Report Regarding Enrollment of Reserve Forestland in Use Value Appraisal

Submitted to:

House Committee on Natural Resources, Fish, and Wildlife
House Committee on Agriculture and Forestry
House Committee on Ways and Means
Senate Committee on Natural Resources and Energy
Senate Committee on Agriculture
Senate Committee on Finance

Submitted by: Michael C. Snyder, Commissioner

Prepared by Department of Forests, Parks, and Recreation:

Michael C. Snyder, Commissioner
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Abstract

A report on the Minimum Acceptable Management Standards adopted by Commissioner Michael Snyder for implementation of Reserve Forestland, a subcategory of the Managed Forestland enrollment category in Use Value Appraisal.

December 30, 2022

Vermont Department of Forests, Parks, and Recreation
Agency of Natural Resources

INTRODUCTION

In May, 2022, Act 146 was passed which changed Vermont's Use Value Appraisal (UVA) Program by adding a subcategory to Managed Forestland called 'Reserve Forestland.' This change to UVA is intended to value and accelerate the development of old forest conditions and functions in a pattern and at a scale that Vermont would benefit from and is lacking on the landscape, and it does so in a meaningful but conservative way that preserves working lands as the primary focus of the Managed Forestland category of the UVA program.

The Commissioner of FPR is authorized to develop and adopt Minimum Acceptable Standards for Forest Management (32 V.S.A. § 3752). Management standards are refined and created to ensure that the Managed Forestland enrollment category of UVA is administrable and advance the statutory purposes of the program. Act 146 required that by December 31, 2022, the Department of Forests, Parks, and Recreation (FPR) produce and submit a report to House Committees on Natural Resources, Fish, and Wildlife, on Agriculture and Forestry, and on Ways and Means and the Senate Committees on Natural Resources and Energy, on Agriculture, and on Finance; defining the standards which would be used to administer the Reserve Forestland subcategory as well as a summary of how enrolled property would transition to enrollment in Reserve Forestland. The Act required that the adopted standards would be the same or substantially similar to the standards set forth in the Department of Forests, Parks, and Recreation report; *Considerations for a Reserve Forestland Subcategory in Vermont's Use Value Appraisal Program*, dated October 15, 2021 (revised January 18, 2022).

This document, responsive to FPR's reporting requirement outlined in Act 146, is divided into 5 sections:

The standards contained in this report reflect refinement and adoption of standards outlined in FPR's report: *"Considerations for a Reserve Forestland Subcategory in Vermont's Use Value Appraisal Program."* Refinement of the standards has been based on input from partners and staff to create standards that are:

Clear - The standards are understandable and make clear what is expected in the forest management plan and map, and how Reserve Forestland must be managed to maintain eligibility.

Manageable and Administrable – The standards can be met without undue burden on the landowner or plan preparers hired to assist in enrollment or staff who review and administer enrollments.

Effective – The standards provide reasonable assurances that land enrolled in Reserve Forestland is eligible and the management of Reserve Forestland will be consistent with statutory purposes of Reserve Forestland: to attain old forest values and functions.

The adopted standards are the result of a collaborative process with stakeholders and provide a balanced approach that meets these goals.

A. PROCESS AND INPUT

The development of the standards was led by an internal working group comprised of and with special thanks to; Nancy Patch, FPR Franklin/Grand Isle County Forester; Jared Nunery, FPR Northern Team Regional Lead and Orleans County Forester; Hannah Dallas, FPR Southern Windsor County Forester; Sam Schneski, FPR Southern Team Regional Lead and Windham County Forester; Robert Nelson, FPR Washington County Forester; Keith Thompson, FPR Private Lands Program Manager; and Bob Zaino, Natural Community Ecologist with Vermont Fish & Wildlife Department.

The working group began meeting in July of 2022 and met twice each month through December of 2022. The process of refining the standards was heavily dependent on, and benefitted from, external input from partners and stakeholders.

Partners and Stakeholders:

In July of 2022, FPR created a website: https://fpr.vermont.gov/forest/uva-reserve-forestland, outlining the enactment of Act 146, the addition of the Reserve Forestland enrollment category, timeline for implementation, and the process for development of standards. Through the site and other strategies described below, stakeholders were invited to review and provide input on draft standards.

Private Lands Advisory Committee (PLAC): The Private Lands Advisory Committee is a committee established by the FPR Commissioner comprised of consulting foresters and landowners who have volunteered to provide input to the Commissioner of FPR on private forestland and UVA related issues. This committee was first engaged on the potential standards of Reserve Forestland beginning with the release of FPR's report *Considerations for a Reserve Forestland Subcategory in Vermont's Use Value Appraisal Program*. Following the passage of Act 146, a subcommittee of the group met monthly to consider and provide feedback on details of the draft standards and to provide landowner and forester perspectives on specific questions in parallel with the work of the ANR internal working group. The full advisory committee met on September 8, 2022 and December 8, 2022. At each meeting the group provided feedback on how to improve draft standards and to support effective administration of the enrollment category.

Consulting Foresters: Consulting foresters were engaged through PLAC and other venues prior to the passage of Act 146. Engagement continued through outreach early in the Summer of 2022 at the launch of the Reserve Forestland website, during discussions with Private Lands Advisory Committee, and during a meeting on November 4, 2022 attended by 80 people, 60 of whom were consulting foresters. Others present at the November 4 meeting included representatives from conservation organizations, ecologists, landowners, and

Agency of Natural Resources staff. Draft management standards were shared in advance of the meeting and were discussed in detail during the meeting. Facilitated discussions generated valuable input.

Conservation Partners: Conservation partners, ecologists, and activists were engaged prior to and following the release of the 2021 report, during the 2022 legislative session, at the November 4, 2022 consulting forester meeting and during a conservation partner webinar on November 30, 2022. Representatives from 5 conservation groups attended the November 4 meeting while 26 individuals comprised by landowners and staff of conservation organizations were represented at the November 30 webinar. Conservation groups represented at these events included but were not limited to Vermont Land Trust, Nature Conservancy, Vermont Natural Resources Council, Upper Valley Land Trust, Vermont Housing and Conservation Board, Northeast Wilderness Trust, Wild Forests Vermont, Vermont Family Forest, Trust for Public Land, Standing Trees and others. Input during this meeting and afterwards, both written and in follow-up discussions, helped to improve the standards.

Landowners: Individual landowners and representatives from landowner groups were present throughout the process with PLAC and at each of the input meetings. In addition to direct input from landowners, landowner input was frequently carried forward from foresters, conservation partners, and FPR staff that was very helpful in refining the standards.

Current Use Advisory Board: The Current Use Advisory Board held a public meeting on December 1, 2022. Members were provided standards in advance of the meeting and further opportunity to review and provide input on the standards was provided.

Property Valuation and Review (PVR): FPR has maintained continual contact with staff from Property Valuation and Review to ensure that the standards and approach to this new category are compatible with existing processes for administration of UVA.

Input Received:

The input received from all partners was extremely valuable; it helped FPR to refine and improve the standards. Input was received not just through the scheduled meetings or upon request, but it was also received through ad hoc conversations during which stakeholders shared questions, concerns, hopes and ideas for how to make the standards successful.

Generally, the input received fell into a few different categories:

1. **Ensure Reserve Forestland is a credible enrollment category:** Many people with close involvement in the UVA program who work with landowners have expressed concerns that this could inappropriately be a “do nothing category” and that land will be able to be enrolled in this category without advancing old forest functions and values.

   Response: Statutory purpose requires land enrolled in Reserve Forestland be managed for old forest values and functions. Because of Vermont’s land use history most Vermont forest is not currently expressing old forest characteristics and therefore is not realizing the values and functions of old forests. In some healthy forests, old forest characteristics may accrue over time with little intervention needed while in degraded forests, some intervention may be necessary to get, or keep, a forest progressing towards old forest values and functions. The standards have been designed to help ensure that land enrolled in Reserve Forestland will be evaluated to determine its position on a trajectory towards old forest values and functions and in some cases to require management interventions to support its

progress. The plan requirements are designed to enable evaluation of accrual of old forest characteristics and satisfaction of the statutory purposes of the enrollment subcategory.

2. **Administrative barriers to participation in the enrollment category:** Some stakeholders expressed concern that the requirements to demonstrate eligibility and to meet plan and management standards could be costly and result in underutilization of the Reserve Forestland subcategory.

   Response: During the development of plan standards, FPR was mindful to develop standards necessary to:

   1. Demonstrate eligibility;
   2. Describe forest conditions relevant to old forest characteristics (necessary to evaluate trajectory towards old forest values and functions);
   3. Identify degraded conditions;
   4. Inform appropriate and effective management; and
   5. Evaluate success of the management in advancing statutory purposes of Reserve Forestland

   The standards were developed to complement existing plan development and reporting strategies and the data and management requirements were designed to reasonably ensure that purposes of the category would be met on enrolled land while avoiding undue burdens on landowners and staff. In several cases, discussions with partners resulted in simplifying and streamlining requirements to reduce burdens on landowners without undermining program integrity.

3. **The approach is balanced:** Many stakeholders had specific questions and suggestions for improvement of the draft standards. Sometimes input aligned among stakeholders and sometimes conflicted, but consistently, specific input was accompanied by general feedback that the standards are viewed as balanced and establish a strong foundation for administration of Reserve Forestland.

   Response: While this input doesn't diminish the need to address specific details raised by stakeholders, it has provided an indication of the general support from a broad cross-section of stakeholders for the approach taken and the content of the standards being adopted for Reserve Forestland.

Adopting New Standards

These standards are the result of an extraordinary amount of work by FPR and VTFWD staff, Private Lands Advisory Committee members, foresters, conservation partners, landowners and others who have attended meetings, read draft standards, provided thoughtful written and verbal input to help these standards achieve their intent – to expand opportunities to manage for old forests and the values they provide in ways that complement the working lands purposes of UVA. These standards were thoughtfully developed but they have not been implemented. As has been true with other program standards, the experience gained through their application will highlight opportunities for improvement – to make them more clear, manageable, and effective. FPR is committed to making these and other UVA Minimum Acceptable Standards for Forest Management as good as they can be and will continuously invite and use input from foresters, landowners, conservation partners and others to make them better.

B. RESERVE FORESTLAND – MINIMUM ACCEPTABLE STANDARDS FOR FOREST MANAGEMENT

Reserve Forestland Eligibility

Parcels that have a minimum of 25 total enrolled forestland acres of which 20 acres are forested productive soils (Site Class I, II, or III) may be eligible for enrollment of Reserve Forestland. Of these parcels, the following eligibility thresholds apply:

> **PARCELS WITH ≥ 100 ENROLLED ACRES: 30**% or more of the parcel's enrolled acres[1] need to be composed of significant and sensitive conditions, per program standards.
>
> **PARCELS WITH < 100 ENROLLED ACRES: 50%** or more of the parcel's enrolled acres need to be composed of significant and sensitive conditions, per program standards.

Once a parcel is determined to meet the Reserve Forestland eligibility threshold then some or all of the UVA eligible forestland may be enrolled as Reserve Forestland.

Significant and Sensitive Conditions are defined by the Commissioner of the Department of Forests, Parks, and Recreation and consist of:

> Ecologically Significant Treatment Areas (ESTAs),
>
> Steep slopes ≥ 35%
>
> Site IV lands, and
>
> Special places and sensitive sites.

Additional details about these conditions are described below.

Significant Sensitive Conditions Eligibility

Significant and Sensitive Conditions confer eligibility and are comprised by Ecologically Significant Treatment Areas, Site IV Lands, Special Places and Sensitive Sites, and Steep Slopes. When "current standards" apply to a significant or sensitive condition, as noted below, the applicable standards for that condition can be found as already existing in the Use Value Appraisal Manual.

Ecologically Significant Treatment Areas

1. Natural Communities of Statewide Significance – *current standards*
2. Rare, Threatened, and Endangered Species – *current standards*
3. Riparian Areas – *current standards with clarification*
    a. *Clarification* – Riparian Areas along streams are limited to 100' on either side of perennial streams and around lakes and ponds, and 50' on intermittent streams, and

[1] "Enrolled acres" includes all land within a parcel that is or will be enrolled in Use Value Appraisal including Agricultural Land and Managed Forestland acres and includes of any subcategories within these enrollment categories. All calculations to determine eligibility threshold and demonstrating the threshold has been met must use acres prorated to match the grandlist consistent with UVA mapping standards.

wetlands, unless justification for a wider area of riparian function necessitating protective/conservation management is provided.

4. Vernal Pools – *current standards*
5. Forested Wetlands – *current standards*
6. Old Forests – *current standards*

Site IV Lands – current standards

Special Places and Sensitive Sites – current standards

Steep Slopes – NEW

Forested steep slopes (35% slope or more) and associated minor inclusions of inoperable areas that do not otherwise qualify as significant or sensitive conditions as described in the forest management plan and approved by the county forester may contribute to significant and sensitive condition totals for eligibility.

Inclusions of forestland (each 2 acres or less) that are less than 35% slope and fully encompassed within areas of steep slope, may be included in this overlay and contribute to significant and sensitive condition threshold with county forester approval.

Steep slopes do not need to be delineated as separate management units, but the location and acreage of these qualifying conditions must be identified on the UVA map as an overlay of land being enrolled as Reserve Forestland.

Reserve Forestland Plan Standards

Stand Delineation

Forestland enrolled as Reserve Forestland shall be delineated by forested natural communities and related enduring site characteristics. Natural communities shall be further delineated in to stands consistent with the definition of "stand" in the UVA Manual.[2]

Stand Definition: "A group or groups of trees sufficiently uniform in age class distribution, composition, and structure, and growing on a site of sufficiently uniform quality, to be a distinguishable unit."

Significant and Sensitive Conditions

When "current standards" apply to a significant or sensitive condition, as noted below, the applicable standards for that condition can be found in the Use Value Appraisal Manual.

Ecologically Significant Treatment Areas – apply current standards

Special Places and Sensitive Sites – apply current standards

[2] A stand may encompass minor inclusions of natural communities that are not representative of the stand and do not rise to the scale of a distinguishable management unit. Where this occurs, these inclusions may be mentioned in the stand narrative.

Site IV lands – apply current standards

Steep Slopes – Slopes ≥ 35% and associated inclusions of forestland <35% slope consistent with standards, must be depicted on the UVA map as an overlay of land enrolled as Reserve Forestland. The acreage of steep slopes and inoperable inclusions comprising land enrolled as Reserve Forestland must be provided in the plan (*See additional stand description elements*).

Reserve Forestland

Plan requirements for Reserve Forestland include all requirements for Productive Forestland with some added specificity and new required descriptive elements. Considerations and options for management of Reserve Forestland differ from Productive Forestland. Details are provided below:

Stand Description Requirements

Added Specificity – Stand Description Elements

Diameter Distribution Table – Increased specificity for diameter increments contained in the table and inclusion of number of trees and snags per acre. Chart must be provided by 2" diameter classes and include:

1. Trees/acre
2. Basal Area/acre
3. Snags/acre

Regeneration Data – Requirement to provide quantitative data for Reserve Forestland. Quantitative regeneration data must be provided including stems/acre, species, and size class.

If evaluation of regeneration for a plan update or initial enrollment of Reserve Forestland of already enrolled land was prevented by snow cover, then review of conditions and associated amendment to the plan may be scheduled to occur within the 12 months following submission of the plan. See "Management Prescriptions" for additional detail.

Invasive Plant Description – Added descriptors of maturity and distribution and refinement of infestation levels. If invasive species are present, clearly, and accurately describe the level of infestation at the stand level. At a minimum, the description shall include the following:

1. Species present – If no invasives are present indicate "No invasives present."
2. Statement on maturity of most mature invasive cohort by species (seedling, immature, seed producers)
3. Cumulative infestation level based on an estimate of the % cover (Light <5%, Medium 5 – 20%, Moderate 21 – 50%, Heavy >50%)
4. Distribution within the stand (along margins, throughout, scattered pockets)

Added Requirements - Stand Description Elements

Natural Community Type of Stand – Provide the Natural Community type likely suited to the site. Natural Community typing of stands that are not Natural Community ESTAs can be based on professional judgement and

do not require detailed documentation. Refer to Wetlands, Woodlands, Wildlands[3] for appropriate community types and descriptions.

Steep Slopes **–** Provide the acres of land in the stand occupied by steep slopes.

Tree Age Classes – Provide the number of age classes of trees present in the stand (1, 2, 3, 4 or more). Include age classes of trees 4.5" DBH and greater.

Basal Area Range – Provide the range of basal areas found among inventory points.

Deer Browse Index – Report the average deer browse index within the stand based on FPR/FWD browse index (see Appendix A).

Deer Browse Pattern – Indicate if deer browse is distributed throughout the stand or if it is localized.

AMP Evaluation – Report on findings of evaluation of AMP implementation as observed during inventory:

1. Meets Standards – AMPs appear to be employed to the maximum practicable extent.
2. Remediation Required – AMPs have not been employed to the maximum practicable extent and deficiencies were observed that warrant a plan to meet standards and prevent future erosion and/or discharges of sediment to surface waters. *Examples include but aren't limited to failing or insufficient waterbars, undersized culverts, rutting that poses a risk of gullying, stream crossings lacking waterbars on approaches, temporary stream crossings left in place beyond appropriate timeframe.*
3. Further On-site Review is Needed **–** If evaluation of the AMPs for a plan update or initial enrollment of Reserve Forestland of already enrolled land was prevented by snow cover, then, in the plan, indicate "Further On-site Review Needed." Review of conditions and associated amendment to the plan may be scheduled to occur within the 12 months following submission of the plan. See "Management Prescriptions" for additional detail.

If AMPs in the stand are described as, "Remediation Required," then the management prescription for the stand must include a timeline and a remediation plan to bring the AMPs up to standards. The remediation plan must correspond to mapped points of remediation need.

Coarse Woody Material – Describe the coarse woody material present in the stand using the following table:

Diameter Class	Number of Pieces/Acre	Decay Classes Present
8 - 12"		
14 - 18"		
20+		

1. Number of Pieces – Provide the pieces of down wood per acre (>4' long) for each diameter class provided.

[3] Thompson, E., Sorenson, E., Zaino, R. (2019) **Wetland, Woodland, Wildland.** (Second Edition). Vermont Fish & Wildlife Department, The Nature Conservancy, and Vermont Land Trust.

2. Decay classes present –Indicate all decay classes present for each diameter class within the stand. Decay classes include:
    1. Sound, freshly fallen intact logs,
    2. Sound,
    3. Heartwood sound; piece supports its own weight,
    4. Heartwood rotten; piece does not support its own weight, but maintains its shape,
    5. No structural integrity; piece no longer maintains its shape, it spreads out on the ground.

Decay classification shall utilize the Forest Inventory Analysis method defined and further described on page 12 in Technical Report NC-256*, Sampling Protocol, Estimation and Analysis Procedures for the Down Woody Materials Indicator of the FIA Program*, Woodall, C., and Williams, 2005.

Further Review Needed**:** If evaluation of the Coarse Woody Material for a plan update or initial enrollment of Reserve Forestland on already enrolled forestland was prevented by snow cover then, in the plan, indicate "Further Review Needed." Review of conditions and associated amendment to the plan may be scheduled to occur within the 12 months following submission of the plan. See "Management Prescriptions" for additional detail.

Notes on methods*: Various methods may be used to generate reasonable estimates of "number of pieces." The reporting requirements here are adapted specifically for use in Use Value Appraisal to provide information sufficient to evaluate progress towards old forest characteristics and to inform management actions but have been significantly simplified from widely available approaches to reduce time and cost.*

Condition Description – Provide a narrative description spatial and compositional variability (patchiness) of old forest characteristics in the stand including:

1. Species Composition
2. Age Classes
3. Canopy Closure
4. Regeneration
5. Snags and Coarse Woody Material

Management Prescriptions

Invasive Plants

When invasives plants are present, a management strategy to protect and enhance attainment of old forest functions and values must be prescribed to eradicate or reduce the extent of invasive plants on the parcel and protect the capacity of the forest to regenerate native species consistent with management standards. Provide species to be removed, strategy to be employed, and timeline.

Acceptable Management Practices (AMPs)

When AMPs are not employed to the maximum practicable extent, briefly describe the strategies to address AMP deficiencies corresponding to points or road/trail segments on the UVA map. Provide a timeline for remediation consistent with standards.

Silviculture and Management

The forest management prescribed, whether passive or active, must result in the accrual and protection of old forest characteristics including:

Species composition reflective of the natural community type

Multi-aged structure

Heterogeneous density and cover

Large trees (see D'Amato & Catanzaro 2022 for useful benchmarks)[4]

Snags (see D'Amato & Catanzaro 2022 for useful benchmarks)

Coarse woody material (see D'Amato & Catanzaro 2022 for useful benchmarks)

All treatments prescribed require the same prescription elements as required for Uneven Aged management – retention targets may be required.

Rationale

Passive management strategies must be accompanied by a rationale for how the proposed management will successfully result in the accrual and protection of old forest characteristics.

Further On-site Review Needed:

If Further On-site Review is needed for any of the following elements due to snow cover: Regeneration, AMPs, or Coarse Woody Material; then the management prescription for each stand should read:

"*Regeneration will be determined after further on-site review of Regeneration, AMPs, and coarse woody material. An amended plan including assessment of regeneration, AMPs, and coarse woody material assessment will be submitted on or prior to (insert date).*"

Provide a specific date, not to exceed 1 year from plan submission, to submit an amended plan to address all standards related to the conditions which could not be adequately evaluated due to snow cover. The amended plan must be submitted on or prior to the approved, prescribed date. If an amended plan containing the required information is not submitted on or prior to the approved prescribed date then the approval of the plan will be withdrawn affecting continued eligibility.

Reserve Forestland Mapping Standards

Current Standards

Map requirements for Reserve Forestland include all requirements for Productive Forestland with some added specificity on the acreage chart and addition of an "eligibility chart."

Added specificity – Acreage Chart (Sample Chart Below)

The map must demonstrate that the eligibility threshold of significant and sensitive conditions has been met. A specific acreage chart format must be used that provides both the acreage of the stands and a separate column showing the acreage of the conditions contributing to the significant and sensitive conditions.

[4] D'Amato, A., & Catanzaro, P. (2022) **Restoring Old-Growth Characteristics to New England's and New York's Forests.** The University of Vermont and UMass Amherst.

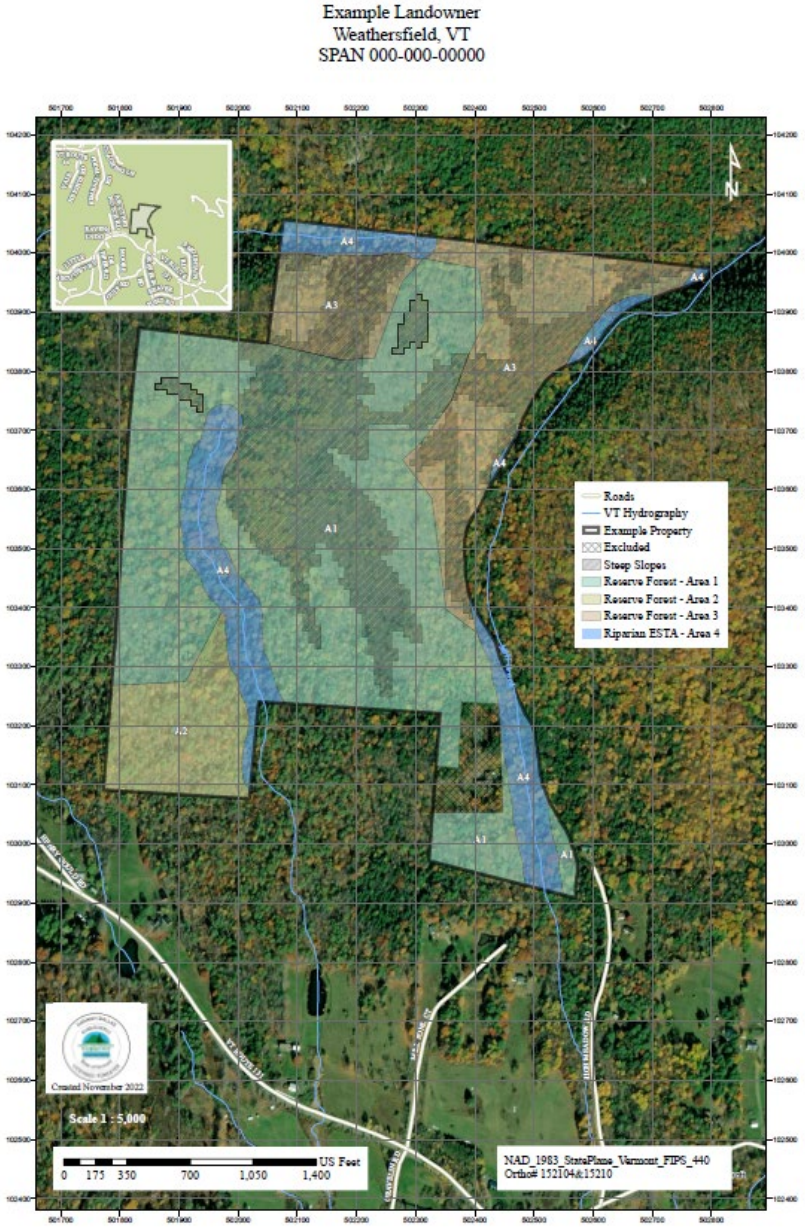
Added Requirement – Eligibility Chart (Sample Chart Below)

In addition to the acreage chart, a separate chart must demonstrate that the eligibility threshold for Reserve Forestland has been met. This is called the Eligibility Chart. This chart will provide:

a. Total enrolled land
b. Total significant and sensitive conditions
c. % of Total Enrolled Comprised by Significant and Sensitive Conditions

Formula: b/a x 100 = c

Sample Map



Sample Acreage Chart

Sample Acreage Chart for Enrollment of Reserve Forestland					
Area	**Description**	**Mapped Acres**	**Prorated Acres**	**Mapped Significant Sensitive**	**Prorated Significant Sensitive**
1	Reserve Forestland Stand 1 (inclusive of Steep Slope) – Northern Hardwoods	79	83.1	25.6	*27
2	Reserve Forestland Stand 2 (inclusive of Steep Slope) – White Pine-Northern Hardwoods	11.4	12	0	*0
3	Reserve Forestland Stand 3 (inclusive of Steep Slope) – Hemlock-Northern Hardwoods	30	31.5	15.2	*16
4	Riparian Area	17.6	18.5	17.6	18.5
	Total Forestland	**137.9**	**145.2**		
	Total Agricultural Land		**0**		
	Total Enrolled Land	**137.9**	**145.2**		
	Total Significant & Sensitive + Steep Slope Overlay			**58.4**	**61.5**
	Excluded Acres		4		-
	Grand List Acres		149.2		
**Steep Slope Contribution (Prorate Factor = 1.05)*					

Sample Reserve Forestland Eligibility Chart		
Reserve Forestland Chart	**Acres**	**Percent**
Total Enrolled Land (Forestland + Agricultural Land)	145.2	
Total Significant & Sensitive	61.5	
% of Total Enrolled Comprised by Significant and Sensitive		42.4%

Reserve Forestland Management Standards

Reserve Forestland Management Objectives

Reserve Forestland is forested land managed with a primary purpose of accrual and protection of old forest functions, values, and associated characteristics as defined by D'Amato & Catanzaro 2022 or other comparable resources. Management may include active or passive management, inclusive of the range of silvicultural strategies when consistent with all other standards.

Acceptable Management Practices

Acceptable Management Practices for Maintaining Water Quality on Logging Jobs in Vermont (AMPs) need to be employed to the maximum practicable extent on enrolled forestland. AMP deficiencies resulting in discharges or likely to result in discharges require immediate attention. When AMP standards are not met, but discharges in the near future are unlikely, deficiencies must be addressed as soon as practicable. Strategies to resolve AMP deficiencies need to be prescribed in the forest management plan.

Invasive Plants

Invasive plants on UVA enrolled land shall be managed to protect and enhance attainment of old forest functions and values of enrolled forestland, including the capacity of the forest to successfully regenerate native species. Where practicable, strategies to prevent and eradicate non-native invasive plants are required. Where eradication is not practicable, ongoing reduction of the extent of invasive plant infestations and reducing the risk of spread must be pursued with demonstrably effective strategies. Control of invasive plants within an enrolled parcel shall be defined by an invasive species management strategy prescribed in the forest management plan.

Required Acceleration of Old Forest Characteristics

Active management to establish regeneration reflective of the natural community type of the site will be required in forest stands where:

1. Forest is dominated by even-aged plantation above B-line stocking in which 80% or more of the basal area is comprised by planted trees and in which 25 ft^2 (in hardwood stands) or 40 ft^2 (in softwood stands) is 12 inches d.b.h. or greater, or;
2. Even-aged forest above B-line stocking in which 80% or more of the basal area is comprised by a single species arising from historic non-forest use and in which 25 ft^2 (in hardwood stands) or 40 ft^2 (in softwood stands) is 12 inches d.b.h. or greater.

Exemptions may be provided by approval of the County Forester when:

1. The stand was treated in the last 10 years to establish regeneration;
2. 20% or more of the stand area is regenerating and is dominated by regeneration reflective of the natural community type of the site;
3. The area is contributing to the significant and sensitive conditions threshold; or
4. Current species composition is expected to be a significant component of the late successional stage of the natural community (*For example: sugar maple in a northern hardwood natural community type, or white pine in a dry oak white pine forest natural community type*).

Salvage

Salvage of trees on Reserve Forestland is not allowed unless it is the minimum necessary to allow continuation of an approved compatible use (e.g., clearing of trails), or to address human safety or forest health concerns and is approved by the county forester.

Sugaring

Sap collection is not allowed in Reserve Forestland with the exception of small-scale collection for personal use approved by the county forester.

Resources Referenced

D'Amato, A., & Catanzaro, P. (2022) **Restoring Old-Growth Characteristics to New England's and New York's Forests.** The University of Vermont and UMass Amherst.

Thompson, E., Sorenson, E., Zaino, R. (2019) **Wetland, Woodland, Wildland.** (Second Edition). Vermont Fish & Wildlife Department, The Nature Conservancy, and Vermont Land Trust.

Woodall, Christopher, Williams, Michael. 2005. **Sampling protocol, estimation, and analysis procedures for the down woody materials indicator of the FIA program.** Gen. Tech. Rep. NC-256. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 47 p.

C. OMISSION OF EXEMPTION

The report submitted to House Natural Resources, Department of Forests, Parks and Recreation report; *Considerations for a Reserve Forestland Subcategory in Vermont's Use Value Appraisal Program*, dated October 15, 2021, contained a consideration for an exemption to the eligibility threshold. The concept of the exemption read:

"Aggregation Threshold Exemption - Impacts of changing parcel size or forestland conditions on Reserve Land eligibility: *If Reserve Forestland eligibility were to be based on a percent of enrolled land, then when parcels are subdivided or aggregated, the percent enrolled land comprised by Significant and Sensitive Conditions might change. To avoid deterring aggregation, if forestland is enrolled as Reserve Forestland when parcels are aggregated the percent of qualifying Significant and Sensitive Conditions is reduced below the 30% threshold among the aggregated parcels, the aggregation alone would not make the enrolled Reserve Forestland ineligible. This would be considered an Aggregation Threshold Exemption, and at the time of the aggregation, land enrolled as Reserve Forestland would remain eligible while it remains enrolled as Reserve Forestland. However, the eligibility of additional Reserve Forestland would not extend to any new forestland simply as a result of the aggregation of a parcel with Reserve Forestland. However, if the minimum threshold stops being met as a result of other factors unrelated to parcel aggregation, including exclusion of land from enrollment, subdivision, or forestland conversion, then Reserve Forestland would cease to be eligible."*

Though such an exemption would be a valuable tool when necessary for preserving Reserve Forestland eligibility and opportunities for parcel aggregation, the eligibility threshold for Reserve Forestland was established in statute and FPR determined that applying this exemption would conflict with statute and was beyond the scope of its limited authority to establish standards.

In the absence of this exemption, retention of Reserve Forestland eligibility when parcels are aggregated will remain possible in most cases. The absence of this exemption will create minor barriers only when aggregation of parcels results in the minimum threshold of Significant and Sensitive Conditions for Reserve Forestland eligibility ceasing to be met. This will not occur in all aggregation scenarios and there are workarounds through legal ownership frameworks. These workarounds will be most available for parcels that are eligible for UVA on their own. However, workarounds will be limited when parcel additions would not be eligible on their own and UVA eligibility is conditional on aggregating a small parcel (less than 25 acres of forestland) with a larger parcel.

Discussions with ANR staff and partners suggest that inability to include the exemption is unfortunate and that after Reserve Forestland has been in place for a few years and opportunities for improving the enrollment category emerge, this exemption should be revisited and considered again.

D.CHANGING THE ENROLLMENT CATEGORY OF ENROLLED FORESTLAND FROM PRODUCTIVE FORESTLAND TO RESERVE FORESTLAND IN USE VALUE APPRAISAL (UVA)

In UVA, forestland may be enrolled in one of several categories. Most land is enrolled as Productive Forestland and managed for sawtimber and other values. Forestland enrolled in UVA and subject to a forest management plan may transition from one eligible enrollment category to another eligible enrollment category, with approval from a county forester. This is common and is a straightforward process.

Submit a Plan and Map

At its simplest, a landowner with a parcel enrolled as Productive Forestland that is eligible for and going to be enrolled as Reserve Forestland, needs to **provide their county forester with a forest management plan and map that meet UVA standards.** The applicable standards will include those for Reserve Forestland addressed in this report as well as the existing standards contained in the UVA Manual. The specific standards that will be applicable depend on the condition of the land being enrolled and the enrollment subcategories the land will be enrolled in. Consulting foresters can be hired to provide valuable assistance in the process.

If other enrollment changes are occurring at the time of the plan revision, like addition or withdrawal of enrolled land, or a transfer of ownership, then other administrative steps will apply.

Landowners should be aware that if a plan is updated, meaning all new data is collected to describe the forest, then it will "reset the clock" on the expiration of the plan, meaning a plan update will be due in 10 years, regardless of where the current plan is in its update cycle. However, if the plan is amended, meaning existing, old data is used to describe the forest, then the expiration date of the current plan and the deadline for the next plan update will remain unchanged.

Licensed consulting foresters can assist with this process.

Considerations Before Changing Enrollment from Productive Forestland to Reserve Forestland

Before committing to revise a forest management plan to change enrollment to Reserve Forestland, landowners will need to consider if it is possible or appropriate for them.

1. **Land eligibility:** Landowners should determine if their parcel will be eligible for enrollment in Reserve Forestland by confirming the parcel has enough land meeting "Significant and Sensitive Conditions" criteria defined in the Reserve Forestland standards. Landowners may need to seek assistance from consulting foresters or others to help with this evaluation. Resources to facilitate efficient evaluation will be made available by FPR and others over time but they may be limited in the initial stages of the rollout.
2. **Management:** Landowners need to be aware that land enrolled in Reserve Forestland must be managed for old forest values and functions, and in some cases, this may require cutting trees, addressing invasive plant problems, and water quality issues, and landowners will need to demonstrate that the management strategy used is making progress towards attainment of old forest characteristics. Landowners also should be aware that Productive Forestland requires

management for sawtimber which can complement other objectives, including management for old forest characteristics. In fact, under certain forest conditions, the active management associated with sawtimber management may be the most cost-effective and efficient way to attain many critical old forest characteristics. Landowners should know the full range of options and requirements for the enrollment categories they are considering.

3. **Costs:** Landowners should know that amending a forest management plan to switch enrollment categories will likely be a cost of time and or money. Costs will vary depending on many factors, and they should discuss this with their consulting forester.

Landowners are encouraged to reach out to their consulting forester or county forester with any questions.

When Land Isn't Eligible for Reserve Forestland

Parcels that do not meet the Significant or Sensitive Conditions eligibility threshold will not be eligible for Reserve Forestland, and this will be a disappointment to some landowners. When this occurs, county and consulting foresters are encouraged to talk to landowners about their options. Old forest characteristics can be restored or carefully retained on most forestlands through ecological forestry. Ecological forestry is focused on sustaining complex ecosystems (rather than focusing on any singular objective) and often employs management strategies that develop large trees, recruit standing and down dead wood, and promote multiple age classes and species, often while producing goods and services.[5] In this way, management of land in the Productive Forestland category is compatible with management for old forest characteristics[6] while also being managed for sawtimber. Landowners may not be aware of this, and it may provide an opportunity to adapt the management approach on their enrolled land to better meet their objectives while still meeting UVA eligibility requirements.

E. CHANGING THE ENROLLMENT CATEGORY OF ENROLLED FORESTLAND FROM RESERVE FORESTLAND TO PRODUCTIVE FORESTLAND IN USE VALUE APPRAISAL (UVA)

As noted in the previous section, forestland may be enrolled in one of several categories. Most land is enrolled as Productive Forestland and managed for sawtimber and other values. Forestland enrolled in UVA and subject to a forest management plan may transition from one eligible enrollment category to another eligible enrollment category, with approval from a county forester. This is a common and straightforward process. The process for transitioning Productive Forestland to Reserve Forestland is very similar to transitioning Reserve Forestland to Productive Forestland though there are some minor differences because of the difference in eligibility, standards, and management purposes. Because of these similarities, the summary of the process below repeats some elements from the previous section.

[5] Palik, B.J., D'Amato, A.W., Franklin, J.F, Johnson, N.J., Ecological Silviculture: Foundations and Applications. Illinois: Waveland Press, 2021.

[6] D'Amato, A., & Catanzaro, P. (2022) **Restoring Old-Growth Characteristics to New England's and New York's Forests.** The University of Vermont and UMass Amherst.

Submit a Plan and Map

At its simplest, a landowner with a parcel enrolled as Reserve Forestland that is eligible for and going to be enrolled as Productive Forestland, needs to **provide their county forester with a forest management plan and map that meet UVA standards.** The applicable standards will include those for Productive Forestland addressed in the existing standards contained in the UVA Manual. The specific standards that will be applicable depend on the condition of the land being enrolled and the enrollment subcategories the land will be enrolled in. Consulting foresters can be hired to provide valuable assistance in the process.

If other enrollment changes are occurring at the time of the plan revision, like addition or withdrawal of enrolled land, or a transfer of ownership, then other administrative steps will apply.

Landowners should be aware that if a plan is updated, meaning all new data is collected to describe the forest, then it will "reset the clock" on the expiration of the plan, meaning a plan update will be due in 10 years, regardless of where the current plan is in its update cycle. However, if the plan is amended, meaning existing, old data is used to describe the forest, then the expiration date of the current plan and the deadline for the next plan update will remain unchanged.

Licensed consulting foresters can assist with this process.

Considerations Before Changing Enrollment from Reserve Forestland to Productive Forestland

Before committing to revise a forest management plan to change enrollment to Productive Forestland, landowners will need to consider if it is possible or appropriate for them.

1. **Land eligibility:** Landowners should determine if their parcel will be eligible for enrollment in Productive Forestland. If the land is eligible as Reserve Forestland, it is most likely also eligible as Productive Forestland, however some management restrictions established through conservation easements, carbon programs, or other mechanisms that are compatible with Reserve Forestland may not be compatible with Productive Forestland. Landowners must have the legal right to manage for sawtimber on land to be enrolled as Productive Forestland. Landowners may need to seek assistance from consulting foresters or others to help with this evaluation.
2. **Management:** Landowners need to be aware that land enrolled as Productive Forestland must be managed for sawtimber, which requires cutting trees, as well as addressing water quality issues, and at times, addressing invasive plant problems. Landowners will need to demonstrate that the management strategy used to manage for sawtimber is consistent with United States Forest Service silvicultural guides and program standards. Landowners should know the full range of options and requirements for the enrollment categories they are considering.
3. **Retention of Structure:** Land managed as Reserve Forestland must accrue old forest characteristics like large trees, coarse woody material, and regeneration among others. These characteristics take time to accrue and have value for ecological functions and forest health which are also foundational to successful timber management. When enrollment of land is being switched from Reserve Forestland to Productive Forestland, landowners may want to consider how to retain and manage for the structural characteristics that have accrued on the enrolled land as they transition to managing for sawtimber.

4. **Costs:** Landowners should know that amending a forest management plan to switch enrollment categories will likely be a cost of time and or money. Costs will vary depending on many factors, and they should discuss this with their consulting forester.

Landowners are encouraged to reach out to their consulting forester or county forester with any questions.

F. IMPLEMENTATION NEXT STEPS

The next steps to implement the Reserve Forestland subcategory will include:

Initial Lift (Occurs prior to July 1, 2023 when applications for Reserve Forestland begin being accepted)

1. *UVA Program Coordination*
   Coordination between Property Valuation and Review (PVR) and FPR to adjust forms, data and enrollment management tools, and to ensure smooth application process and administration of the new enrollment subcategory. *(PVR will have input on specific implementation requirements that are not addressed here)*.
2. *Develop Eligibility Evaluation and Planning Resources*
   Develop tools to support efficient and low-cost evaluation of parcel eligibility and plan development tools. Examples may include generation of publicly available GIS layer of slopes ≥ 35% for efficient evaluation of steep slopes contributions to Significant and Sensitive conditions.
3. *Refine Outreach Materials*
   Refinement of FPR outreach materials for landowners and consulting foresters (website, brochure, landowner letters, public presentations and more).
4. *Consulting Forester Trainings*
   Conduct trainings of consulting foresters to assist in efficient forest management plan development. Trainings may include natural community mapping, coarse woody material assessment methods, old forest restoration trainings and others.
5. *Landowner Workshops*
   Outreach events for landowners introducing UVA and enrollment options with special consideration of Reserve Forestland.

Ongoing Support (Development occurs in years 1 and 2 with ongoing delivery)

1. *Administrative Trainings*
   Development and delivery of consulting forester trainings for Reserve Forestland standards and process for enrolling land in the Reserve Forestland subcategory.
2. *Trainings for Old Forest Restoration*
   Development and delivery of consulting forester and landowner trainings and workshops for restoration of old forest conditions and managing lands in the Reserve Forestland subcategory.

G. CONCLUSION

Forests provide Vermonters with enormous benefits and a range of critical services and goods. A thriving forest economy, functioning natural systems, and Vermont's quality of life rely on maintaining healthy forests across Vermont's landscape.

Each forest condition -- young, maturing, old, managed, and unmanaged -- all make unique contributions to the benefits that forests provide; no acre of forestland can maximize all values or functions. This is one of the core challenges of forest management, on the parcel or landscape level; to pursue potentially divergent and conflicting objectives in ways that minimize trade-offs and optimize outcomes, so they are most compatible and complementary as well as practical and realistically achievable.

The Reserve Forestland category and its associated standards resulted from an "all-forests approach" to forest management that affirms that each forest management strategy and resulting condition, when applied in the right place at the right time, can be a critical part of Vermont's inclusive multiuse approach to keep its forests intact and healthy. Such an approach doesn't eliminate disagreement among stakeholders but does enable solution-oriented dialogue about how to minimize trade-offs and optimize outcomes. As a result of this approach, the Reserve Forestland category provides a strategically balanced and workable UVA enrollment option that supports working lands while removing barriers to old forests at a scale and in a pattern that can support significant progress toward old forest targets – and benefits -- in Vermont. This result demonstrates that successful navigation of the challenges facing forests is possible with balanced, collaborative approaches among stakeholders in the forestry, conservation, and private lands communities, and application of this approach more broadly will help Vermont take advantage of opportunities to protect and enhance the breadth of values forests provide.

Appendix A - BROWSING SITE CONDITIONS FOR MANAGED NORTHERN HARDWOODS

Site conditions by presence and life form of species under different browsing intensities

Tall Woody Species (3' to 15' saplings)	Low Intensity (*None to Light)	Moderate Intensity (Moderate)	Intensive Browsing Evidence of Regeneration Impacts (Heavy)	High Intensity Historically Intense Browsing (Severe)
	1	2	3	4
General Composition and Condition of Forest	Diverse mix of tree saplings, shrubs, forbes, ferns, and grasses of varying heights. Little sign of browsing.	Saplings of preferred forage species show some signs of browsing, but not affecting height growth. No browse lines.	Saplings of unpalatable species show increase in density while others decline in number and occur in poor form. Mostly beech and striped maple and other unpalatable species in understory in stems >1 ft. in height.	In later stages, New York and hayscented ferns, sedges occupy openings as an almost complete mat with only occasional tree sapling showing. Browse line evident throughout forest. Mid-story if present dominated by 1 or 2 unpalatable woody species (black, birch, beech, red spruce, buckthorn, etc.).
White Ash Red Oak	Occasional sign of browsing.	Frequently browsed, reduced heights relative to other species.	Reduced density, all misshapen or hedged, few have any leaves remaining.	Absent or present as dead and dying whips.
Sugar Maple Yellow Birch	Occasional sign of browsing.	Light * to moderate browsing showing minor changes in form.	Heights impaired relative to unpalatable species.	"Hedged" in form.
Hemlock Balsam Fir	Unbrowsed except near DWAs.	Well formed, present at different heights. Browsing may be heavy near DWAs.	Obvious browsing of lower branches, some bark stripping.	Reduction in density noted, heavily browsed plants with poor form.
Striped Maple Black Cherry	Unbrowsed.	Browsing of some laterals and terminals.	Browsing impacting form on most stems.	Poor form and height suppression.
Beech Black Birch Ironwood	Unbrowsed.	No indication of browsing or light browsing only.	Light to moderate browsing especially on stump sprouts.	Moderate to heavy browsing on most plants. Reduction in density noted. Poor form and height suppression.
White Pine	Present, no sign of browsing.	No indication of browsing.	Browsing on some branches and terminals.	Reduction in density, most in poor form and height suppression.
Hobblebush Pin Cherry White Birch	Unbrowsed, common in understory.	Some branches browsed lightly – no reduction in density.	Most plants show browsing, reduction in density.	Plants sparse with poor form & height suppression.

This rating system was designed cooperatively by The Woodland Owners Association, VT Dept. of Forest, Parks and Recreation and VT Fish & Wildlife Dept.

Appendix A - BROWSING SITE CONDITIONS FOR MANAGED NORTHERN HARDWOODS

Site conditions by presence and life form of species under different browsing intensities

Short Woody Species (.5' to <3' Seedlings)	Low Intensity (*None to Light)	Moderate Intensity (Moderate)	Intensive Browsing Evidence of Regeneration Impacts (Heavy)	High Intensity Historically Intense Browsing (Severe)
	1	2	3	4
White Ash Red Oak	Light browsing to moderate.	Heavily browsed.	Seedlings and saplings >.5' mostly absent in understory. Some whips mostly lacking leaves.	Occurs only as (<.5') seedlings and as mature trees.
Sugar Maple Yellow Birch	Light browsing.	Light browsing, still well formed in short & tall woody forms.	Moderate browsing, some misshapen plants. Reduced density obvious.	Occur only as (<.5') seedlings and as mature trees.
Hemlock Balsam Fir	None to light browsing.	Light to moderate browsing.	Moderate to heavy browsing. Mostly misshapen plants.	Occur only as (<.5') seedlings and as mature trees.
Striped Maple	Not browsed.	None or light browsing.	Heavy browsing.	Severe browsing. Limited and poor form.
Beech Black Birch Ironwood	Not browsed.	Not browsed or areas with light browsing.	Light to moderate browsing on branches and terminal shoot.	Heavy to severe browsing or limited and poor form. Many misshapen plants.
White Pine	Not browsed.	Not browsed.	Frequent terminal shoot browsing.	Most browsed, lacking terminal shoot. Reduced density and poor in form.
Hobblebush	Unbrowsed to light, varying heights and density.	Light to moderate browsing, stems occur to waist height.	Suppressed heights and reduced density noted.	Limited in number. All poorly formed.
Rubus	None to light browsing. Present, varying heights.	Light to moderate browsing on current year's growth.	Moderate to heavy browsing. Reduction in density noted.	Severe browsing. Few present. All heavily browsed.

Herbaceous Layer	Low Intensity (*None to Light)	Moderate Intensity (Moderate)	Intensive Browsing Evidence of Regeneration Impacts (Heavy)	High Intensity Historically Intense Browsing (Severe)
	1	2	3	4
Orchids** Lilies	Present, flowering different heights.	Nearly absent, occasional species.	Rare.	Absent.
Asters** Twisted Stalk Wild Nettles Jewelweed Trillium Meadow rue	High density, mix of species of varying heights. Most flowering or possessing buds.	Moderately browsed. Some flowering stems. Low in height..	Low density, many browsed stems lacking flowering parts. Few flowering individuals.	Absent or rare.
New York & Hay-scented Ferns***	Infrequent in small patches.	Frequent in understory.	Forming dense patches.	High density to complete carpets that suppress other species.

** *In higher BA areas with little cutting in past.*

*** *In more recently cut or disturbed areas or areas with a history of overbrowsing*