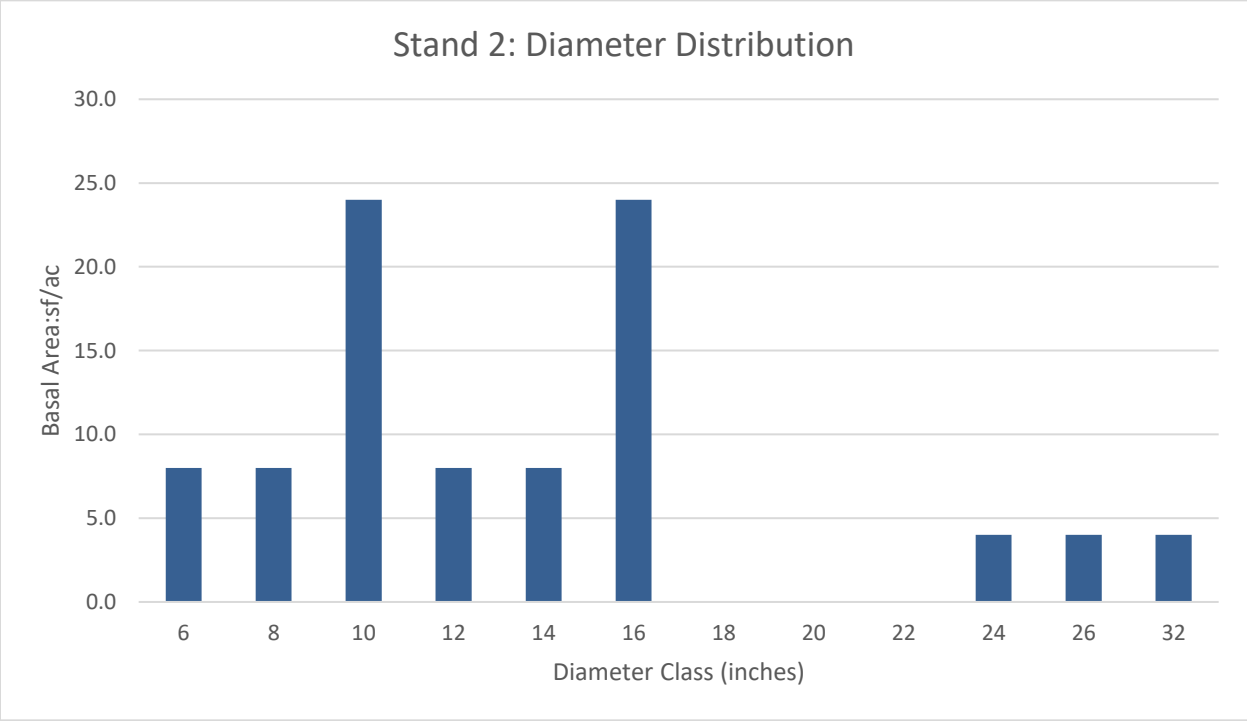
Photo 6: Hardwoods with scattered large white pine trees shelter a heavy infestation of honeysuckle and other exotic-invasive plants. Cost-share funding will be applied for through the Natural Resource Conservation Service (NRCS) to control invasive plants so that native species may once again occupy the site

NARRATIVE

Unit 2 is struggling to revert to a natural forest due to an intensive agricultural history, pressure from invasive plants, and over-browsing by deer. Many tree species present are representative of what we may expect on this kind of site (like the maples and oaks), but to the extent that white pine is present (and in the numbers it is) may be more of a nod to how land reverts after agricultural abandonment than it is of what species that are best suited to the site. With this in mind, recommendations are to control invasive plants, but also help the stand fully revert to a natural forest by girdling and felling (culling) some of the poor-quality white pines. Culling some white pines serves two goals by 1) ushering the unit to a more naturalized forest composition and 2) providing diverse wildlife habitat through the creation of snags for birds and small mammals as the trees die and decay (cavity habitat), and subsequent large, downed trees (large coarse woody debris) sought after by invertebrates and some small mammals. NRCS cost share funding via practice codes 647, 612 and 666 may be available for these efforts for forest stand improvement and tree/shrub establishment.



- There is good diversity among overstory trees.



- The largest diameter trees are likely agricultural remnants- pasture trees.

<table>
<tr><th colspan="4">EXISTING UNIT DESCRIPTION</th></tr>
<tr><td>Age Class Distribution</td><td>☒ - Even-aged
☐ - Uneven-aged</td><td>Unit History</td><td>• Likely first regrowth after agricultural abandonment.</td></tr>
<tr><td>Site Class (1-4 with 1 being best and 4 being poorest)</td><td>2</td><td>Soil Map Unit(s)</td><td>94B, C: Pittsfield fine sandy loam

Lesser amounts of:
67 B, C: Georgia loam
64 B: Stockbridge loam
26 A: Raynham silt loam</td></tr>
<tr><td colspan="2">Forest Health Concerns
(Insects, disease, physical damage, or invasive plants)</td><td colspan="2">Heavy infestation of invasive plants.</td></tr>
<tr><td colspan="2">Invasive Species</td><td colspan="2">Primarily honeysuckle but also common buckthorn, glossy buckthorn, bittersweet, and multiflora rose</td></tr>
<tr><td colspan="2">Observed level of Impact</td><td colspan="2">☐ Low ☐ Medium ☒ High</td></tr>
<tr><td colspan="2">Stand Quality & Health
(Subjective)</td><td colspan="2">☒ Poor ☐ Average ☐ Excellent
Invasive plant infestation extreme</td></tr>
<tr><td colspan="2">Sampling Method</td><td>Variable Radius Point Sampling</td><td>Regeneration</td></tr>
<tr><td colspan="2">Sampling Date</td><td>9/2021</td><td rowspan="5">None</td></tr>
<tr><td colspan="2">Number of Sample Points</td><td>5</td></tr>
<tr><td colspan="2">Basal Area Factor</td><td>20</td></tr>
<tr><td colspan="2">Quadratic Mean Dia. (inches)</td><td>11</td></tr>
<tr><td colspan="2">Total Basal Area (ft^2/acre)</td><td>92</td></tr>
<tr><td colspan="2">Basal Area Range</td><td>60-140</td><td>Species to Favor</td></tr>
<tr><td colspan="2">Trees per Acre</td><td>146</td><td rowspan="3">Maples, oaks, white ash, black cherry, red elm</td></tr>
<tr><td colspan="2">Elevation (feet)</td><td>720-780
Δ- 60’</td></tr>
<tr><td colspan="2">Aspect</td><td>Southerly</td></tr>
</table>

PLANT OBSERVATIONS AND CONSIDERATIONS		
List below represents qualitative observations. The time of year that the forest cruise was completed (winter, spring, summer, and fall) will have an effect on the types of plants noted.		
Data collected: during growing season: ☒; during dormant season: ☐; during snow cover: ☐		
• Grape vines	• Christmas fern	• Sensitive fern
• Star clubmoss	• Partridgeberry	• See list of invasive plants in table above

PLANNED TREATMENTS	
Year	2029
Treatment	INVASIVE SPECIES CONTROL-CHEMICAL • 20.38 acres heavy infestation • Apply for NRCS brush management practice (chemical) 314 • (Block 7- see Appendix A)

PLANNED TREATMENTS	
Year	2029
Treatment	CREATION OF SNAGS & LARGE COARSE WOODY DEBRIS • WEDGE-GIRDLE one large UGS white pine per acre and leave standing as snag habitat (~20 trees). • FELL and leave whole, one large UGS white pine per acre (~20 trees). • Apply for NRCS practice 647, Forest Stand Improvement plus 612 and 666 to help offset the cost of this practice.

PLANNED TREATMENTS	
Year	2031
Treatment	INVASIVE SPECIES CONTROL-CHEMICAL • Follow up to 2029 treatment • 20.38 acres light to moderate infestation

C. Unit 3

Forest Type:	**Northern Hardwood Forest**	
Pro-Rated Acres:	**Bennington:**	**11.38**
	Shaftsbury:	**0.00**
Location:	**Eastern banks of the Alluvial Shrub Swamp (Unit 6)**	

Photo 7: Unit 3 is best described as a transition area between the shrub swamp to the west and more established forests to the east and north.

NARRATIVE

This unit is a transition area between the alluvial shrub swamp to the west and more established forests further upslope to the north and east. White ash, hemlock, and hophornbeam are most prominent but tamarack (larch) is present as well. Invasives management is the primary focus for the coming planning period, plus promotion of native tree and shrub species.

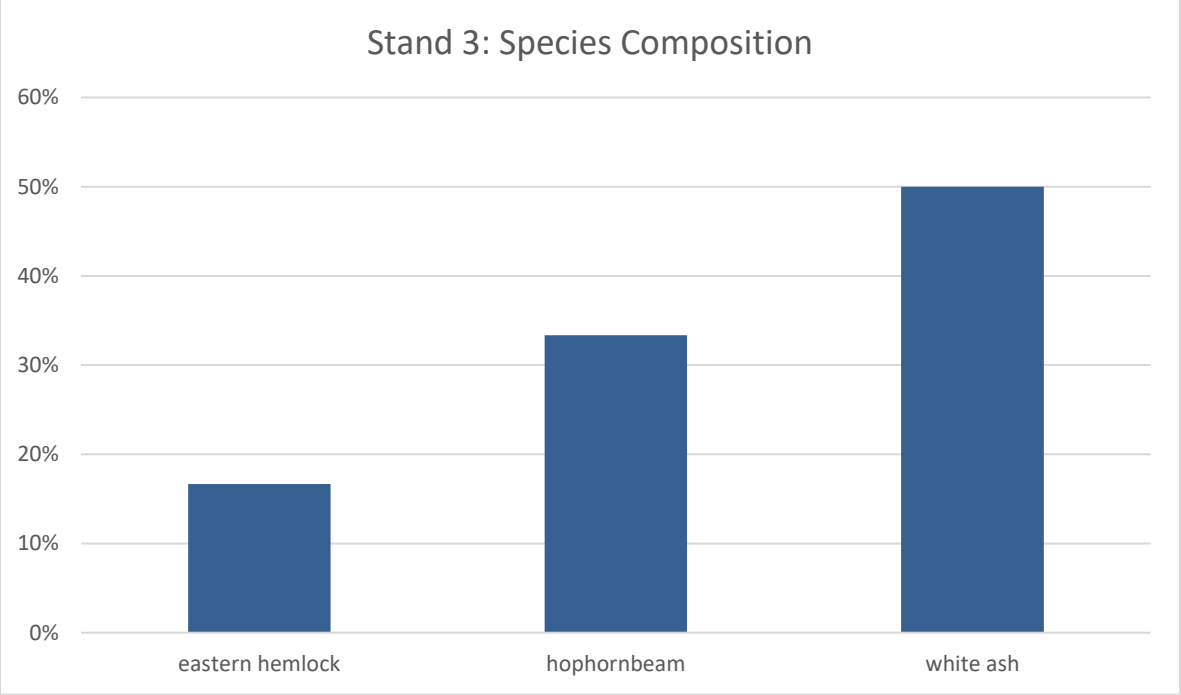
Natural Community Information*

Type: Northern Hardwood Forest
Patch Size: Matrix- dominant in VT's landscape, occupying 1,000 to 100,000 contiguous acres
State Rank: S5= Common & Widespread in the state

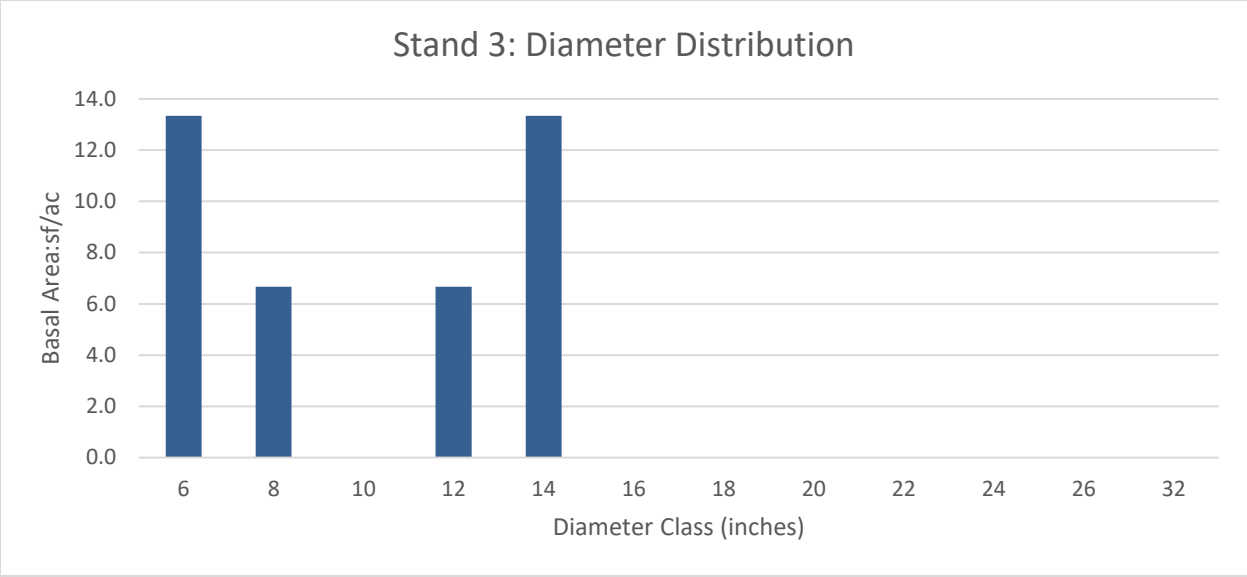
Northern Hardwood Forest

This is Vermont's most abundant forest, the forest that truly characterizes the Northern Hardwood Forest Formation. It blankets hills in every biophysical region of the state and creates a background setting, a so-called matrix, for the smaller communities – the swamps, fens, outcrops, and meadows. It is a broadly defined community type, encompassing a great deal of variation. But there are some things that all expressions of this community share in common. Beech and yellow birch are almost always present. Sugar maple is usually present, but in some cases red maple is more prominent. Most soils are formed in ablation or basal till and are loamy, cool, and moist. These forests are found at elevations below 2,700 feet on gentle to steep slopes.

** Thompson, E.H., Sorenson, E.R. & Zaino, R.J. 2019. Wetland, Woodland, Wildland- A Guide to the Natural Communities of Vermont. The Nature Conservancy, The Vermont Land Trust, and the Vermont Department of Fish & Wildlife. Chelsea Green Publishing, White River Junction, VT.*



- Tamarack is also present



- Average tree diameter is relatively small in this unit.

EXISTING UNIT DESCRIPTION			
Age Class Distribution	☒ - Even-aged ☐ - Uneven-aged	***Unit History***	• Likely first regrowth after agricultural abandonment.
Site Class *(1-4 with 1 being best and 4 being poorest)*	2	***Soil Map Unit(s)***	65 D: Stockbridge loam Lesser amounts of: 70E: Groton gravelly fine sandy loam. 64C: Stockbridge loam 67B: Georgia loam
Forest Health Concerns *(Insects, disease, physical damage, or invasive plants)*		Heavy infestation of invasive plants.	
Invasive Species		Primarily honeysuckle but also common buckthorn, glossy buckthorn, bittersweet, and multiflora rose	
Observed level of Impact		☐ Low ☐ Medium ☒ High	
Stand Quality & Health ***(Subjective)***		☒ Poor ☐ Average ☐ Excellent **Invasive plant infestation**	

EXISTING UNIT DESCRIPTION		
Sampling Method	Variable Radius Point Sampling	***Regeneration***
Sampling Date	9/2021	None
Number of Sample Points	3	
Basal Area Factor	20	
Quadratic Mean Dia. *(inches)*	8	
Total Basal Area *(ft^2/acre)*	40	
Basal Area Range	0-60	***Species to Favor***
Trees per Acre	108	White ash, hophornbeam, tamarack
Elevation (feet)	660-720 Δ- 60'	
Aspect	West	

PLANT OBSERVATIONS AND CONSIDERATIONS		
List below represents qualitative observations. The time of year that the forest cruise was completed (winter, spring, summer, and fall) will have an effect on the types of plants noted.		
Data collected: during growing season: ☒; during dormant season: ☐; during snow cover: ☐		
• Blue beech	• Christmas fern	• See list on invasive plants in the table above

PLANNED TREATMENTS	
Year	2029
Treatment	INVASIVE SPECIES CONTROL-CHEMICAL • 11.38 acres heavy infestation • Apply for NRCS brush management practice (chemical) 314 • (Block 6- see Appendix A)

PLANNED TREATMENTS	
Year	2031
Treatment	INVASIVE SPECIES CONTROL-CHEMICAL • Follow up to 2029 treatment • 11.38 acres light to moderate infestation • Apply for NRCS establishing forest cover, enhancing wildlife habitat, #612

D. Unit 4

Forest Type:	**Mesic Maple-Ash-Hickory-Oak Forest**
Pro-Rated Acres:	**Bennington: 15.0**
	Shaftsbury: 18.59
Location:	**Western banks of the Alluvial Shrub Swamp (Unit 6) and northern shore of Lake Paran**

NARRATIVE

The moderately steep slopes of this stand serve as a buffer to Lake Paran and the alluvial shrub swamp (Unit 6). An interesting suite of transitional hardwoods is present including bitternut hickory, and burr and chestnut oaks, but as elsewhere on the property, invasive plants threaten biodiversity.

Photo 8: A heavy infestation of invasive-exotic plans is curbing the forests' long-term ability to serve as a buffer to important adjacent water features- Lake Paran and Frost/Paran Creek.

Management will primarily focus on controlling invasive plants, but mast trees (nut bearing trees like hickories and oaks and fruit producing trees like black cherry) will be released from adjacent competition so they may continue to thrive and provide acorns, nuts, and fruit for wildlife. NRCS cost-share funds may be available to help offset the cost of this practice.

Another management recommendation is to construct a deer exclosure fence in the western part of the stand near the parking area. This location is easily accessible and could be used as an educational tool to highlight the forest growth that is possible in the absence of deer browsing pressure.

Planting of native species in riparian buffer zones is encouraged to stabilize banks and to protect water quality. After appropriate study, use of the Paran or creek shoreline for an aquaponic system to

restore water quality may be considered provided that the system did not impede achievement of the land management goals set forth in this plan.

Natural Community Information*

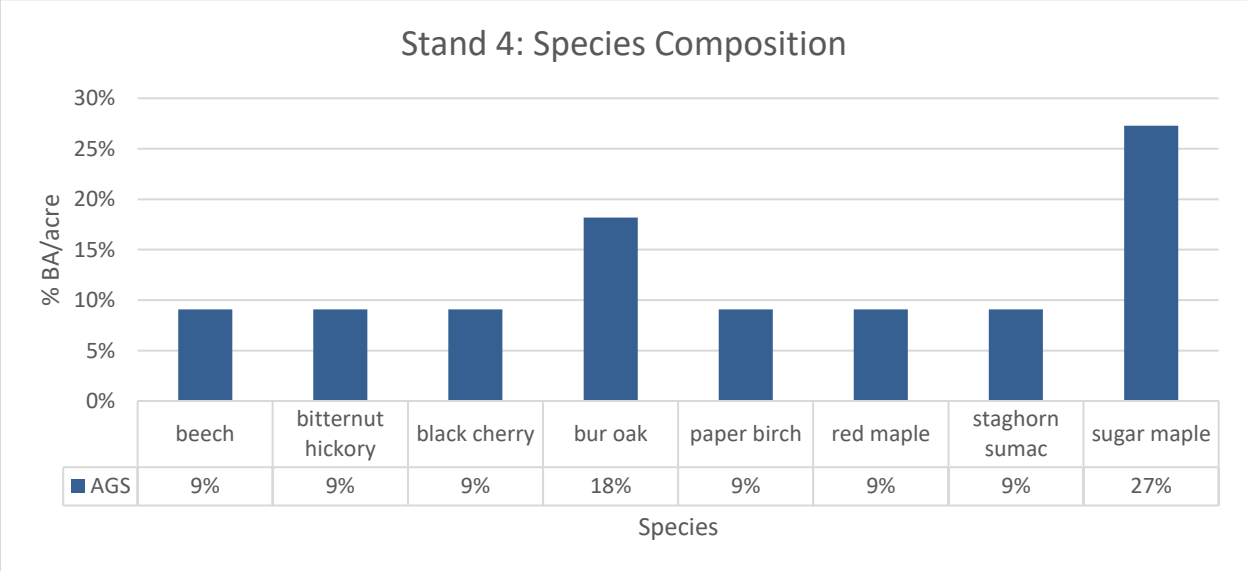
Type: Mesic Maple-Ash-Hickory-Oak Forest
Patch Size: **L**= Large Patch- occurs in the landscape on a scale of 50 to 1,000 acres.
State Rank: S3= High quality examples are uncommon in the state, but not rare.

Ecology and Physical Setting

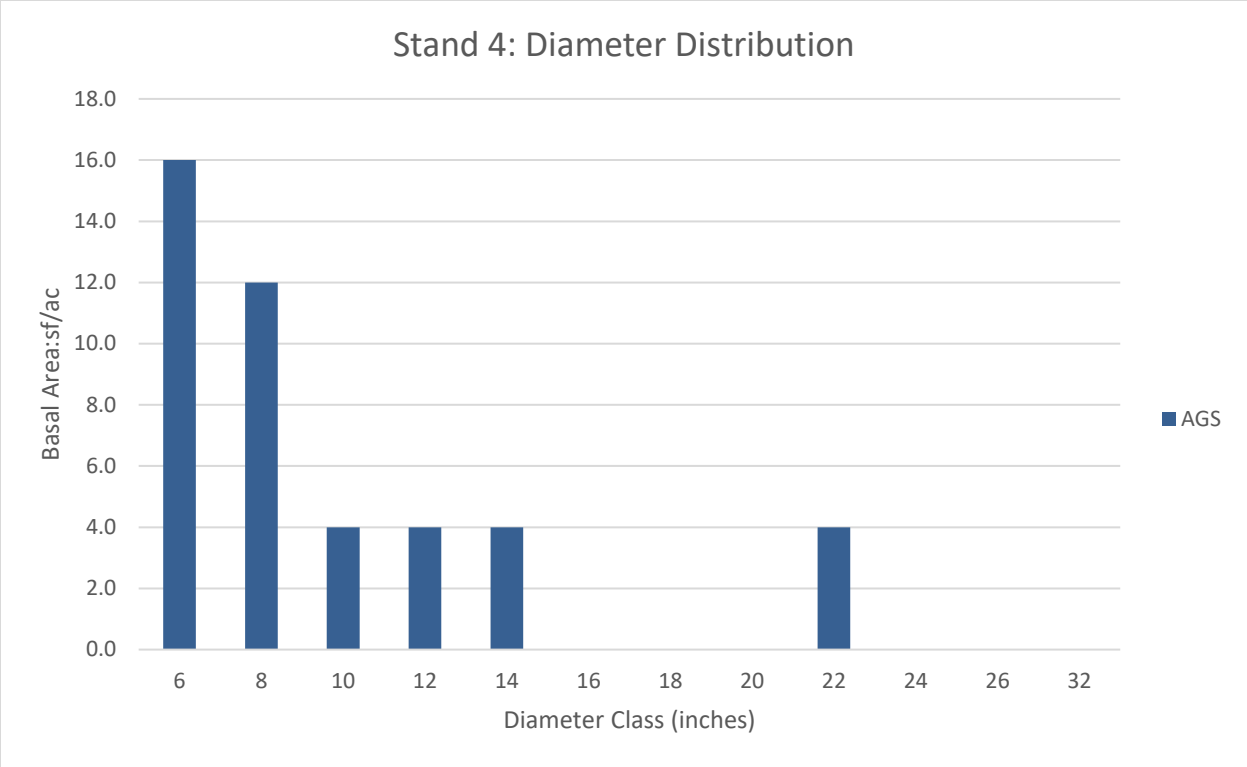
These forests share much in common with Northern Hardwood Forests, but they have some striking affinities with the Central Hardwood Forests of the Appalachians to our south. Sugar maple, white ash, and red maple are common trees, but more southern species, such as oaks and hickories, are present as well. Found in the warmer climate areas of Vermont, these forests see higher-than-average temperatures and lower-than-average rainfall. Mesic Maple-Ash-Hickory Forests have soils that are typically somewhat drier than those in the average Northern Hardwood Forest. These soils are probably well drained to somewhat excessively drained. Topography is gentle to rolling. Parent materials are glacial tills. Bedrock can be close to the surface locally, but shallow bedrock usually creates such extreme conditions that other, drought-tolerant communities develop.

This is a poorly understood community in Vermont. More data on vegetation, soils, and land use history will help us to better understand the relationship between these forests and others in the state and region.

** Thompson, E.H. & Sorenson, E.R. 2019. Wetland, Woodland, Wildland- A Guide to the Natural Communities of Vermont. The Nature Conservancy and the Vermont Department of Fish & Wildlife. University Press of New England, Hanover, NH.*



- White oak and chestnut oak also present



EXISTING UNIT DESCRIPTION			
Age Class Distribution	☒ - Even-aged ☐ - Uneven-aged	***Unit History***	• Likely first regrowth after agricultural abandonment.
Site Class *(1-4 with 1 being best and 4 being poorest)*	2	***Soil Map Unit(s)***	70 D, E: Groton gravelly fine sandy loam
Forest Health Concerns *(Insects, disease, physical damage, or invasive plants)*		Heavy infestation of invasive plants.	
Invasive Species		Primarily honeysuckle but also common buckthorn, glossy buckthorn, bittersweet, and multiflora rose	
Observed level of Impact		☐ Low ☐ Medium ☒ High	
Stand Quality & Health ***(Subjective)***		☒ Poor ☐ Average ☐ Excellent **Invasive plants threatening biodiversity.**	
Sampling Method		Variable Radius Point Sampling	***Regeneration***
Sampling Date		9/2021	None

EXISTING UNIT DESCRIPTION		
Number of Sample Points	5	
Basal Area Factor	20	
Quadratic Mean Dia. *(inches)*	8	
Total Basal Area *(ft^2/acre)*	44	
Basal Area Range	20-80	***Species to Favor***
Trees per Acre	134	Oaks, hickories, and maples
Elevation (feet)	640-700 Δ- 60'	
Aspect	Southerly	

PLANT OBSERVATIONS AND CONSIDERATIONS *List below represents qualitative observations. The time of year that the forest cruise was completed (winter, spring, summer, and fall) will have an effect on the types of plants noted.*		
Data collected: during growing season: ☒; during dormant season: ☐; during snow cover: ☐		
• Grapes	• See list of invasive species in the table above	

PLANNED TREATMENTS	
Year	2030
Treatment	INVASIVE SPECIES CONTROL-CHEMICAL • 33.59 acres heavy infestation • Apply for NRCS brush management practice (chemical) 314 • Apply for deer exclosure practice code 612 • (Block 5- see Appendix A)

PLANNED TREATMENTS	
Year	2031
Treatment	MAST TREE RELEASE • Identify healthy oaks, hickories, beeches, and black cherries to be favored for their most production (acorns, nuts, fruit) • Apply for NRCS practice 666, Forest Stand Improvement to help offset the cost of this practice.
Mast Tree Criteria	• Species: oak, hickory, beech, black cherry. • Size: 5" to 20" DBH. • Crown position: dominant/co-dominant

PLANNED TREATMENTS	
	• Rot: acceptable as long as it doesn't compromise structural integrity. • Vigor: vigorous with no signs of dieback, insect, or disease damages. • Degree of crop tree release: crop trees should be released from both direct competition and nearby trees that are expected to provide competition so that they are free to grow on at least two sides for ten years. Species that are likely to epicormic sprout (Y/B birch, red maple, etc.) shall be released to a lesser extent unless exceptionally vigorous and dominant. Target 25 to 35 crop trees per acre.

PLANNED TREATMENTS	
Year	2032
Treatment	INVASIVE SPECIES CONTROL-CHEMICAL • Follow up to 2029 treatment • 33.59 acres light to moderate infestation

E. Unit 5

Forest Type:	**Old Field**	
Pro-Rated Acres:	**Bennington:**	**15.23**
	Shaftsbury:	**24.01**
Location:	**Gentle slopes in the central-third of the property**	

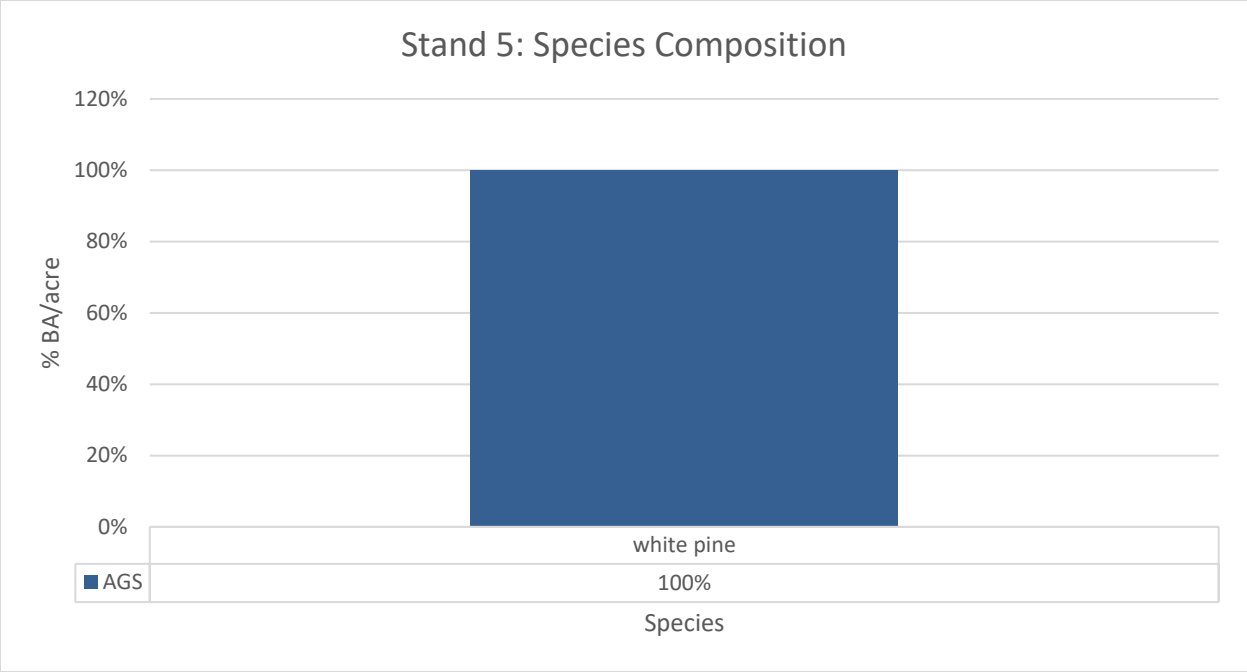
NARRATIVE

The intensity of the honeysuckle infestation in this unit is among the most extreme I have ever encountered; it is nearly impossible to walk off mown trails. Given the moderate terrain and level of infestation, it is recommended that mechanical mulching be employed for the first entry into the unit. The idea is to mulch the vegetation followed by a chemical treatment two-years hence once the root systems of the mulched plants have sprouted. Mulching the unit initially will greatly reduce the amount of herbicide used over the course of treatment and make it more efficient.

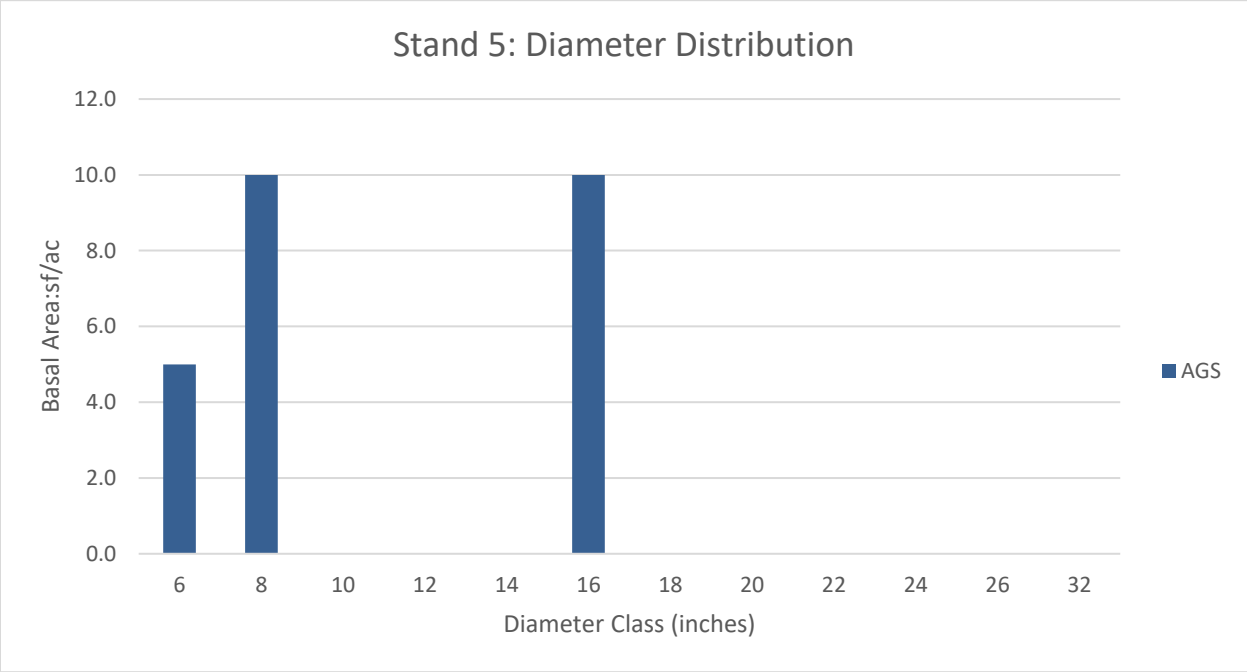
Photo 9: Walking off mown trails is all but impossible due to an extreme infestation of honeysuckle and other invasive plants. NRCS cost share funds will be applied to control the invasive plans to make way for native species to reclaim the area.

For the 2032-2042 planning period, it is recommended that the unit be managed for early successional habitat by sequentially clearcutting about 5 acres each year on a rotation into perpetuity after the invasive plant population has been managed. In addition, old field management practices will be pursued to for this large (24+ acres) in support of endangered shrubland bird habitat plus the many other species relying on this habitat (such as butterflies and bees, cottontail rabbit, deer, snipe, turkey, bobcat, rat snakes, frogs, etc.).

Note: The level of human disturbance in this area makes it difficult to estimate what natural community may develop if left to mature. Extreme levels of honeysuckle and other invasive plants are preventing natural development of the forest. Other factors such as browsing pressure from deer and disturbance from earthworms may also hinder forest development. The prominence of white pine is likely a remnant of agricultural history and it is thought that hardwoods would have a greater presence over the long term if given the chance.



- Field pines are reclaiming this abandoned agricultural area.



- Most trees are still small in diameter

EXISTING UNIT DESCRIPTION			
Age Class Distribution	☒ - Even-aged ☐ - Uneven-aged	***Unit History***	• Formerly open
Site Class *(1-4 with 1 being best and 4 being poorest)*	2	***Soil Map Unit(s)***	70 A, B: Groton gravelly fine sandy loam Lesser amounts of: 64 B: Stockbridge loam 41 C: Galway-Farmington Complex
Forest Health Concerns *(Insects, disease, physical damage, or invasive plants)*		Extreme infestation of invasive plants.	
Invasive Species		Primarily honeysuckle but also common buckthorn, glossy buckthorn, bittersweet, and multiflora rose	
Observed level of Impact		☐ Low ☐ Medium ☒ High	
Stand Quality & Health ***(Subjective)***		☒ Poor ☐ Average ☐ Excellent **Extreme invasive plant population**	
Sampling Method		Variable Radius Point Sampling	***Regeneration***
Sampling Date		9/2021	None
Number of Sample Points		4	
Basal Area Factor		20	
Quadratic Mean Dia. *(inches)*		9	
Total Basal Area *(ft^2/acre)*		25	
Basal Area Range		0-60	***Species to Favor***
Trees per Acre		61	Transitional hardwoods
Elevation (feet)		700-720 Δ- 20’	
Aspect		Gentle southwest	

PLANT OBSERVATIONS AND CONSIDERATIONS		
List below represents qualitative observations. The time of year that the forest cruise was completed (winter, spring, summer, and fall) will have an effect on the types of plants noted.		
Data collected: during growing season: ☒; during dormant season: ☐; during snow cover: ☐		
• gray dogwood		

PLANNED TREATMENTS	
Year	2028
Treatment	INVASIVE SPECIES CONTROL- MECHANICAL • 39.24 acres heavy infestation • Apply for NRCS brush management practice (chemical) #314 • (Block 5- see Appendix A)

PLANNED TREATMENTS	
Year	2029
Treatment	UPLAND WILDLIFE HABITAT PLANTING/EARLY SUCCESSIONAL • Plant native woody shrubs like gray dogwood to help facilitate transition to native, early successional species. • Apply for NRCS practices 647 and 645 to help offset the cost of this practice.

PLANNED TREATMENTS	
Year	2030
Treatment	INVASIVE SPECIES CONTROL- CHEMICAL • Follow up to 2028 treatment • 29.24 acres light to moderate infestation

F. Unit 6

EXISTING STAND DESCRIPTION

Note: Data was not collected for non-forested areas like wetlands and open/idle lands, so the format of the following "Existing Stand Descriptions" has been changed to reflect that.

Type:	**Alluvial Shrub Swamp**	
Pro-Rated Acres:	**Bennington:**	**4.46**
	Shaftsbury:	**0.0**
Location:	**Flood plains of Frost/Paran Creek**	

Photo 10: These wetlands flanking Frost/Paran Creek provide rich wetland habitat.

Age Class Structure:	n/a
Site Class:	4
Site Index or Soil Series:	28 A: Udifluvents
	70 E: Groton gravelly fine sandy loam

Narrative

Controlling invasive species is the primary management goal for the coming planning period. Planting of native species in riparian buffer zones is encouraged to stabilize banks and to protect water quality.

Natural Community Information*

Type: Alluvial Shrub Swamp
Variant: -
Patch Size: **L**= Large Patch- occurs in the landscape on a scale of 50 to 1,000 acres.
State Rank: S4= Widespread in the state

Alluvial Shrub Swamp- Alluvial shrub swamps are common in the floodplains of many of our smaller rivers and streams. These flood plains are inundated by overbank stream flows at least once per year. This high flood frequency is partly responsible for the long-term maintenance of a shrub-dominated community that can tolerate repeated inundation during the growing season. There are few tree species that can tolerate this type of stress.

** Thompson, E.H. & Sorenson, E.R. 2000. Wetland, Woodland, Wildland- A Guide to the Natural Communities of Vermont. The Nature Conservancy and the Vermont Department of Fish & Wildlife. University Press of New England, Hanover, NH.*

Ecologically Significant Feature(s) to be Protected:

- State mapped wetland (Alluvial shrub swamp)

Justification/verification/Documentation for including this stand as an ESTA:

- State-mapped wetland
- Area defined using LiDAR and other imagery and information gathered in the field

Stand Health (include threats to Ecologically Significant Feature):

- Fair- glossy buckthorn and other invasive plants are heavy.

Stand History:

- The Frost/Paran Creek Bridge permits foot travelers' easy passage over the creek.

DESIRED FUTURE CONDITION

- Functioning wetland habitat

PLANNED TREATMENTS

Scheduled Protective/Conservation Treatments:

PLANNED TREATMENTS	
Year	2029
Treatment	INVASIVE SPECIES CONTROL-CHEMICAL • 4.46 acres heavy infestation • Apply for NRCS brush management practice (chemical) 314 • Plant and management of vegetation to assure wetland sustainability. Apply for NRCS practice code 644. • (Block 6- see Appendix A)

PLANNED TREATMENTS	
Year	2031
Treatment	INVASIVE SPECIES CONTROL-CHEMICAL • Follow up to 2029 treatment • 4.46 acres light to moderate infestation

G. Unit 7

EXISTING STAND DESCRIPTION

Forest Type:	**Open/Idle**	
Pro-Rated Acres:	**Bennington:**	**8.31**
	Shaftsbury:	**4.34**
Location:	**Various locations (see Conservation Management Map)**	

Age Class Structure:	n/a
Site Class:	2
Site Index or Soil Series:	Mostly 70 A, B, C: Groton gravelly fine sandy loam

Narrative

There are 8 fields within the property, labeled 7a-7h on the conservation management map. 7a and 7b are fields that an abutting landowner has a lifetime right to mow and is expected to continue to do so during the period of this plan. If the landowner ceases to mow those fields, The Fund for North Bennington will continue to do so. The remaining six fields (7c-7h) are periodically mowed and provide essential grassland habitat to the neighborhood. Management efforts will be to institute a schedule of "sequential delayed mowing" so that a grassland component may be maintained while still promoting nesting habitat for birds. Each year, two of the six fields will be mowed. The year after mowing, the fields provide grassland habitat and by year three (just before they are mowed again), there may be milkweed and goldenrod favored by native insects like monarch butterfly and bees.

Photo 11: Rough meadows re-established as part of invasive eradication efforts in various locations around the property offer a break from dense forest and provide valuable grassland habitat for wildlife.

No natural community information due to human management.

Ecologically Significant Feature(s) to be Protected:

- Grassland and/or early successional habitat

Justification/verification/Documentation for including this stand as an ESTA:

- Area defined using LiDAR and other imagery and information gathered in the field

Stand Health (include threats to Ecologically Significant Feature):

- Larger areas offer functioning grassland habitat. Increasing their size would enhance their value to bird species that utilize grassland habitat (bobolink, meadowlark, others)

Stand History:

- Periodically mowed

DESIRED FUTURE CONDITION

- A staggered and less-frequent mowing regime across the open areas would result in a patchwork of not only grassland habitat but also habitat for butterflies and bees (and other animals) that prefer slightly more structure in their openings that include milkweed and goldenrod for example.
    - Delayed annual mowing promotes grassland habitat
    - Mowing every several years promotes the development of milkweed and goldenrod while limiting the grow-back of invasives.
    - Both are desirable and underrepresented habitat types in the greater area.

PLANNED TREATMENTS

Scheduled Protective/Conservation Treatments:

- **Sequentially mow two fields per year. Mowing of fields other than 7a, 7b and 7h shall be delayed until August 1 at the earliest date.**

PLANNED TREATMENTS	
Year	2029
Treatment	INVASIVE SPECIES CONTROL-CHEMICAL • 12.65 acres heavy infestation • Apply for NRCS brush management practice (chemical) 314 • Apply for NRCS 420 for herbaceous habitat development • (Block 5, 6- see Appendix A)

PLANNED TREATMENTS	
Year	2031
Treatment	INVASIVE SPECIES CONTROL-CHEMICAL • Follow up to 2029 treatment • 12.65 acres light to moderate infestation

H. Unit 8

EXISTING STAND DESCRIPTION

Forest Type:	**Shallow Emergent Marsh**	
Pro-Rated Acres:	**Bennington:**	**0.00**
	Shaftsbury:	**16.17**
Location:	**Eastern part of the property.**	

Photo 12: Many desirable wetland species are present including cattails and speckled alder, but undesirable invasive plants like common buckthorn and glossy buckthorn threaten biodiversity.

Age Class Structure: n/a

Site Class: 4

Site Index or Soil Series: 23 A: Adrian and Saco

Natural Community Information*

Type: Shallow Emergent Marsh
Patch Size: **S**= Small Patch- typically less than 50 acres.
State Rank: S4= Widespread in the state

ECOLOGY AND PHYSICAL SETTING

This is a broadly defined community type, including many wetlands that are seasonally flooded or saturated. Soils are variable but are mostly shallow mucks or high organic content mineral soils. Organic soil deposits are deep in some marshes. As the name implies, Shallow Emergent Marshes have shallow water, with rooted herbaceous plants emerging from the water. During spring flooding, water depths may be two feet or more, but water levels usually drop by summer, leaving only several inches of water or an exposed soil substrate for most of the growing season.

Shallow emergent mashes occur in a variety of physical settings and in association with many other wetland types. Along lake and pond shores they are often associated with and form a complex mosaic with deep-water marshes, including Bulrush Marsh, Broadleaf Marsh, and Cattail Marsh. In the floodplains of small streams, Shallow Emergent Marshes are commonly associated with Alluvial and Alder Shrub Swamps. Many of our beaver meadows are best classified as Shallow Emergent Marsh and, in these cases, may be in an early stage of successional development. Early-successional wetlands in abandoned agricultural land are often referred to as wet meadows, and as these wetlands are abundant in our landscape and may take decades to succeed to shrub or forested wetland types, it is useful to include them in the broadly defined Shallow Emergent Marsh community type.

** Thompson, E.H. & Sorenson, E.R. 2000. Wetland, Woodland, Wildland- A Guide to the Natural Communities of Vermont. The Nature Conservancy and the Vermont Department of Fish & Wildlife. University Press of New England, Hanover, NH.*

Ecologically Significant Feature(s) to be Protected:

- State-mapped wetlands. Rare fen reported in greater area.

Justification/verification/Documentation for including this stand as an ESTA:

- Area defined using LiDAR and other imagery and information gathered in the field

Stand Health (include threats to Ecologically Significant Feature):

- Fair- invasive plants threaten biodiversity

Stand History:

- Marshlands. Rich fen(s) reported in greater area.

DESIRED FUTURE CONDITION

- Native species thriving. Functioning wetland habitat.

PLANNED TREATMENTS

Scheduled Protective/Conservation Treatments:

PLANNED TREATMENTS	
Year	2028
Treatment	INVASIVE SPECIES CONTROL -CHEMICAL • 16.17 acres heavy infestation • Apply for NRCS brush management practice (chemical) #314 • Apply for NRCS wetland practices #644 • (Block 7- see Appendix A)

PLANNED TREATMENTS	
Year	2030
Treatment	INVASIVE SPECIES CONTROL-CHEMICAL • Follow up to 2028 treatment • 16.17 acres light to moderate infestation

Planting of native species in riparian buffer zones is encouraged to stabilize banks and to protect water quality.

V. SUMMARY OF MANAGEMENT ACTIVITIES

Upon the signing of this management plan, the *required* management activities in this table become **binding** and the landowner will be expected to complete the activities which are supervised by the county forester as part of the use value appraisal program (current use). We here at Long View Forest will make every effort to notify you when practices are due. However, the responsibility for ensuring that practices get completed in the timeframe stated ultimate falls upon the landowner.

Year (Plus, or minus three years)	*Unit*	*Activity*	*Reason*	*NRCS Practice Code*	*Amount*
2028	1, 8	INVASIVE SPECIES CONTROL (Block 7- see Appendix A)	Promote native ecosystems	314	36 acres- heavy, chemical
2029	2, 3, 6, 7g	INVASIVE SPECIES CONTROL (Block 6, 7- see Appendix A)	Promote native ecosystems	314	36 acres- heavy, chemical
2030	7c-7h	MEADOW HABITAT	Enhance butterfly habitat	327	6-8 acres
2030	2	SNAG & LARGE COARSE WOODY DEBRIS CREATION	Promote old growth characteristics	647	20 snags 20 large CWD
2030	4	INVASIVE SPECIES CONTROL (Block 5- see Appendix A)	Promote native ecosystems	314	33 acres- heavy, chemical
2030	1, 8	INVASIVE SPECIES CONTROL- Follow up	Promote native ecosystems	314	36 acres- medium to light, chemical
2031	4	MAST TREE RELEASE	Favor nut and fruit producers for wildlife habitat	666	25-35 trees per acre. Total of 33 Acres
2031	5	INVASIVE SPECIES CONTROL (Block 5- see Appendix A)	Promote native ecosystems	314	39 acres- heavy, mechanical
2031	2, 3, 6, 7g	INVASIVE SPECIES CONTROL- Follow up	Promote native ecosystems	314	36 acres- medium to light, chemical
2032	5	PLANTING OF NATIVE SPECIES	Promote native ecosystems	645	TBD
2032	4	INVASIVE SPECIES CONTROL- Follow up	Promote native ecosystems	314	33 acres- medium to light, chemical
2032	All	Update forest management plan	UVA Requirement	CAP 106	156.68 acres
2033	5	INVASIVE SPECIES CONTROL- Follow up	Promote native ecosystems	314	39 acres- moderate to light, chemical

Notes:

1. This list is a summary designed for quick reference. Details are included in the main body of the management plan.
2. Implementation of management activities may require a year or more of advanced planning. The planning phases for commercial timber sales or applications for cost-share funding can be especially lengthy. For this reason, the planning phase of any forest management activity should be initiated well in advance of the recommended date of completion.

Recommended activities should also be done as part of good stewardship but are **not binding**:

Year	*Activity*	*Reason*
2028	Property boundary maintenance	Part of good land stewardship
To capitalize on the invasives removal reprieve, as soon as time and resources permit pursue activities per practice codes as noted:		
Unit 2	666 Forest Land Improvement	
Units 2, 3, 4	612 Forest Land Improvement	
Unit 5	647 Tree/shrub establishment	
Unit 6, 8	644 Improve habitat for waterfowl, furbearers, or other wildlife	
Unit 7	420 Herbaceous habitat improvement	
	Repaint or install new trail markers	Part of regular maintenance
	Consider establishing continuous forest inventory plots (CFI)	Establish record of growth and change in the forest
	Consider constructing bog bridges in north part of Unit 8 where trail is habitually wet.	Provide better recreational experience, protect wetland resources
	Consider constructing boardwalk into Unit 8	Would provide wildlife viewing opportunities in the wetland
	Consider constructing a “deer exclosure” in the western part of Unit 4	Such an exclosure would serve to educate the public on the negative impacts to the ecosystem due to over-browsing by deer.

Photo 13: The banks of Paran/Frost Creek are full, and water is moving swiftly as viewed from the safety of the Frost Creek foot bridge.

Symbol	SiteClass	Soil Name
23A		Adrian and Saco soils, 0 to 2 percent slopes
25B		Belgrade silt loam, 0 to 8 percent slopes
66B		Georgia loam, 3 to 8 percent slopes
69A		Massena silt loam, 0 to 3 percent slopes, very stony
70A		Groton gravelly fine sandy loam, 0 to 3 percent slopes
65D		Stockbridge loam, 15 to 25 percent slopes, very stony
70E		Groton gravelly fine sandy loam, 25 to 60 percent slopes
70E		Groton gravelly fine sandy loam, 25 to 60 percent slopes
40D		Galway-Nellis-Farmington complex, 15 to 25 percent slopes, rocky
70B		Groton gravelly fine sandy loam, 3 to 8 percent slopes
64B		Stockbridge loam, 2 to 8 percent slopes
67B		Georgia loam, 3 to 8 percent slopes, very stony
67C		Georgia loam, 8 to 15 percent slopes, very stony
64C		Stockbridge loam, 8 to 15 percent slopes
W		Water
94C		Pittsfield fine sandy loam, 8 to 15 percent slopes, very stony
64B		Stockbridge loam, 2 to 8 percent slopes
64B		Stockbridge loam, 2 to 8 percent slopes
64C		Stockbridge loam, 8 to 15 percent slopes
70B		Groton gravelly fine sandy loam, 3 to 8 percent slopes
94B		Pittsfield fine sandy loam, 3 to 8 percent slopes, very stony
70B		Groton gravelly fine sandy loam, 3 to 8 percent slopes
70D		Groton gravelly fine sandy loam, 15 to 25 percent slopes
26A		Raynham silt loam, 0 to 3 percent slopes
69B		Massena silt loam, 3 to 8 percent slopes, very stony
70C		Groton gravelly fine sandy loam, 8 to 15 percent slopes
40C		Galway-Nellis-Farmington complex, 8 to 15 percent slopes, rocky
70D		Groton gravelly fine sandy loam, 15 to 25 percent slopes
40C		Galway-Nellis-Farmington complex, 8 to 15 percent slopes, rocky
41C		Galway-Farmington complex, 8 to 15 percent slopes, very rocky
67C		Georgia loam, 8 to 15 percent slopes, very stony
28A		Udifluvents, loamy-skeletal

Soils Map

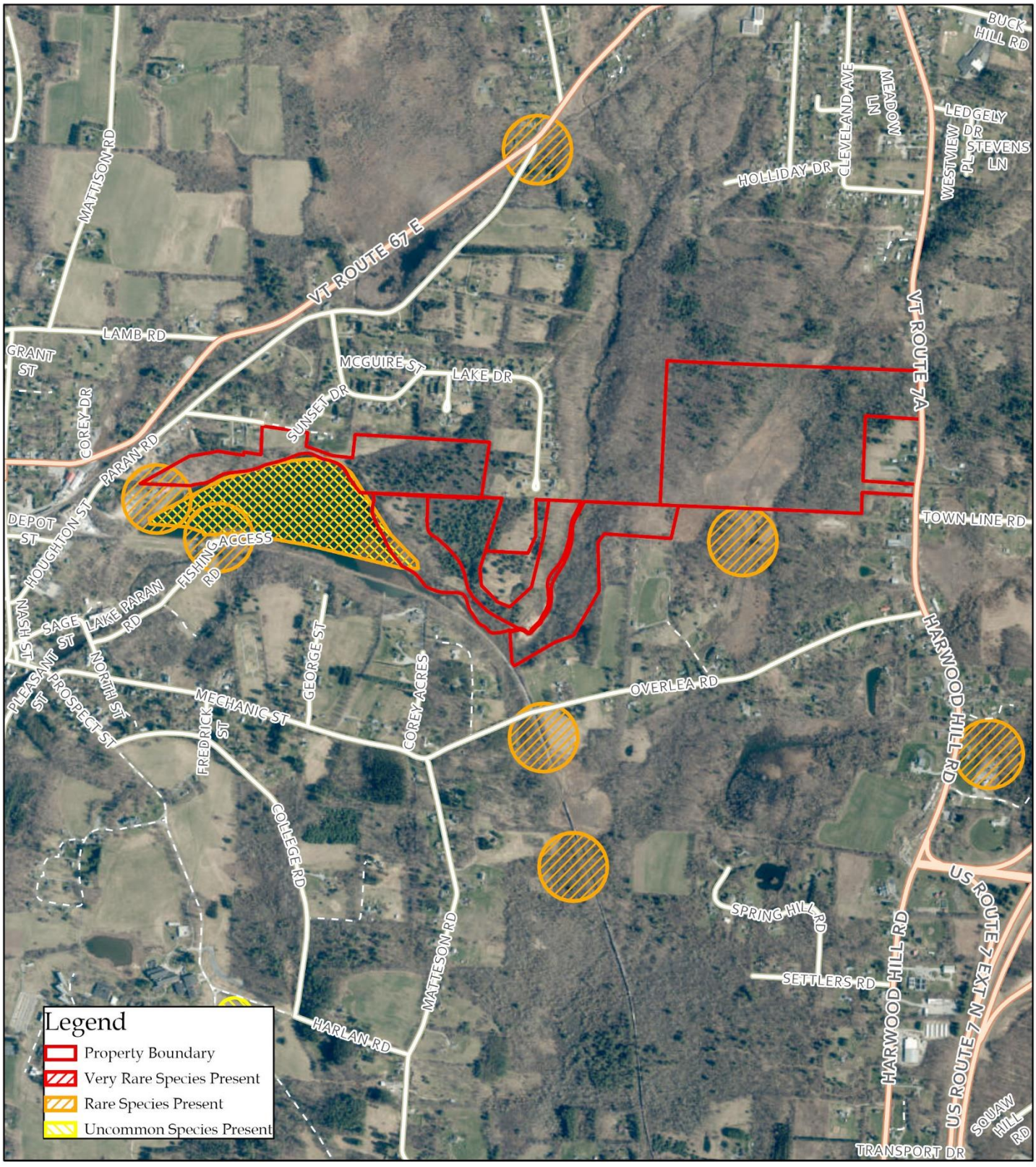
for lands belonging to

The Fund for North Bennington, Inc.

Bennington, VT

0 1,000 2,000 4,000 US Feet

Long View Forest MANAGEMENT



N
W E
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Map of Wildlife Habitat & R.T.E.s

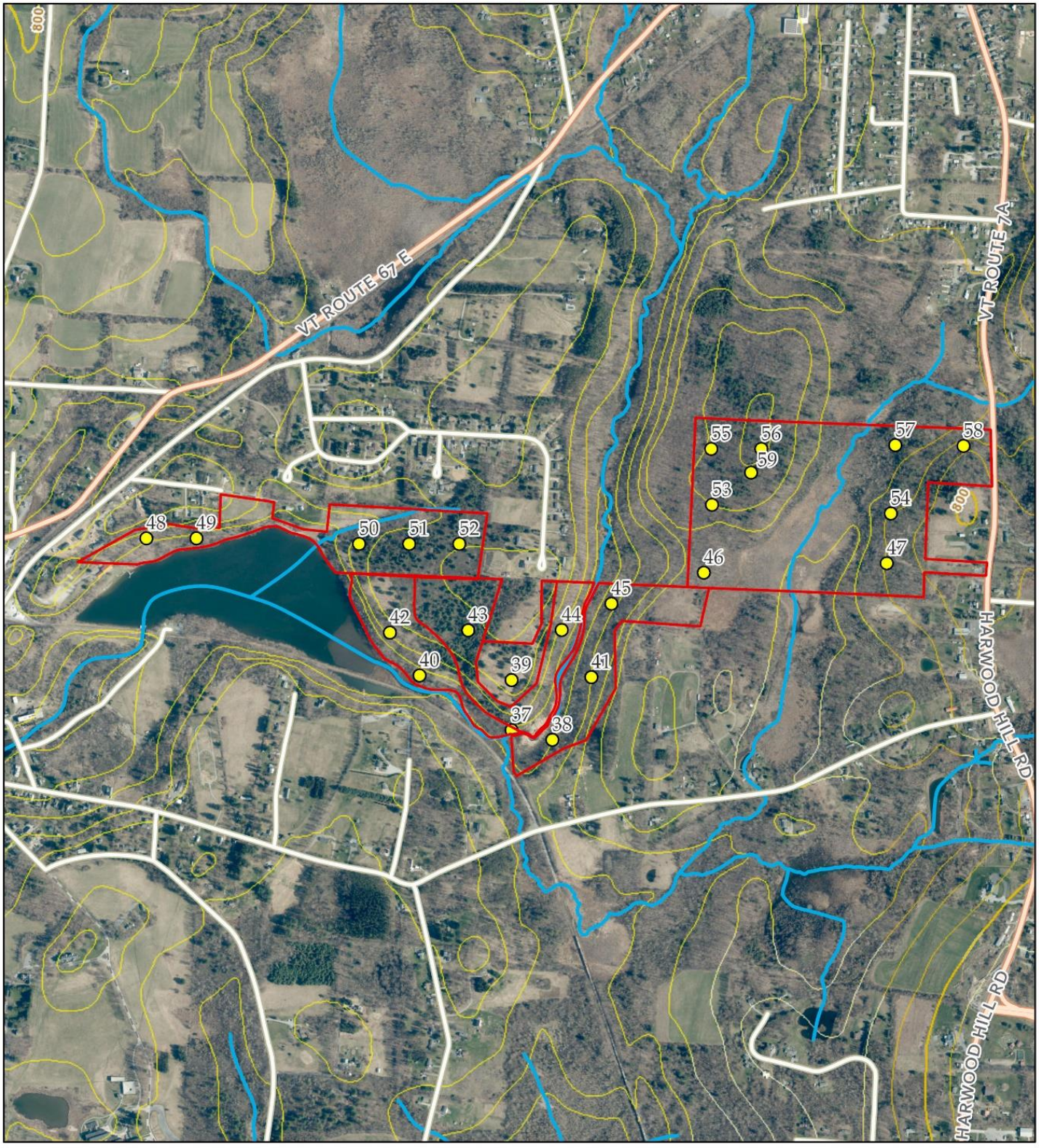
for lands belonging to

The Fund for North Bennington, Inc.

Bennington & Shaftsbury, VT

0 1,250 2,500 5,000 US Feet

Long View Forest MANAGEMENT



N
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0 500 1,000 2,000 US Feet

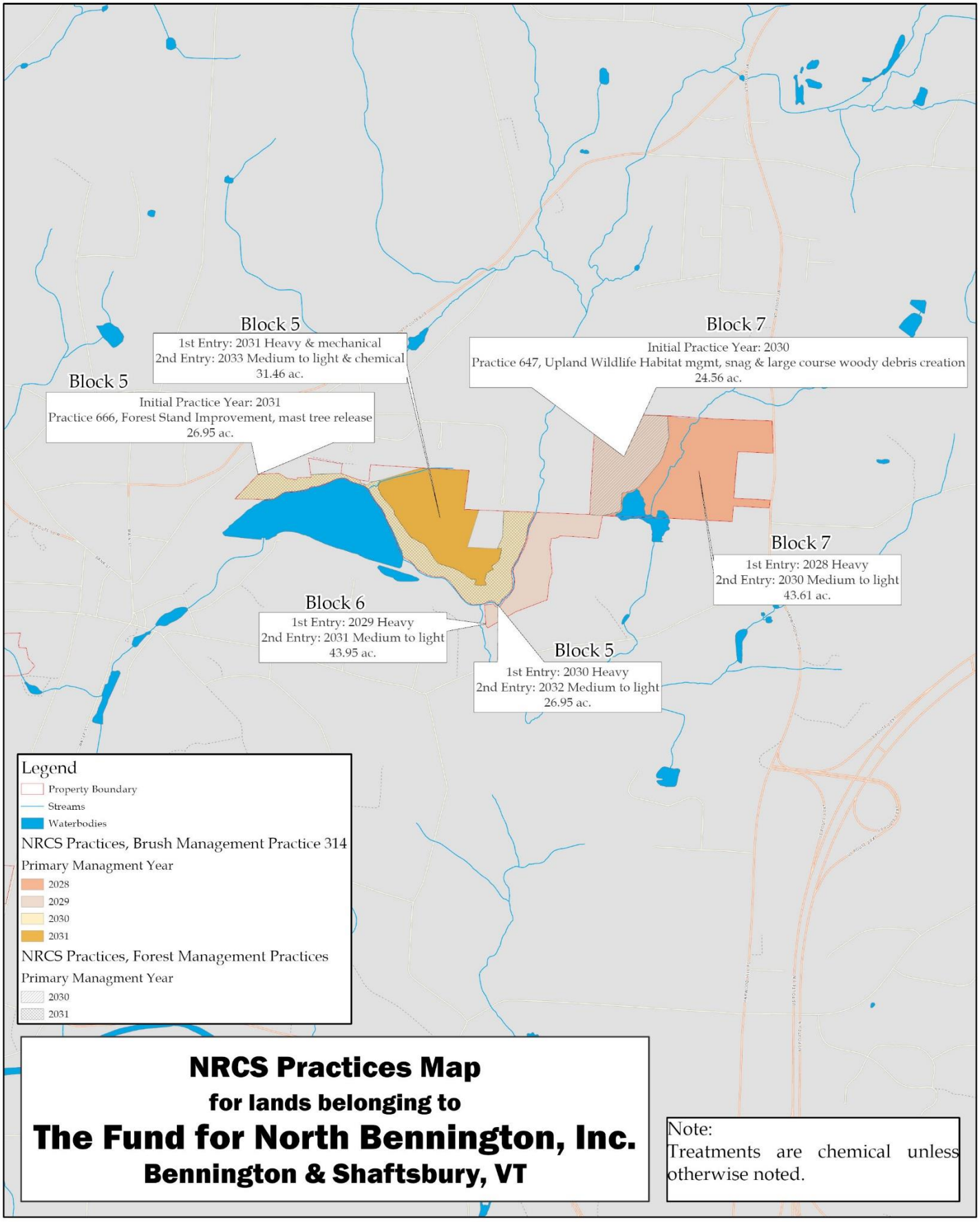
Forest Inventory Map

for lands belonging to

Fund for North Bennington - East

Bennington, VT

Long View Forest MANAGEMENT



NRCS Practices Map

for lands belonging to

The Fund for North Bennington, Inc.

Bennington & Shaftsbury, VT

Note:
Treatments are chemical unless otherwise noted.

0 1,250 2,500 5,000 US Feet

N W E S

Long View Forest MANAGEMENT

VII. APPENDIX

A. *Invasives Assessment for NRCS Funding Considerations*

Fund for North Bennington
Invasive Plant Assessment Project

Prepared by Tom Groves

VT Pesticide License #1208-4955

Scope of Work – Lake Paran

Complete an invasive plant assessment and map populations, species, and densities for use in The Fund for North Bennington's subsequent application for Natural Resources Conservation Service invasive plant control grant funding opportunities.

All the lands owned by the Fund for North Bennington have some aspect of invasive plants present in the understory. These species are found throughout the properties in varying densities. In reference to the provided invasive plant map, the species which have a specialized funding designation (phragmites and poison parsnip) have been sectioned out. For the purposes of this document, it should be assumed that glossy buckthorn, common buckthorn, oriental bittersweet, burning bush, multiflora rose, and invasive honeysuckle are present.

Block 5 (Map 2) – 20.23 acres

This section off Paran Rd. and McCarthy Acres Rd on the Shaftsbury/Bennington Town line and the Robert Frost Trail that runs along the south portion of the property boundary. All along the northern edge of Lake Paran there is a high-density infestation of phragmites. Some of these plants may occur on property not owned by The Fund for North Bennington. If possible, coordinating treatment of this plant in particular would be beneficial for many reasons. There is a smaller patch to the east that is on Fund property (0.2 ac). The remaining areas above and below this trail from the property line on the west and north in the direction of Lake Drive are heavily infested with invasive plants and the 13.89-acre section would benefit immensely from mechanical control via brontosaurus mulching. Access for any other treatment in this area is very difficult. The remaining section of the Robert Frost trail to the west is also heavily infested with large, mature invasive plants. Treatment in this particular block will be especially difficult.

Block 6 (Map 3) – 51.31 acres

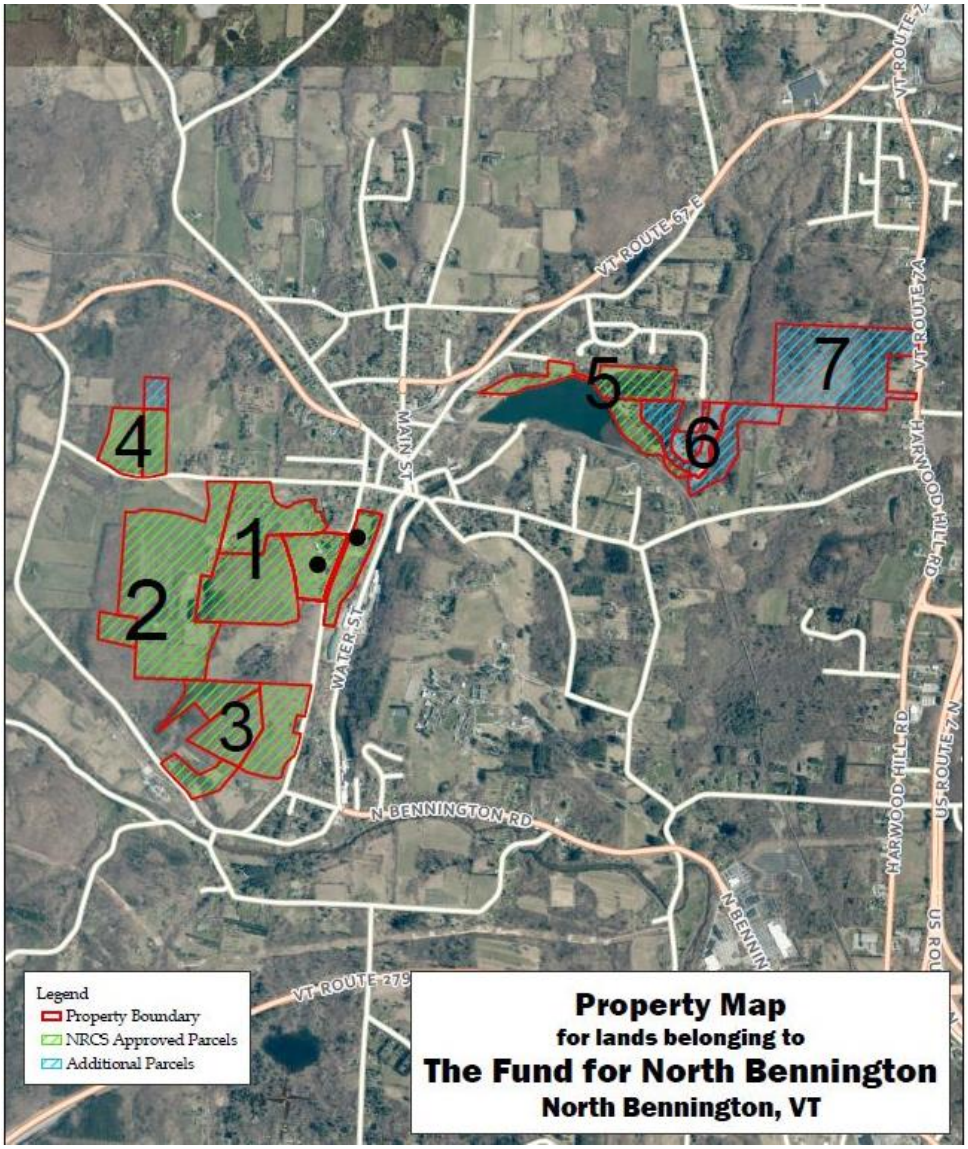
This area has open shrubby fields which would benefit from invasive control. The lower but high-density invasive plant in this area is primarily honeysuckle. The surrounding acres are similar to those of Block 5 in density, having some heavier and some lighter sections. Overall, these acres are medium to high density in infestation.

Block 7 (Map 3) – 66.82 acres

This area is off Harwood Hill Rd/VT Rt 7A. Along the right of way there are invasive hedgerows on either side and upon entering the forests edge the invasives are 6' tall or taller. As the trail winds into the wetland, the invasive cover becomes primarily glossy buckthorn mixed in with native wetland shrubs and transitions back to honeysuckle upon climbing the western side of the trail. There is almost a 100% ground cover and midstory of invasive plants in this location. These acres will be difficult to treat due to access and the severity of the invasive infestation.

Density	**Acres**
Heavy	283.59
Moderate	21.1
Heavy Herbaceous	1.47
Heavy Mechanical	26.32
Total Treatment Acres	**332.48**

Summary Table



B. Reader's Guide to Forest Management Planning

The following is a description of the forest management planning process. To assist the reader with unfamiliar terminology, a glossary has been provided at the end of the document. Long View Forest Management continually updates the format of management plans to improve communication with landowners. Suggestions for improvement are therefore greatly appreciated.

Mapping

The first step in preparing a forest management plan is mapping. A previous forest management map or survey allows the forester to locate the property and get oriented on it. Relevant physical features are also mapped, landform, water bodies, soil types and man-made features. A regular grid of forest inventory points is superimposed on the property map. These points are loaded onto a GPS device to guide the forester and ensure complete inventory coverage when he or she later visits the property.

The Forest Inventory

After mapping, a forester visits the property to conduct the forest inventory. Data on the following biological and physical features is gathered to help guide forest management decisions:

- Cultural features *(e.g., old cellar holes, sugarhouse foundations, old quarries)*
- Forest health *(insect pests, pathogens, invasive species, or natural disturbances)*
- Herbaceous plants *(seasonally dependent)*
- Management history *(past logging, farming, or other land management activity)*
- Recreational features *(existing or potential)*
- Site conditions *(aspect, elevation & terrain features)*
- Tree species present *(size, quantity & quality)*
- Wildlife features *(wildlife sign, sightings & habitat features)*

Delineating Forest Management Units

Returning to the office, forest management units are delineated using forest inventory data and other information. Forest management units are contiguous or closely spaced areas where the trees are of sufficiently uniform age distribution, composition, and structure, and where the site is of sufficiently uniform quality that they can be distinguished from other areas. Foresters rely on the following landscape attributes when delineating forest management units:

- Uniformity of tree growth *(forest stand and/or natural community type)*

- Defining terrain features *(e.g., ledges, ridges, aspect, slope, physical connectivity)*
- Soil type
- Land use history
- Man-made features *(roads, driveways, woods roads)*
- Access points and available landing areas

Writing the Forest Management Plan

Next, planned forest management activities are written for each forest management unit. Common activities include pre-commercial thinning to favor the growth of desirable trees, harvesting of wood products, improvements to property access points and skid trails, and property boundary maintenance. With a plan for forest management activities over the planning period in hand, the forest management plan itself is written. The plan contains detailed descriptions of the existing forest management units at the time the inventory data was collected, as well as specifications for planned forest management activities over the ten-year planning period.

C. *Resources for the Landowner*

COST SHARE PROGRAMS	
Environmental Quality Incentives Program (EQUIP)	http://www.nrcs.usda.gov/PROGRAMS/EQIP/
Forest Stewardship Program	http://www.fs.fed.us/spf/coop/programs/loa/fsp.shtml
NRCS Conservation Practice Standards (Provides information on all the different Conservation Practices and their codes)	http://www.nrcs.usda.gov/technical/standards/nhcp.html
Vermont NRCS	http://www.vt.nrcs.usda.gov/

FOREST CERTIFICATION SCHEMES	
American Tree Farm System	http://www.treefarmsystem.org/
Forest Stewardship Council (FSC)	http://fscus.org/
Programme for the Endorsement of Forest Certification schemes (PEFC)	http://www.pefc.org/internet/html/index.htm
Sustainable Forestry Initiative (SFI)	http://www.sfiprogram.org/

INSECTS & DISEASES	
Cornell Christmas Tree Integrated Pest Management	http://www.nysipm.cornell.edu/publications/field_guide_xmas_trees/field_guide_xmas_trees.asp
Forest Insect & Disease leaflets- United States Forest Service	http://www.fs.fed.us/r6/nr/fid/wo-fidls/
USFS- forest health page	http://na.fs.fed.us/pubs/misc.shtm
Invasive/ Exotic Management	
Invasive Plant Atlas of New England's (IPANE)	http://nbii-nin.ciesin.columbia.edu/ipane/
Vermont invasive exotic plant committee	http://vtinvasives.org/

MAPPING	
Agency of Natural Resources Atlas	http://anrmaps.vermont.gov/websites/anra5/
Wetland, Woodland, Wildland- VT Fish and Wildlife Library (Natural Communities)	http://www.vtfishandwildlife.com/about_us/fish_wildlife_store/fish_wildlife_books
Windham regional commission	http://windhamregional.org/
Vermont Center for Geographic Information	http://www.vcgi.org/

MISCELLANEOUS	
Vermont Department of Forests, Parks & Recreation Publications	http://www.vtfpr.org/htm/gen_publications.cfm
Vermont Department of Forests, Parks & Recreation / UVM Extension	https://www.ourvermontwoods.org/
To find out information on your watershed, visit	http://cfpub.epa.gov/surf/locate/index.cfm
Backyard Conservation: Natural Resources Conservation Service (NRCS)	http://www.nrcs.usda.gov/wps/portal/nrcs/detail/?ss=16&navtype=BROWSEBYSUBJECT&cid=nrcs143_023574&navid=220120000000000&position=Not%20Yet%20Determined.Html&ttype=detail
Good forestry in the Granite State (13MB)	http://extension.unh.edu/goodforestry/index.htm
Online Conversion (convert any unit of measurement to anything else)	http://www.onlineconversion.com/
National Timber Tax website	http://www.timbertax.org/
UNH cooperative extension	http://extension.unh.edu/

ORGANIZATIONS	
Windham Regional Woodlands Association	http://woodlandownersassociation.org
Center for Northern Woodlands Education	http://northernwoodlands.org/
The Forest Guild	http://www.forestguild.org/
Society of American Foresters	http://www.safnet.org/
Vermont Coverts	http://www.vtcoverts.org/
Vermont Maple Sugar Maker's Association	http://vermontmaple.org/
Vermont Woodlands Association	http://www.vermontwoodlands.org/
National Woodland Owners Association	http://woodlandowners.org/

TREE & PLANT IDENTIFICATION	
New England Wildflower Society Simple Key	https://gobotany.newenglandwild.org/
Silvics of North America	http://www.na.fs.fed.us/spfo/pubs/silvics_manual/table_of_contents.htm

SOILS & GEOLOGY	
USDA Web Soil Survey	http://websoilsurvey.nrcs.usda.gov/app/
Vermont Geological Survey	http://www.anr.state.vt.us/dec/geo/vgs.htm

USE VALUE APPRAISAL	
PV&R- property valuation & review (VT Dept. of Taxes)	http://tax.vermont.gov/property-owners/current-use
Use Value Appraisal Program Revised Manual (and others)	http://www.vtfpr.org/resource/for_forres_useapp.cfm

VERMONT AGENCIES	
Vermont Agency of Natural Resources	http://www.anr.state.vt.us/
Vermont Department of Fish & Wildlife	http://www.vtfishandwildlife.com/
Vermont Department of Forests, Parks & Recreation	http://www.vtfpr.org/index.cfm
VT Natural Resources Conservation Service (NRCS)	http://www.vt.nrcs.usda.gov/

D. Forest Management Reference Publications

1. *Silvicultural Guide for Northern Hardwood Types in the Northeast* (revised). USDA-USFS-NA-FES. Leak, Solomon, De Bald. Research Paper NE-603. 1987.
2. A Silvicultural Guide for Spruce-Fir in the Northeast. USDA- USFS-NA-FES. Technical Report NE-6. 1973.
3. Uneven-aged Management of Northern Hardwoods in New England. USDA-USFS. Research Paper NE-332. 1975.
4. *A Stocking Guide for Eastern White Pine*. USDA-USFS. Research Note NE-168. 1973.
5. *A Silvicultural Guide for White Pine in the Northeast.* USDA-USFS. Lancaster & Leak. General Technical Report NE-41. 1978.
6. Bennett, Karen P. editor. 2010. Good Forestry in the Granite State: Recommended Voluntary Forest Management Practices for New Hampshire (second edition). University of New Hampshire Cooperative Extension, Durham, N.H. www.goodforestry.org
7. Revised White Pine Stocking Guide for Managed Stands. USDA-USFS-NASPF. Leak & Lamson. NA-TP-01-99. 1999.
8. *White Pine Management – A Quick Review.* USDA-USFS-NASPF-NA-FR-27. Lancaster. 1984.
9. A Silvicultural Guide for Northern Hardwoods in the Northeast. USDA-USFS. Research Paper NRS-132. April 2014.
10. Forester's Guide to Marking and Grading Eastern Hemlock Timber. GFA Project Hemlock Utilization Guide No. 1. 1973.
11. A Guide to Hardwood Timber Stand Improvement. USDA-USFS-NA Upper Darby, PA. 1975.
12. *Crop Tree Management in Eastern Hardwoods.* USDA-USFS-NASPF. Perkey. NA-TP-19-93. 1993.
13. Establishing Even-aged Northern Hardwood Regeneration by Shelterwood Method – A Preliminary Guide. USDA-USFS-FES North Central. Research Paper NC-99. 1973.
14. Manager's Handbook for Northern White Cedar in the North Central States. USDA-USFS-FES. General Technical Report NC-35. 1977.
15. Manager's Handbook for Red Pine in the North Central States. USDA-USFS-FES. General Technical Report NC-33. 1977. Use
16. *Manager's Handbook for Oaks in the North Central States.* USDA-USFS-FES North Central. General Technical Report NC-37. 1977.
17. *Manager's Handbook for Aspen in the North Central States.* USDA-USFS-FES North Central. General Technical Report NC-37. 1977.
18. Managing Eastern Hemlock: A Preliminary Guide. USDA-USFS-NA-FR-30. 1985.
19. *Reforestation Handbook / Stocking Standards.* USDA-USFS. Handbook R-9. GMNF Supplement No. 4 pp. 113.2-113.3.
20. *Silvicultural Guide for Paper Birch in the Northeast* (revised). USDA-USFS-NA-FES. Research Paper NE-535. 1983.
21. *Forest Statistics for Vermont, 1933 and 1983.* USDA-USFS-FES Northeastern Station. Research Bulletin NE-87. 1985. pp. 99-100 (Log grade standards).
22. Acceptable Management Practices for Maintaining Water Quality on Logging Jobs in Vermont. VT ANR-FPR. 15 August 1987.
23. Management Guide for Deer Wintering Areas in Vermont. Russell S. Reay et al., VT ANR-FPR-FW. 1990.
24. Elementary Forest Sampling & Elementary Statistical Methods for Foresters. USDA-USFS-FES Southern. Freese & Frank. 1962.
25. *Forestry Handbook.* Wenger, Karl, ed. Society of American Foresters. New York: John Wiley and Sons, 1984.
26. *Forest Measurements.* Avery, Thomas E. and Burkhart, Harold, E. Boston: McGraw Hill, 1994.
27. Forest Wetlands Functions, Benefits, and the Use of Best Management Practices. USDA-USFS-NA. PR-01-95. 1995.
28. *Technical Guide to Forest Wildlife Habitat Management in New England*. University of Vermont Press, Burlington, VT. DeGraaf et al. 2006.
29. Wetland, Woodland, Wildland A Guide to the Natural Communities of Vermont. University Press, Hanover, NH. Thompson & Sorenson. 2005.
30. The Practice of Silviculture, 7th edition. D. M. Smith. Wiley and Sons

E. Glossary

ACCEPTABLE GROWING STOCK (AGS): STEMS of commercial tree species which have the potential to produce one 12-foot or two non-contiguous 8-foot sawlogs, where the management objective is sawlog production.

ADVANCED REGENERATION: See REGENERATION

AVERAGE HAUL DISTANCE: Approximate distance from the geographic center of a harvest area to the nearest class 1, 2, or 3 road or log landing

BASAL AREA (BA): A measurement of stand density, commonly expressed on a per-acre basis. Basal area is the sum of the cross-sectional areas of all trees measured at BREAST HEIGHT.

BEST MANAGEMENT PRACTICE(S) (BMP): A practice or usually a combination of practices that are determined by a state or designated planning agency to be the most effective and practicable means (including technological, economic, and institutional considerations) of controlling point and non-point source pollutants at levels compatible with environmental quality goals.

CO-DOMINANT: Large-crowned at the average height of the forest canopy, receiving sunlight from above and partly from the sides. Co-dominant crowns are somewhat smaller than DOMINANTS but still healthy and vigorous.

COMMERCIAL TREATMENT: A silvicultural treatment that results in the generation of positive revenue for the owner of the timber.

CORD: A unit of measure equal to 128 cubic feet of wood or a stacked pile of wood that measures 4 feet by 4 feet by 8 feet. Cords are used to measure firewood and PULPWOOD.

CORDWOOD: Generally, stems of hardwood species suitable only for sale as firewood

CROP TREES: Growing trees chosen for their potential to produce high quality timber. Crop trees are generally straight, vigorous, and disease-free and consequently respond best to thinning treatments with increased growth rates. Where specified, crop trees may be chosen based on other criteria, including value as a food source or habitat for wildlife or for aesthetic value.

CROWN: The upper part of the tree, including branches with foliage

CULL: A tree of sufficiently poor form or internal defect as to be un-merchantable

CUTTING CYCLE: The planned or recommended interval between harvest operations within a stand

DIAMETER AT BREAST HEIGHT (DBH): The diameter of a tree outside the bark at a point 4.5 feet above ground level

DOMINANT: Trees with wide crowns above the level of the forest canopy, receiving sunlight from above and from the sides

EVEN AGED: Stands with two or fewer size classes.

FOREST INVENTORY: A set of objective sampling methods designed to quantify the spatial distribution, composition, and rates of change of forest parameters within specified levels of precision for the purposes of management.

FUELWOOD: See CORDWOOD

GIRDLE: To encircle the bole of a tree with a cut extending past the cambium layer (inner bark) into the xylem layer (center of the tree) to kill the tree without felling it

GROUP: A group of trees comprising a small harvest unit, generally a few acres in size or less, intended to open up a gap in the forest canopy to permit the establishment and growth of new tree seedlings

HARD MAST: Tree seeds or nuts, typically of oak, beech, and hickory, which serve as food for wildlife.

HIGH GRADING: A harvesting practice involving the removal of the most commercially valuable trees leaving a residual stand composed of trees of poor form and undesirable species composition. High grading may result in dysgenic effects and have long-term negative economic and forest health implications.

INTERMEDIATE: A tree with most of the crown below the average canopy level which receives some sunlight from above and little or none from the sides

LANDING: A generally flat, open area that can be easily accessed by a log truck or truck and trailer where wood is gathered during a harvest and where logs are sorted and stacked to await transport to mill or market

MANAGEMENT UNIT: A subdivision of a management area, often synonymous with STAND

OPPRESSED: Trees fitting the definition of suppressed, but having been so for a sufficient length of time that they will not recover or respond if released

OVERSTORY: The upper crown canopy of a forest.

PRE-COMMERCIAL THINNING (PCT): The removal of un-merchantable or sub-merchantable trees to reduce stocking and concentrate growth rates in the most desirable individuals.

POLE-TIMBER, POLES: Trees 5-9" DBH

PULPWOOD: Wood of generally lower quality for manufacture into wood pulp, paper, fiber, board, or other products

REGENERATION: Young seedlings and saplings. If seedlings and saplings are present prior to any cutting, they may be termed advanced regeneration.

SAPLINGS: Trees 3-10 feet high and up to 5" DBH

SAWTIMBER: Trees 12" DBH and up (10” and up for red spruce and balsam fir)

SEEDLINGS: Young trees up to 3 feet high

SILVICS: The study of the life history and characteristics of forest trees and stands, with particular reference to environmental factors

SILVICULTURE: The scientific theory and practice of controlling forest establishment, composition, and growth to obtain forest crops and other benefits

SITE: The biotic, climatic, and soil conditions of a given area which are relevant to the growth of trees

SITE CLASS: A measure of the capacity of a site to support the growth of desirable trees. Site class may be given for one species or for the range of species growing in a STAND. Site class is most commonly represented with Roman numerals I – IV, with Site I being the best sites and Site IV being the worst.

SLASH: Branches, bark, tops, chunks, cull logs, uprooted stumps and broken or uprooted trees left on the ground after logging

SMALL SAWTIMBER: Trees 10-15" DBH

SOFT MAST: Fruit or berries, typically of dogwood, viburnum, elderberry, blueberry, hawthorn, grape, raspberry, and blackberry, which serve as a food source for wildlife.

STAND: An aggregation of trees occupying a specific area and sufficiently uniform in species composition, age, arrangement, and conditions as to be distinguishable from the trees in adjoining areas

STEM: A synonym for an individual tree; may refer to the main trunk of a tree, not including branches, foliage, stump, or roots

STOCKING: A measure of the density of a stand, usually determined by the number of trees per acre and their average diameter

STUMPAGE: The monetary value of standing timber to the owner of the timber. Stumpage is generally calculated as:

= (Price paid by mill for delivered wood) less (Cost of trucking from roadside to mill) less (Cost of logging and skidding to roadside)

SUPPRESSED: Trees overtopped by larger trees and receiving only indirect sunlight

TIMBER STAND IMPROVEMENT (TSI): See PRE-COMMERCIAL THINNING

UNACCEPTABLE GROWING STOCK (UGS): Live trees judged to be of relatively poorer form or health, and which should be removed at the time of the next timber harvest to provide trees of relatively better form with more room to grow.

UNDERSTORY: Trees or shrubs growing below the main canopy in a forest STAND

UNEVEN-AGED: A STAND with three or more size classes

WEED: A tree species with little or no commercial value

WOLF TREE: Trees with widespread crowns which hinder the growth of ACCEPTABLE GROWING STOCK and are themselves of little commercial value. They often have significant value for wildlife or aesthetics, however.

VIII. UVA PARCEL DATA ENTRY FORM- BENNINGTON

(☐ New ☒ Update* ☐ Amendment** ☐ Change of Ownership) page 1 of 2

FP&R COUNTY FORESTER USE ONLY

Parcel ID for Data Entry (by state) # __ __ __ __ __, __ __ __ __ __ - __ __ __ __ __ Year of Entry _____

Year of Plan_____ Year of Last Inspection_____

1) Landowner Name (last name first) **The Fund for North Bennington, Inc.**

2) Landowner Address (Street, PO Box) **c/o Robert Woolmington, 23 Mechanic Street**

(Town) **North Bennington** (State) **VT** (Zip Code) **05257**

Phone Number **802-282-3401** Email Address **thefund@northbennington.org**

3) Town That Parcel Is in **Bennington** 4) Total Forestry Acres in Parcel **41.61** (Grand list acreage, minus agricultural or non-productive land and exclusions)

5) Plan Preparer (last name first) **Long View Forest Management** 6) Previous Owner (last name first) -

7) SPAN- **051-015-63836**

8) Stand information: (this information is for data entry only and does not override what is in actual plan)

Stand #	Acres	Even-aged (1), Uneven-aged (2) (existing)	Predominant Site Class (1, 2, 3, or 4)	Timber Type	Quadratic M.S.D.	Total BA	AGS BA	Mgmt. Activities	Scheduled Date (+/- 3 yrs.)
3	11.38	1	2	6	8	40	20	15	2029
3	11.38	1	2	6	8	40	20	15	2031
4	15.00	1	2	6	8	44	36	15	2030
4	15.00	1	2	6	8	44	36	1	2031
4	15.00	1	2	6	8	44	36	15	2032
5	15.23	1	2	3	9	25	10	15	2028
5	15.23	1	2	3	9	25	10	15	2030

*Update of an existing plan that includes all new stand descriptive data required every 10 years at minimum.

**Change to an existing plan does not change the 10-year cycle of the existing plan. If this form is filed with an amendment, indicate the amended information in the appropriate stand, and write an explanation in section 12. Amendments must be signed by the landowner(s).

9) No activity (identify stand # and reasons) -

10) Management Activities- other (identify stand #) -

11) Timber Types- other (identify stand #) -

12) Amended prescriptions (identify stand #) -

STAND TYPES	**CODE#**
Aspen and/or white birch	01
White pine, red oak	02
White pine	03
Hemlock	04
Sugar maple	05
Beech, birch, sugar maple	06
Beech, red maple	07
Spruce	08
Spruce/fir	09
Pioneer species	10
Mixedwood (25%-65% softwood)	11
Other (identify other in section 12)	12
ESTA	13
Open	14
Significant wildlife habitat	15
Special places and sensitive sites	16
Miscellaneous	17

MANAGEMENT ACTIVITY CODES (if one of the following choices reasonably describes the planned management activity, use it. If not, use #13 other and describe the management activity in Section 10. Note these descriptions are for choosing codes only; they are not silvicultural standards).

1. Non-commercial forest stand improvement

EVEN-AGED MANAGEMENT

2. Intermediate thinning
3. Shelterwood cut
4. Overstory removal cut
5. Clearcut
6. Progressive clearcutting

UNEVEN-AGED MANAGEMENT

7. Individual tree selection
8. Group selection

MISCELLANEOUS CHOICES

9. Salvage cut
10. Sugarbush thinning
11. Species conversion
12. No activity
13. Other
14. Crop tree release
15. Invasive species control

IX. UVA PARCEL DATA ENTRY FORM- SHAFTSBURY

(☐ New ☒ Update* ☐ Amendment** ☐ Change of Ownership) page 1 of 2

FP&R COUNTY FORESTER USE ONLY

Parcel ID for Data Entry (by state) # __ __ __ __ __, __ __ __ __ __ - __ __ __ __ __ Year of Entry _____

Year of Plan_____ Year of Last Inspection_____

1) Landowner Name (last name first) **The Fund for North Bennington, Inc.**

2) Landowner Address (Street, PO Box) **c/o Robert Woolmington, 23 Mechanic Street**

(Town) **North Bennington** (State) **VT** (Zip Code) **05257**

Phone Number **802-282-3401** Email Address **thefund@northbennington.org**

3) Town That Parcel Is in **Shaftsbury** 4) Total Forestry Acres in Parcel **81.77** (Grand list acreage, minus agricultural or non-productive land and exclusions)

5) Plan Preparer (last name first) **Long View Forest Management** 6) Previous Owner (last name first) -

7) SPAN- **573-180-10023**

8) Stand information: (this information is for data entry only and does not override what is in actual plan)

Stand #	Acres	Even-aged (1), Uneven-aged (2) (existing)	Predominant Site Class (1, 2, 3, or 4)	Timber Type	Quadratic M.S.D.	Total BA	AGS BA	Mgmt. Activities	Scheduled Date (+/- 3 yrs.)
1	18.8	1	2	6	12	80	50	15	2028
1	18.8	1	2	6	12	80	50	15	2030
2	20.38	1	2	6	11	92	56	15	2029
2	20.38	1	2	6	11	92	56	15	2031
2	20.38	1	2	6	11	92	56	1	2030
4	15.00	1	2	6	8	44	36	15	2030
4	15.00	1	2	6	8	44	36	1	2031
4	15.00	1	2	6	8	44	36	15	2032
5	15.23	1	2	3	9	25	10	15	2028
5	15.23	1	2	3	9	25	10	15	2030

*Update of an existing plan that includes all new stand descriptive data required every 10 years at minimum.

**Change to an existing plan does not change the 10-year cycle of the existing plan. If this form is filed with an amendment, indicate the amended information in the appropriate stand, and write an explanation in section 12. Amendments must be signed by the landowner(s).

9) No activity (identify stand # and reasons) -

10) Management Activities- other (identify stand #) -

11) Timber Types- other (identify stand #) -

12) Amended prescriptions (identify stand #) -

STAND TYPES	**CODE#**
Aspen and/or white birch	01
White pine, red oak	02
White pine	03
Hemlock	04
Sugar maple	05
Beech, birch, sugar maple	06
Beech, red maple	07
Spruce	08
Spruce/fir	09
Pioneer species	10
Mixedwood (25%-65% softwood)	11
Other (identify other in section 12)	12
ESTA	13
Open	14
Significant wildlife habitat	15
Special places and sensitive sites	16
Miscellaneous	17

MANAGEMENT ACTIVITY CODES (if one of the following choices reasonably describes the planned management activity, use it. If not, use #13 other and describe the management activity in Section 10. Note these descriptions are for choosing codes only; they are not silvicultural standards).

1. Non-commercial forest stand improvement

EVEN-AGED MANAGEMENT

16. Intermediate thinning
17. Shelterwood cut
18. Overstory removal cut
19. Clearcut
20. Progressive clearcutting

UNEVEN-AGED MANAGEMENT

21. Individual tree selection
22. Group selection

MISCELLANEOUS CHOICES

23. Salvage cut
24. Sugarbush thinning
25. Species conversion
26. No activity
27. Other
28. Crop tree release
29. Invasive species control