

**Habitat Management Plan
for
Vinegar Hill Wildlife Management Area
2016 – 2025**



Division of Fish and Wildlife
Bureau of Wildlife

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**Department of
Environmental
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SUMMARY

Vinegar Hill Wildlife Management Area (WMA) is currently managed for forested and early successional habitats including grasslands and was historically managed as a deer wintering yard. This WMA was created via three land acquisitions between 1970 and 1975. Most of the property was given to the state as a gift with the stipulation that it become a Game Refuge. Hunting and/or trapping are not allowed though other recreational opportunities such as wildlife observation are allowed and encouraged. This WMA is located within the Catskill Park, which consists of 287,500 acres of primarily forested state-owned land.

Habitat management goals for Vinegar Hill WMA include:

- Managing approximately 11% of the WMA as young forest (12% of the total forested area) to promote American woodcock, white-tailed deer, and wild turkey habitat;
- Maintaining approximately 74% as natural forest to provide habitat for forest-interior wildlife such as scarlet tanager;
- Managing approximately 6% as grasslands;
- Allowing approximately 2% of early successional shrublands to convert to young forest habitat; and
- Maintaining approximately 2% as wetlands.

Approximately 5% of the WMA's habitat consists of easements maintained by New York State Electric and Gas Corporation (NYSEG) and New York City Department of Environmental Protection (NYC DEP).

I. BACKGROUND AND INTRODUCTION

PURPOSE OF HABITAT MANAGEMENT PLANS

BACKGROUND

Active management of habitats to benefit wildlife populations is a fundamental concept of wildlife biology and has been an important component of wildlife management in New York for decades. Beginning in 2015, NYS Department of Environmental Conservation (DEC) Division of Fish and Wildlife (DFW) initiated a holistic planning process for wildlife habitat management projects. Habitat Management Plans (HMPs) are being developed for WMAs and other properties administered by DFW Bureau of Wildlife, including select Multiple Use and Unique Areas. The goal of HMPs is to guide habitat management decision-making on those areas to benefit wildlife and facilitate wildlife-dependent recreation. HMPs guide management for a ten-year time period, after which the plans and progress on implementation will be assessed and HMPs will be modified as needed.

HMPs serve as the overarching guidance for habitat management on WMAs. These plans incorporate management recommendations from Unit Management Plans (UMPs), existing

WMA habitat management guidelines, NY Natural Heritage Program's WMA Biodiversity Inventory Reports, Bird Conservation Area guidelines, and other documents available for individual WMAs.

SCOPE AND INTENT

Primary purposes of this document:

- Provide the overall context of the habitat on the WMA and identify the target species for management;
- Identify habitat goals for WMA-specific target species, contemplating juxtaposition of all habitat types to guide the conservation and management of sensitive or unique species or ecological communities;
- Identify acreage-specific habitat goals for the WMA to guide management actions;
- Provide specific habitat management prescriptions that incorporate accepted best management practices;
- Establish a forest management plan to meet and maintain acreage goals for various forest successional stages;
- Address management limitations such as access challenges (e.g., topography); and
- Provide the foundation for evaluating the effectiveness of habitat management.

Within the next five years, this HMP will be integrated into a comprehensive WMA Management Plan that will include management provisions for facilitating compatible wildlife-dependent recreation, access, and facility development and maintenance.

Definitions are provided in Appendix A.

The effects of climate change and the need to facilitate wildlife adaptation under expected future conditions will be incorporated into the habitat management planning process and will be included in any actions that are recommended in the HMPs. For example, these may include concerns about invasive species, anticipated changes in stream hydrology, and the desirability for maintaining connectedness on and permeability of the landscape for species range adjustments.

This plan and the habitat management it recommends will be in compliance with the State Environmental Quality Review Act (SEQRA), 6NYCRR Part 617. See Appendix B. The recommended habitat management also requires review and authorization under the Endangered Species Act (ESA), National Environmental Policy Act (NEPA), and National Historic Preservation Act (NHPA), prior to implementation.

WMA OVERVIEW

LOCATION

Vinegar Hill WMA is located in DEC Region 4, Town of Lexington, Greene County (Figure 1).

TOTAL AREA

401.7 acres

HABITAT INVENTORY

A habitat inventory of the WMA was conducted in 2015 and is proposed to be updated every ten to fifteen years to document the existing acreage of each habitat type and to help determine the location and extent of future management actions. Table 1 summarizes the current acreage by habitat type and the desired acreage after management. Desired conditions were determined with consideration of habitat requirements of targeted wildlife, current conditions on the WMA, and conditions in the surrounding landscape (see Landscape Context section below).

Table 1. Summary of current and desired habitat acreage on Vinegar Hill WMA.

Habitat Type	Current Conditions (as of 2015)			Desired Conditions	
	Acres	Percent of WMA	Miles	Acres	Percent of WMA
Forest ^a	340.3	85%		298.3	Decrease to 74%
Young forest	0	0%		42.0	Increase to 11%
Shrubland	6.8	2%		6.8	No Change
Grassland	26.4	6%		26.4	No Change
Agricultural land	0	0%		0	No Change
Wetland (natural) ^b	8.4	2%		8.4	No Change
Wetland (impounded) ^b	0	0%		0	No Change
Open water	0	0%		0	No Change
Other (utility easements)	19.8	5%		19.8	No Change
Roads	0	0%	0	0	No Change
Rivers and streams			1.6		No Change
Total Acres:	401.7	100%		401.7	

^a Forest acreage includes all mature and intermediate age classes of natural forest, plantations, and forested wetlands. Young forest is reported separately. Definitions are provided in the Forest section of this plan.

^b Wetland acreage does not include forested wetlands, since they are included in the Forest category.

ECOLOGICAL RESOURCES

Wildlife Overview:

Wildlife present on Vinegar Hill WMA includes many species commonly found throughout central New York and the Catskill Mountains, such as:

- White-tailed deer, black bear, fisher, bobcat
- American woodcock, wild turkey, ruffed grouse

- Wood turtle, Eastern box turtle
- Milk snake, garter snake
- Bullfrog, green frog, American toad, spring peeper, wood frog
- Eastern red-backed salamander, Eastern newt, Northern dusky salamander

Wildlife and Plant Species of Conservation Concern:

The following federal or state listed Endangered (E), Threatened (T), state species of Special Concern (SC) and/or Species of Greatest Conservation Need (SGCN) may occur on the WMA (Table 2).¹ SGCN listed below include species that have been documented on or within the vicinity of the WMA that are likely to occur in suitable habitat on the WMA. Other SGCN may also be present on the WMA. Data sources include: the NY Natural Heritage Program, NY Breeding Bird Atlases,² NY Reptile and Amphibian Atlas,³ DEC wildlife surveys and monitoring, and eBird.⁴

Table 2. Species of conservation concern that may be present on Vinegar Hill WMA, including state and federal Endangered (E) and Threatened (T) species, state Species of Special Concern (SC), High Priority SGCN (HP), and SGCN (x).

Species Group	Species	Federal Status	NY Status	NY SGCN Status
Birds	American kestrel			x
	American woodcock			x
	Bicknell's thrush		SC	HP
	Black-billed cuckoo			x
	Bobolink			HP
	Brown thrasher			HP
	Cooper's hawk		SC	
	Prairie warbler			x
	Ruffed grouse			x
	Scarlet tanager			x
	Wood thrush			x
Mammals	None known			
Amphibians and reptiles	Wood turtle			HP
	Eastern box turtle			HP
Fish	Brook trout			x
Invertebrates	None known			
Plants	None known			

¹ The 2015 New York State Wildlife Action Plan identifies 366 Species of Greatest Conservation Need (SGCN) including 167 High Priority SGCN. Available online at <http://www.dec.ny.gov/animals/7179.html>.

² Available online at <http://www.dec.ny.gov/animals/7312.html>.

³ Available online at <http://www.dec.ny.gov/animals/7140.html>.

⁴ Available online at <http://ebird.org/content/ebird/about/>. © Audubon and Cornell Lab of Ornithology.

Significant Ecological Communities:

There is one rare and/or significant natural community located on Vinegar Hill WMA as identified by the NY Natural Heritage Program. The state rank reflects the rarity within NY, ranging from S1, considered the rarest, to S5, considered stable; definitions are provided in Appendix A. The following significant ecological community occurs on the WMA; the community description is from *Ecological Communities of New York State, Second Edition*⁵ (Figure 2):

- **Beech-maple mesic forest (S4)** - A northern hardwood forest with sugar maple (*Acer saccharum*) and American beech (*Fagus grandifolia*) codominant. This is a broadly defined community type with several regional and edaphic variants. These forests occur on moist, well-drained, usually acid soils. Common associates are yellow birch (*Betula alleghaniensis*), white ash (*Fraxinus americana*), hophornbeam (*Ostrya virginiana*), and red maple (*Acer rubrum*).

Beech-maple mesic forest is a common ecological community throughout New York State. A portion of this community is located in the far southeastern corner of the WMA. It is part of a large occurrence of beech-maple mesic forest in excellent to moderate condition with connectivity to patches of the same community type. There are no plans at this time to harvest timber from this area of the WMA.

Additional information about significant ecological communities is available in the Vinegar Hill WMA Biodiversity Inventory Final Report (1998) prepared by the NY Natural Heritage Program.

Special Management Zones:

Special Management Zones (SMZs) are areas adjacent to wetlands, perennial and intermittent streams, vernal pool depressions, spring seeps, ponds and lakes, recreational trails, and other land features requiring special consideration. SMZs on Vinegar Hill WMA include:

- One wetland shown on the National Wetlands Inventory (NWI; Figure 3). There may be forestry prescriptions associated with forested wetlands and adjacent areas and each management prescription will be reviewed individually for determination of impacts.
- Two streams (a watercourse entirely within the WMA) or segments of streams (a stream that meanders in and out of the WMA). The highest stream classification is Class C(ts) (i.e., protected trout spawning streams) therefore they are regulated by Article 15 of the Environmental Conservation Law.⁶

Guidelines for habitat management projects within these areas are outlined in the Division of Lands and Forests *Rules for Establishment of Special Management Zones on State Forests and Wildlife Management Areas*.⁷ Some habitat management activities may either be prohibited or

⁵ Edinger, G. J., D. J. Evans, S. Gebauer, T. G. Howard, D. M. Hunt, and A. M. Olivero. 2014. *Ecological Communities of New York State, Second Edition*. New York Natural Heritage Program, NYS Department of Environmental Conservation, Albany, NY. Available online at <http://www.dec.ny.gov/animals/97703.html>.

⁶ Information about stream classification is available online at <http://www.dec.ny.gov/permits/6042.html>.

⁷ Available online at <http://www.dec.ny.gov/outdoor/104218.html>.

restricted in order to protect these features. Any deviations from these guidelines will be addressed in the individual stand prescriptions.

Soils:

The soil across much of Vinegar Hill WMA is moderately deep and well drained. The timber harvest area is comprised of two main soil types, Lewbeach and Willowemoc channery silt loams (LIC) and Vly-Halcott complex (VhC). LIC soil is typically very stony with a land capability classification of 6s (have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat, and are typically droughty or stony) occurring on a 3-15% slope⁸. VhC soil is typically very rocky and moderately deep somewhat excessively drained with a land capability classification of 6s (see description above), occurring on an 8-25% slope.

LANDSCAPE CONTEXT

The goals of this HMP have been developed with consideration of surrounding landscape features, the availability of habitats and other conservation lands adjacent to Vinegar Hill WMA (Figures 4 and 5). The landscape within a three-mile radius of the WMA consists of both state-owned forest and privately-owned land including⁹:

- Forests (88% combining deciduous, evergreen and mixed forests)
- Pasture/Hay (6%)
- Development (3%)
- Grassland (1%)
- Cultivated crops (1%)
- Woody wetlands (1%)

Vinegar Hill WMA is located within the Catskill Park. Currently, the forested landscape on the WMA and the surrounding landscape is primarily composed of mature forested habitats, including DEC owned forest preserve land. Due to the absence of young forest on the WMA and the limited amount in the surrounding landscape, it is the goal of the young forest initiative to create young forest habitat to promote regeneration of select forest stands to ensure a healthy forest in the future.

Nearby conservation land includes both New York City Department of Environmental Protection and Department of Environmental Conservation owned land within the Catskill Park including:

- Bearpen Mountain State Forest
- Halcott Mountain Wild Forest
- Hunter-West Kill Wilderness
- Rusk Mountain Wild Forest

⁸ Soil classification information available from: US Department of Agriculture, Natural Resources Conservation Service. Available online at <http://www.nrcs.usda.gov/wps/portal/nrcs/surveylist/soils/survey/state/?stateId=NY>.

⁹ Land cover types are from the 2011 National Land Cover Data (NLCD) and differ from the habitat types used in the WMA habitat inventory. NLCD definitions are available online at <http://www.mrlc.gov/nlcd2011.php>.

II. MANAGEMENT STRATEGIES BY HABITAT TYPE

DEC will continue active management of wildlife habitats on Vinegar Hill WMA to provide the following benefits:

- Maintain habitat characteristics that will benefit wildlife abundance and diversity within the New York landscape.
- Promote Best Management Practices for targeted wildlife and habitats.
- Provide opportunities for wildlife-dependent recreation (such as bird watching) compatible with the ongoing habitat management practices and species management considerations.
- Improve habitat quality by reducing invasive species, if present and identified for treatment.

FOREST

Forested acreage includes the following forest types:

Natural forest: naturally forested acres, including hardwoods and softwoods. Includes any upland forested acreage that is not young forest, i.e., pole stands, other intermediate forest age classes, mature forest, and old growth forest.

Plantation: planted forested acres, generally planted in rows dominated by one or two species.

Forested wetland: wetland acres where forest or shrub vegetation accounts for greater than 50% of hydrophytic vegetative cover and the soil or substrate is periodically saturated or covered with water.

Young forest: young or regenerating forested acres, which are typically aged 0-10 years since a disturbance or regeneration cut, depending upon the site conditions. May include both natural forest and plantations.

Young forest (forested wetland): young, regenerating forested wetland acres.

Forest management on Vinegar Hill WMA incorporates an approach to create and/or maintain the diversity of forest age classes that are required to support a diversity of wildlife. In 2015, DEC launched the Young Forest Initiative (YFI) to increase the amount of young forest on WMAs to benefit wildlife that require this transitional, disturbance-dependent habitat.¹⁰ Within the next ten years, young forest habitat (a minimum of 10% of the WMA's forested habitat) will be created and maintained in perpetuity on this WMA.

MANAGEMENT OBJECTIVES

- Retain 298.3 acres of existing mature forest to provide habitat for forest-interior wildlife species such as scarlet tanager.
- Create 42 acres of young forest (12% of the total forested area) to improve habitat for young forest-dependent wildlife, targeting white-tailed deer, American woodcock, and

¹⁰ Additional information about DEC's Young Forest Initiative and the YFI Strategic Plan is available online at <http://www.dec.ny.gov/outdoor/104218.html>.

wild turkey.

- Encourage dispersal of native hardwoods (cherry, oak, and hickory) and softwoods (hemlock) to promote regeneration and increase availability of hard mast for wildlife.
- Plant softwoods within select harvested areas.

DESCRIPTION OF EXISTING FOREST HABITAT AND TARGET SPECIES

There are 340.3 forested acres on Vinegar Hill WMA. The majority of the WMA is forested surrounding a narrow stretch of grassland through the center of the WMA (Figure 6). Table 3 provides a summary of the forested areas, including the most common species found in the WMA’s forests.

Table 3. Summary of the acreage and dominant overstory species for each forest type present on Vinegar Hill WMA.

Forest Type	Acres (as of 2015)	Desired Acres	Overstory species
Natural forest (mature/intermediate)	340.3	298.3	red maple, white oak, Eastern hemlock
Plantation	0	0	
Forested wetland	0	0	
Young forest	0	42	
Young forest (forested wetland)	0	0	
Total Forested Acres:	340.3	340.3	

Target species for young forest include American woodcock, white-tailed deer, and wild turkey. These species rely on forest and young forest areas for nesting, foraging, and cover and will benefit from management that creates the following habitat requirements:

- American woodcock:
 - Singing/Peenting Ground – Open areas from 1 to >100 acres, usually in an abandoned field.
 - Foraging – Moist, rich soils with dense overhead cover of young alders, aspen or birch.
 - Nesting – Young, open, second growth woodlands.
 - Brood rearing – Similar to nesting except also including bare ground and dense ground cover.
 - Roosting – Open fields (minimum of 5 acres) or blueberry fields and reverting farm fields.¹¹
- White-tailed deer (in Northern Hardwood Forests):
 - Fawning areas – Vary from open forest to hay fields to brushy cover.
 - Spring/Summer diet – Primarily herbaceous vegetation (clover, *Rubus* sp., forbs, etc.), hardwood foliage, soft mast, and agricultural crops where available.
 - Fall diet – Hard mast, preferably acorns, hardwood foliage, and agricultural crops where available.

¹¹ US Department of Agriculture, Natural Resources Conservation Service. 2010. American Woodcock: Habitat Best Management Practices for the Northeast by Scot J. Williamson. Wildlife Insight. Washington, DC.

- Winter diet – Hardwood buds, fallen leaves, hard mast and conifers, preferably white cedar.
- Bedding cover – Varies from open hardwoods with laydowns to dense thickets of early succession shrublands or hard and softwood regeneration.¹²
- Wild turkey:
 - Strutting areas – Open fields with short vegetation, <12 inches preferred, and mature hardwoods.
 - Nesting cover – Blowdowns and the bases of trees and stumps in open hardwoods and brushy cover in early successional habitats and field edges.
 - Brood rearing – Best brooding cover are fields with herbaceous vegetation from 12 to 18 inches preferred.
 - Foraging – The habitat required ranges from open field areas to mature forests:
 - Spring diet – Tubers and invertebrates.
 - Summer diet – Poultry diets consist primarily of invertebrates. Adult diets consist of invertebrates and tubers, switching over to herbaceous vegetation and soft mast as summer progresses.
 - Fall diet – Hard and soft mast, seeds, and invertebrates.
 - Winter diet – Hard and soft mast, seeds (birch if available) and hardwood buds.
 - Winter cover – Mature conifer stands.
 - Roosting – Mature hardwoods and softwoods. Adults with poults tend to roost on the ground under large trees with a dense understory of young trees, shrubs, downed trees, rock outcrops, or brushy fields.^{13, 14}

MANAGEMENT HISTORY

There has been very little forest management on Vinegar Hill WMA since the state obtained the property in the 1970s. The only management was a portion of Stand 1 that was cut in the 1980s.

IMPLEMENTATION PLAN AND ANTICIPATED SCHEDULE

The following management is proposed in order to reach the young forest acreage goal of 42 acres within ten years:

- **Management planned for 2016-2020** (Table 4, Figure 6):
 - Clearcut red maple and white ash in Stand 1 (14 acres) to promote natural hardwood regeneration in combination with a spruce planting.
 - Perform initial shelterwood cut in Stands 4 and 6 (23 acres) to promote regeneration of hardwoods and softwoods.
- **Management planned for 2021-2025** (Table 5, Figure 6):
 - Perform a seed tree cut in Stand 3 (5 acres) to create young forest.
 - Perform shelterwood overstory removal (final harvest) in Stands 4 and 6 (23 acres).

¹² Halls, L. K., ed. 1984. White-tailed Deer: Ecology and Management. The Wildlife Management Institute. Stackpole Books, PA. 864 pp.

¹³ USDA – NRCS. 1999. Wild Turkey (*Meleagris gallopavo*) Fish and Wildlife Habitat Management Leaflet. 12 pp.

¹⁴ Dickson, J. G. 1992. The Wild Turkey: Biology and Management. National Wild Turkey Federation and USDA Forest Service. Stackpole Books, PA. 480 pp.

Table 4. Forest management schedule for the first five-year period of this HMP (2016-2020).

Stand	Acres	Size Class	Forest Type		Management Direction	Treatment Type
			Current	Future		
1	13.5	Seedling/Sapling <5"DBH	Seedling-Sapling-Natural	Young Forest Natural/Plantation – spruce	Wildlife	Clearcut

Table 4. Continued

Stand	Acres	Size Class	Forest Type		Management Direction	Treatment Type
			Current	Future		
4	7.6	Small sawtimber 12"-17"DBH	Northern hardwood-hemlock	Young Forest	Wildlife	Shelterwood
6	15.7	Small sawtimber 12"-17"DBH	Hemlock	Young Forest	Wildlife	Shelterwood

Table 5. Forest management schedule for the second five-year period of this HMP (2021-2025).

Stand	Acres	Size Class	Forest Type		Management Direction	Treatment Type
			Current	Future		
3	5.3	Small sawtimber 12"-17"DBH	Northern hardwood	Young Forest	Wildlife	Seed Tree
4	7.6	Small sawtimber 12"-17"DBH	Northern hardwood	Young Forest	Wildlife	Shelterwood
6	15.7	Small sawtimber 12"-17"DBH	Hemlock	Young Forest	Wildlife	Shelterwood

Stand locations and planned management actions are also summarized in Figure 6. Specific forest stand descriptions and detailed management prescriptions will be prepared for each proposed forest management area prior to implementation (see template, Appendix C). Briefly, habitat management for each of these stands will include the following:

- Stand 1:** A northern hardwood stand, consisting mainly of red maple in the seedling/sapling size class. A portion of Stand 1 was cut in the 1980s to promote deer browse availability. Red maple within the stand was encouraged to stump sprout, and in its current structure provides limited wildlife value. Fourteen acres of this stand will be clearcut through a mechanical harvest with a forestry mower or in conjunction with the commercial timber harvest in stands 4 and 6. A patchwork of natural and artificial regeneration will be used to create young forest in this stand. Natural regeneration and the planting of Norway spruce and white spruce will provide nesting areas, cover and a food source for the targeted species.

- **Stands 4 and 6:** Consist primarily of northern hardwoods and hemlock in the small sawtimber size class. Approximately 23 acres of these stands, 7.6 acres in Stand 4 and 15.7 acres in Stand 6, will be harvested using the shelterwood regeneration method. Both stands will be allowed to regenerate naturally and overstory removal will occur approximately 8 years after the initial harvest. The increase in understory vegetation will provide cover and food for white-tailed deer and wild turkey.
- **Stand 3:** A northern hardwood stand with a size class of small sawtimber. A portion of this stand (5.3 acres) will be harvested using the seed tree method, favoring black cherry and sugar maple as residuals to provide mast for wildlife and seed for natural regeneration. The initial cut will provide a food source and cover in the form of slash and the resulting regeneration will provide additional habitat for the targeted species. This stand will be evaluated for possible overstory removal at a later date.

Forest management prescriptions on this WMA will focus on both natural and artificial regeneration to create quality habitat for American woodcock, white-tailed deer and wild turkey. Management in Stands 1 and 3 will follow suggested best management practices for American woodcock¹⁵. Invasive species (such as honeysuckle and barberry) within Stands 1, 3, 4 and 6 will be controlled through chemical or mechanical means, if needed.

BEST MANAGEMENT PRACTICES

Forest management on all WMAs follows Best Management Practices to protect soil and water resources, promote quality wildlife habitat, and establish healthy forests (Table 6).

Table 6. Best Management Practices for forest management on WMAs.

Resource	Guidance Document ¹⁶
Soils	<i>Rutting Guidelines for Timber Harvesting on Wildlife Management Areas</i>
Water quality	<i>NYS Forestry Best Management Practices for Water Quality</i>
Wildlife	<i>Retention Guidance on Wildlife Management Areas</i>
Plantations	<i>Plantation Management Guidance on Wildlife Management Areas</i>

Wildlife Considerations:

Due to the sensitivity of endangered, threatened, or SGCN birds potentially found on the WMA, cutting of trees and/or brush will be conducted outside the breeding time period if the species are known to be on the area or within close proximity. Bat surveys completed in 2016 confirmed the probable presence of protected bat species within the WMA. Due to these detections, timber harvests will be restricted to November 1st to March 31st.

Forest Health Considerations:

Vinegar Hill WMA was historically managed as a deer wintering yard. Deer populations, as indicated by buck harvest in the Wildlife Management Unit that this property is in, peaked in the early 1980s and have been in decline since. Current harvests are near historic lows. Deer are a

¹⁵ US Department of Agriculture, Natural Resources Conservation Service. 2010. American Woodcock: Habitat Best Management Practices for the Northeast by Scot J. Williamson. Wildlife Insight. Washington, DC.

¹⁶ All guidance documents referenced here are available online at <http://www.dec.ny.gov/outdoor/104218.html>.

targeted species for this WMA and their population is expected to increase from the planned habitat management. Though hunting does occur on properties surrounding the WMA, the lack of hunting pressure within Vinegar Hill WMA could also contribute to an increase in population. Potential negative impacts to regeneration from deer herbivory is not anticipated. Deer exclosures exist within the WMA and additional exclosures will be erected to monitor deer browse in the harvested stands.

Invasive species of plants currently present within the WMA include multiflora rose, barberry, honeysuckle and burning bush. Invasive species density at this WMA is currently limited by canopy cover. Commercial harvest of timber at this site could potentially increase the habitat suitability for these species. Recolonization of the harvested stands by invasives or other undesirable species will be monitored closely, and chemical or mechanical control measures will be implemented pre/post-harvest if needed.

Pre- and Post-treatment Considerations:

Undesirable competing tree and shrub species, as well as invasive plant species, will be controlled or removed using herbicide application or mechanical means. Planting of acceptable tree species will be accomplished through proper hand planting methods.

Pre- and post-treatment actions to promote the desired forest regeneration will be addressed in greater detail in the silvicultural prescriptions.

MANAGEMENT EVALUATION

In order to determine whether the desired forest regeneration and wildlife responses have been achieved by the management outlined above, pre- and post-management assessments will be conducted in accord with guidelines in the *Young Forest Initiative Monitoring Plan: 2016-2025*.¹⁷ The Monitoring Plan establishes statewide standards for evaluating vegetation and target wildlife responses to forest management to determine if the outcome is as prescribed.

Regeneration assessments will be conducted within one year of harvest completion, three, and five years after the harvest or until the forester determines adequate natural or artificial (i.e., planting) regeneration has been securely established. YFI wildlife target species selected for Vinegar Hill WMA, which may be assessed to determine response to management, include:

- American woodcock
- White-tailed deer
- Wild turkey

SHRUBLAND

Shrublands are early successional habitats dominated by woody plants typically less than ten feet tall with scattered open patches of grasses and forbs that provide floristic diversity. Typically characterized by >50% cover of shrubs and <25% canopy cover of trees.

¹⁷ Available online at <http://www.dec.ny.gov/outdoor/104218.html>.

MANAGEMENT OBJECTIVES

- Allow 7 acres of shrublands to succeed to provide habitat for wild turkey and other young forest species.

DESCRIPTION OF EXISTING SHRUBLAND HABITAT AND TARGET SPECIES

There are 7 acres of shrublands on Vinegar Hill WMA that consist of dogwood, viburnum, and spirea. Because of location and access difficulties, this shrubland will be allowed to succeed to young forest. Due to the hard pan till layer from past farming practices and a thick sod layer, this habitat is not expected to succeed to young forest within the next 10 years. Thirteen acres of NYSEG right-of-way is currently maintained as early successional shrubland habitat by the utility company. Habitat management decisions for the right-of-way are made solely by NYSEG with no input from the DEC. These habitats benefit a suite of wildlife species including several of the YFI target species, including:

- Wild turkey
- American woodcock
- Ruffed grouse
- White-tailed deer

MANAGEMENT HISTORY

Shrubland habitat has not been managed on Vinegar Hill WMA since the state obtained the property in the 1970s.

IMPLEMENTATION PLAN AND ANTICIPATED SCHEDULE

- **Management planned for 2016-2025** (Figure 6):
 - Passive management approach to allow natural succession of the 7 acre shrubland.

BEST MANAGEMENT PRACTICES

None.

MANAGEMENT EVALUATION

None.

GRASSLAND

Grasslands are open, grassy areas with a minimal amount of shrub and tree cover (<35%) that are maintained, or could be maintained, without significant brush cutting.

MANAGEMENT OBJECTIVES

- Maintain the existing 26 acres of grassland fields to provide habitat for breeding, nesting and wintering bird species.
- Provide habitat diversity that is beneficial to a wide variety of both game and non-game species.
- Monitor fields for invasive species and eradicate where feasible.

DESCRIPTION OF EXISTING GRASSLAND HABITAT AND TARGET SPECIES

There are 26 acres of fields that are maintained as grassland habitat on Vinegar Hill WMA. This habitat is beneficial to birds but due to their size and species composition they are not suitable for management for grassland birds. The fields provide habitat for nesting, foraging, roosting, and cover for several bird species (i.e. Eastern bluebird, American woodcock). The recommended time period for mowing is mid-August through early October (late season mowing), so there is minimal interference with nesting or wintering activities of birds. Grasslands on this WMA are managed by DEC Operations. Mowing is restricted to the late season.

Species that benefit from grassland management include:

- American kestrel
- Eastern bluebird
- American woodcock
- Ruffed grouse

MANAGEMENT HISTORY

Grassland habitat on Vinegar Hill WMA has been historically managed by DEC Operations and through an agricultural cooperative agreement.

IMPLEMENTATION PLAN AND ANTICIPATED SCHEDULE

- **Management planned for 2016-2025** (Figure 6, Table 7):
 - Continue mowing grassland fields (Stand 2) on an annual, biennial, or triennial basis depending on vegetation growth to prevent woody growth while also allowing for thatch.
 - Place bluebird houses to provide additional nesting opportunities.

BEST MANAGEMENT PRACTICES

Date restrictions for mowing in grassland fields will be followed to protect bird species utilizing the habitat for nesting.

MANAGEMENT EVALUATION

Grasslands will be monitored for invasive and undesirable species and control will be initiated if feasible.

AGRICULTURAL LAND

Agricultural lands on WMAs include any acreage on which crops are grown, primarily areas that are under cooperative agreements or farming contracts, but also including wildlife food plots.

DESCRIPTION OF EXISTING AGRICULTURAL LANDS AND TARGET SPECIES

There is no acreage on Vinegar Hill WMA managed as agricultural land and no plan to develop such habitat.

WETLANDS (NATURAL AND IMPOUNDED)

Natural wetlands are areas where the soil or substrate is periodically saturated or covered with water, including emergent (perennial herbaceous vegetation accounts for >50% of hydrophytic vegetative cover) and scrub-shrub wetlands (woody vegetation under 20 feet tall accounts for >50% of hydrophytic vegetative cover). Impounded wetlands are areas similar to natural wetlands, but where water is held back by a berm, road, or other structure. Forested wetlands are addressed in the Forest section above.

MANAGEMENT OBJECTIVES

- Maintain 8 acres of wetlands as they currently exist.
- Maintain habitat for wetland-dependent wildlife such as beaver and muskrat.

DESCRIPTION OF EXISTING WETLAND HABITAT AND TARGET SPECIES

There are 8 acres of natural wetlands on Vinegar Hill WMA (Figure 3). The wetlands consist of scrub/shrub and emergent wetlands. The wetlands are diverse and provide habitat for species such as:

- American woodcock
- Beaver
- Muskrat
- Migratory waterfowl

MANAGEMENT HISTORY

Wetland habitat has not been managed on Vinegar Hill WMA since the state obtained the property in the 1970s.

OPEN WATER (WATERBODIES AND WATERCOURSES)

Open water is defined as any area of open water, generally with less than 25% cover of vegetation or soil and typically named (e.g., Perch Lake, South Colwell Pond).

DESCRIPTION OF EXISTING OPEN WATER HABITAT AND TARGET SPECIES

There are two streams or segments of streams on the WMA totaling about 1.6 miles, the West Kill and Roarback Brook. Both streams are classified as Class C(ts) (protected trout spawning streams) and a survey conducted in 2008 confirmed the presence of brook trout in Roarback Brook. There are two sections of Roarback Brook that, due to recent beaver activity, currently have ponded water. Beyond these streams, there is no other open water (no named lakes or ponds) or any plan to develop such habitat.

HABITAT MANAGEMENT SUMMARY

In summary, Table 7 lists the habitat management actions planned for Vinegar Hill WMA over the next ten years. Any substantive changes will be appended to this HMP annually or as needed (Appendix D).

Table 7. Summary of habitat management actions recommended for Vinegar Hill WMA, 2016-2025. (Also see Figure 6.)

Habitat	Management Action	Acres	Timeframe
Forest	Clearcut northern hardwoods in Stand 1.	14	2016-2020
Forest	Perform initial shelterwood cut within Stands 4 and 6 to promote hardwood and softwood regeneration.	23	2016-2020
Forest	Perform a seed tree cut in Stand 3 to create young forest habitat.	5	2021-2025
Forest	Perform shelterwood overstory removal (final cut) in Stands 4 and 6.	23	2021-2025
Grassland	Continue mowing grassland fields (Stands 2 and 8) on an annual, biennial, or triennial basis depending on vegetation growth to allow for thatch and prevent woody growth.	26	Annual, biennial, or triennial

III. FIGURES

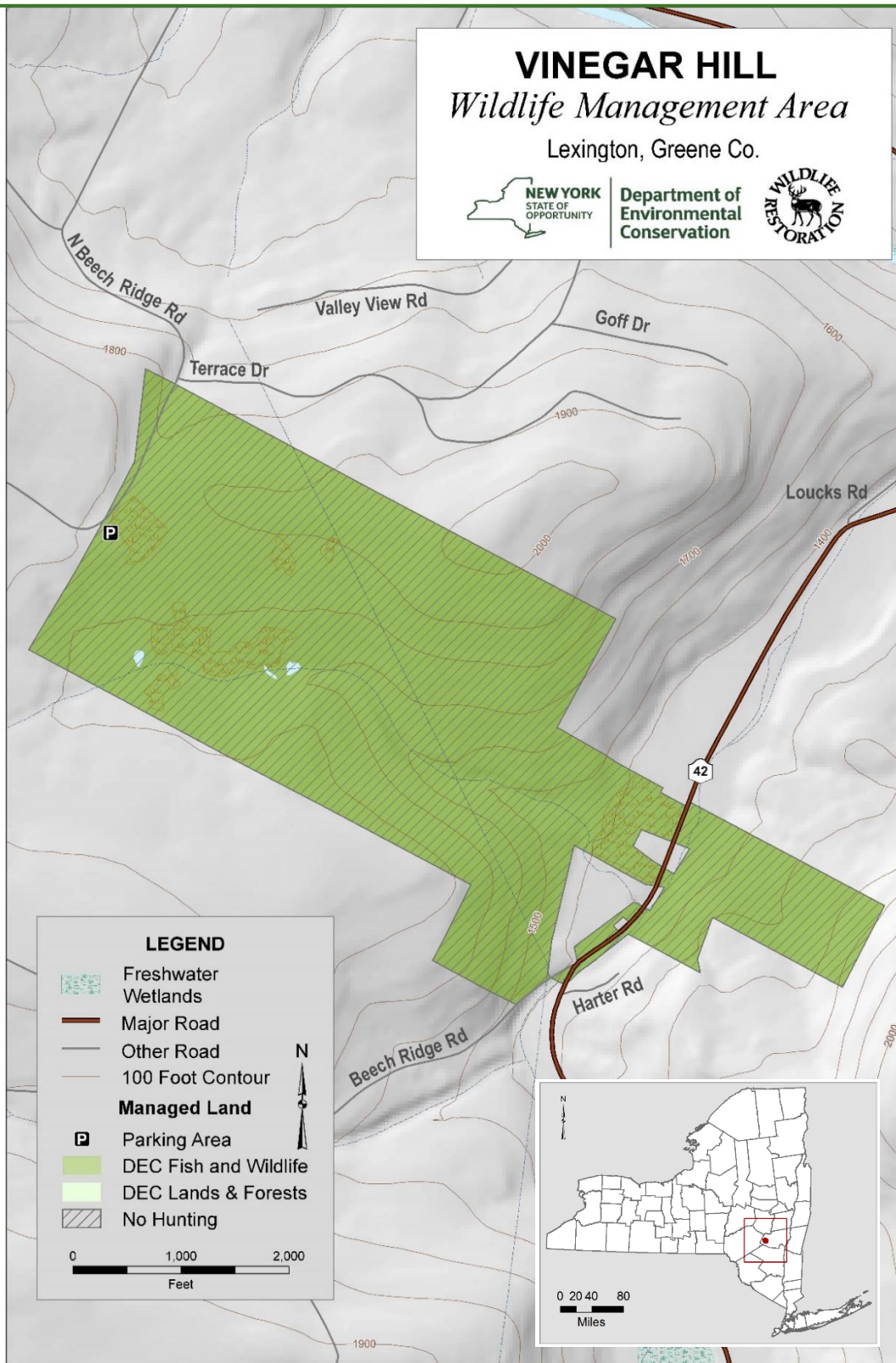


FIGURE 1. Location and access features at Vinegar Hill WMA.

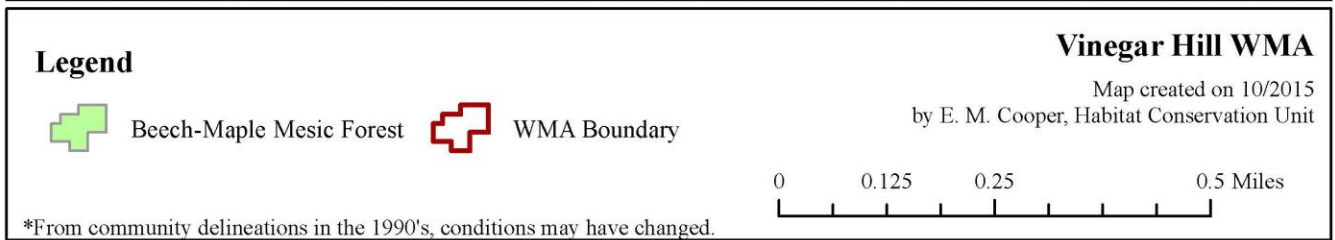
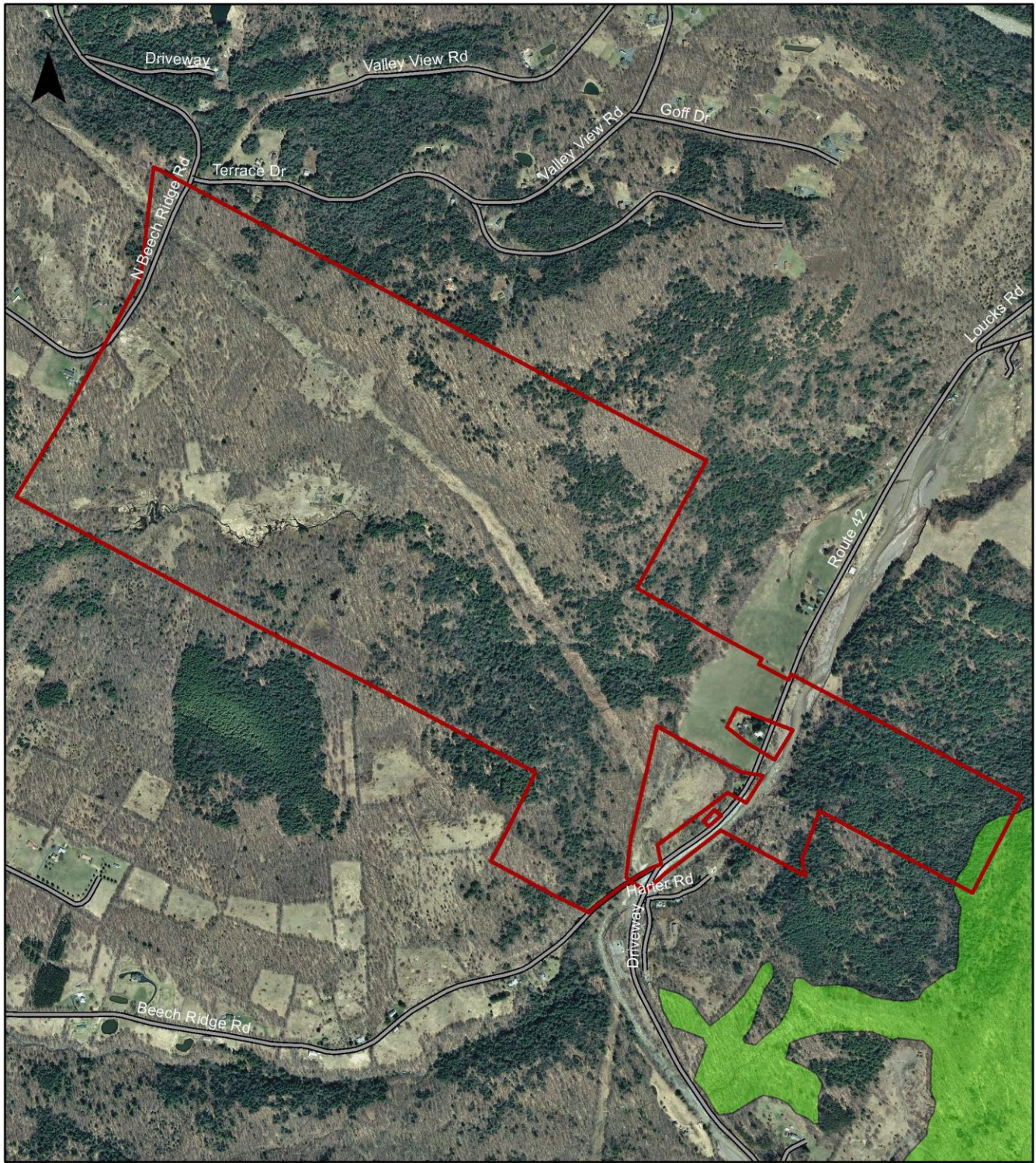


FIGURE 2. Significant ecological communities on Vinegar Hill WMA. Data from the NY Natural Heritage Program.

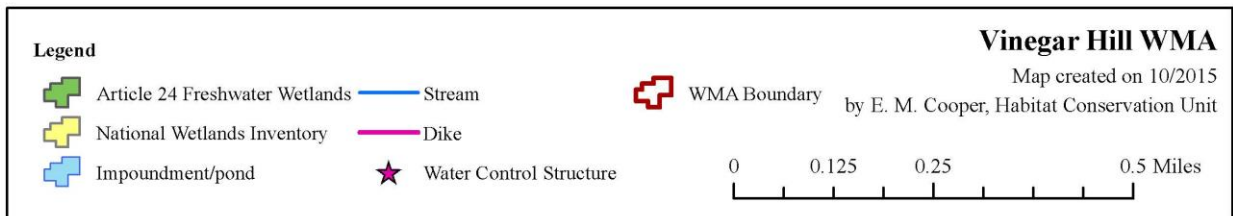
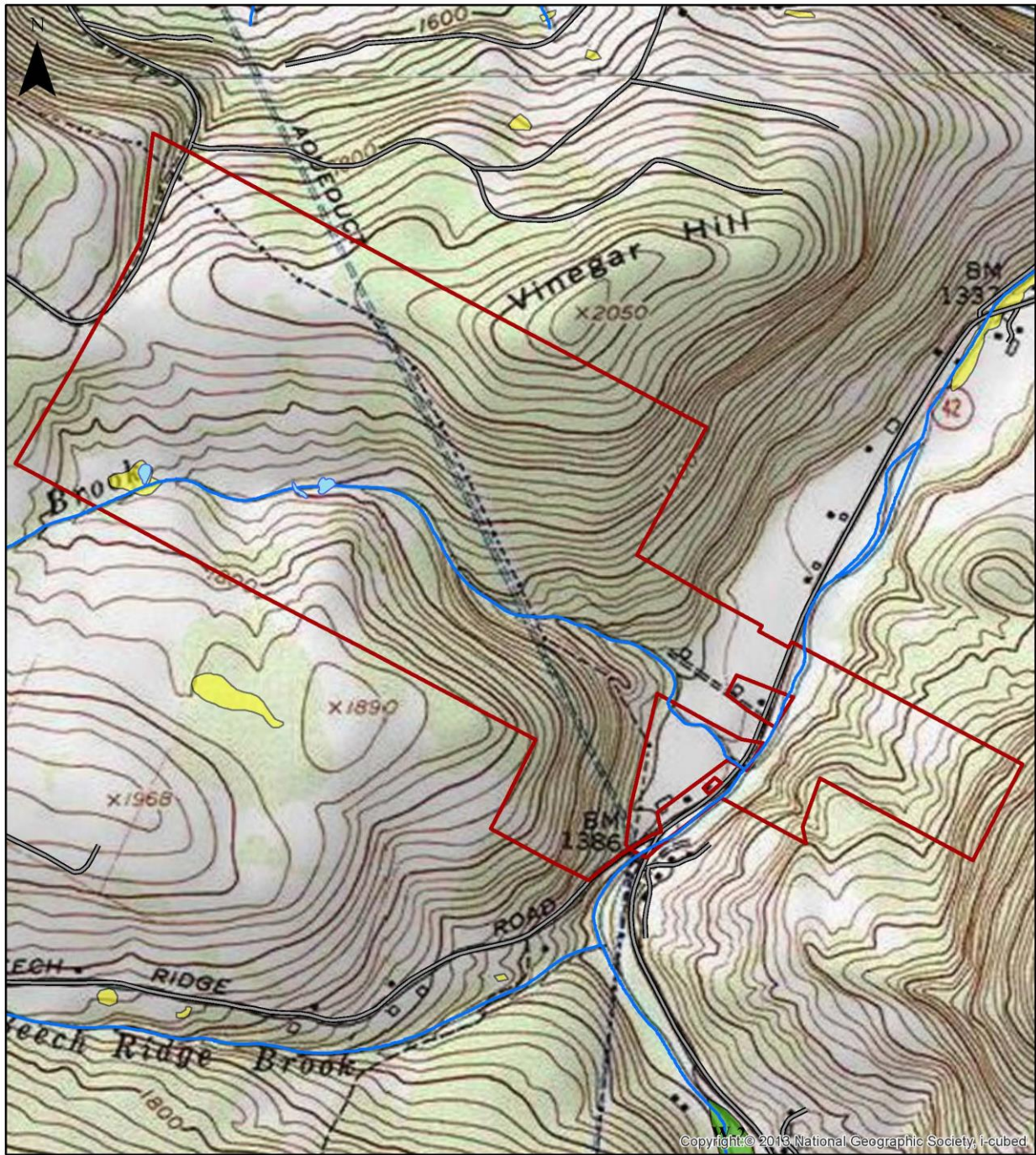


FIGURE 3. Wetlands, open water, and streams of Vinegar Hill WMA. Note: Wetland boundaries are not exact and may not be used for regulatory purposes without a current delineation.

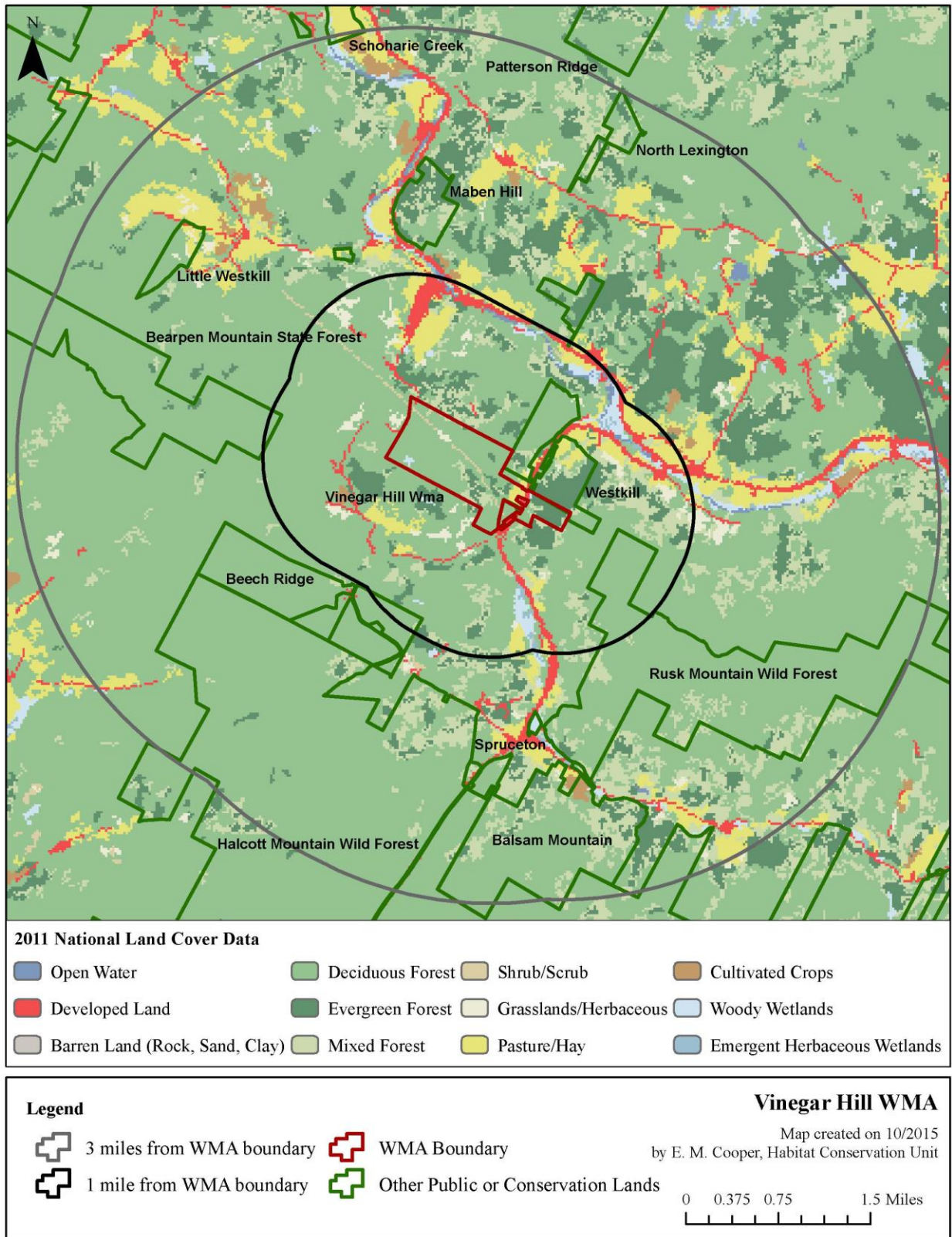


FIGURE 4. Land cover types and conservation lands in the landscape surrounding Vinegar Hill WMA. Conservation lands are from the NY Protected Areas Database available online at <http://www.nypad.org/>. Land cover types are from the 2011 National Land Cover Data (NLCD) and differ from the habitat types used in the WMA habitat Inventory. NLCD definitions are available online at <https://www.mrlc.gov/data/legends/national-land-cover-database-2011-nlcd2011-legend>.

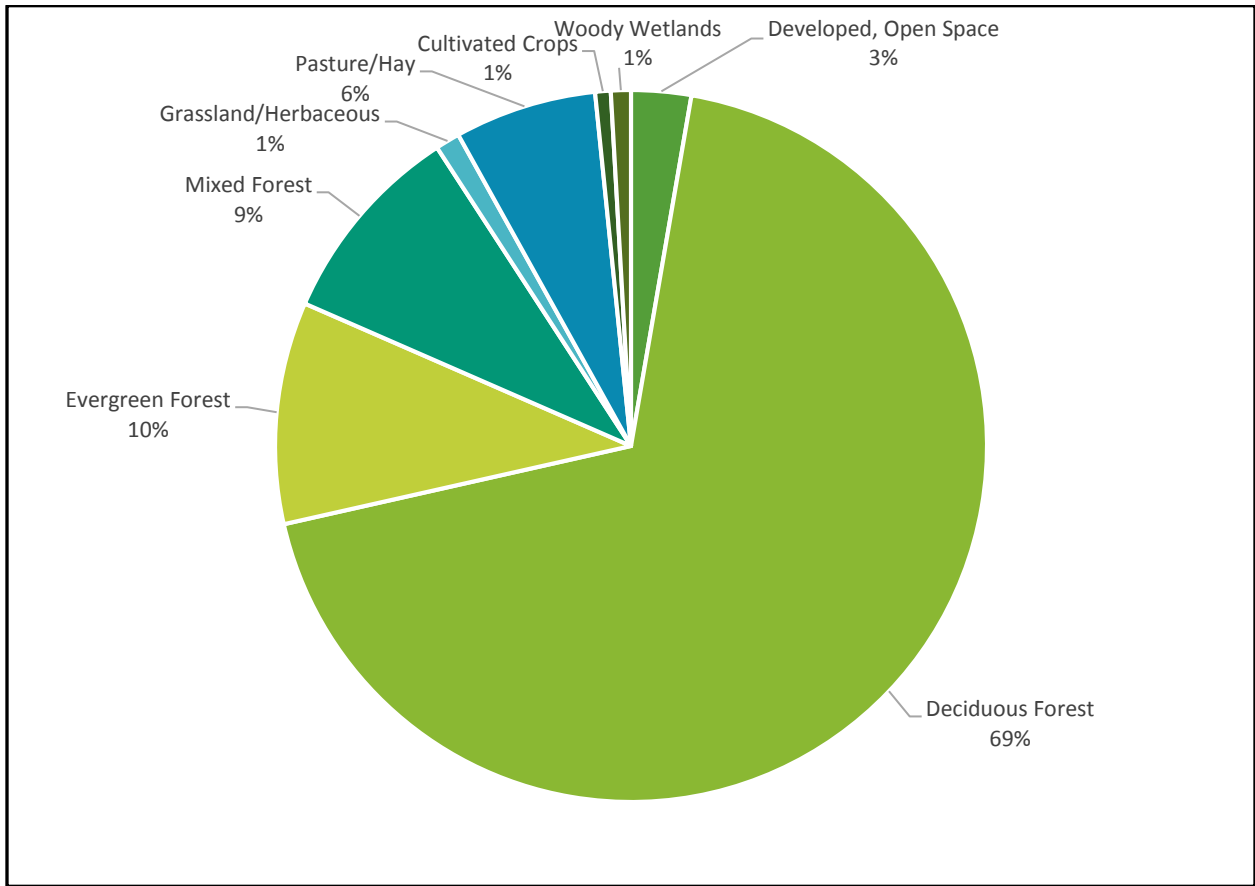


FIGURE 5. Percent cover of land cover types within three miles of Vinegar Hill WMA.

Land cover types are from the 2011 National Land Cover Data (NLCD) and differ from the habitat types used in the WMA habitat inventory. NLCD definitions are available online at <https://www.mrlc.gov/data/legends/national-land-cover-database-2011-nlcd2011-legend>.

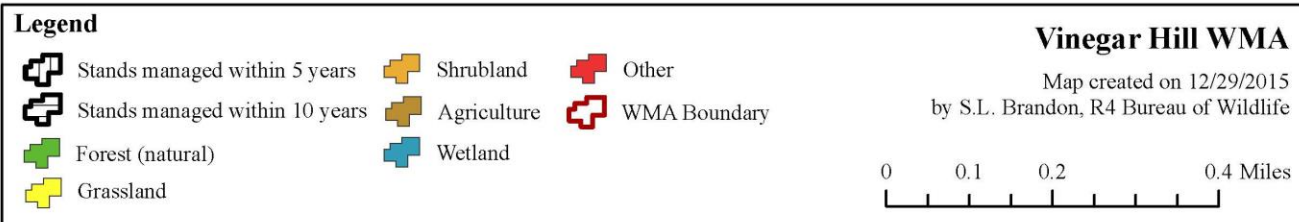
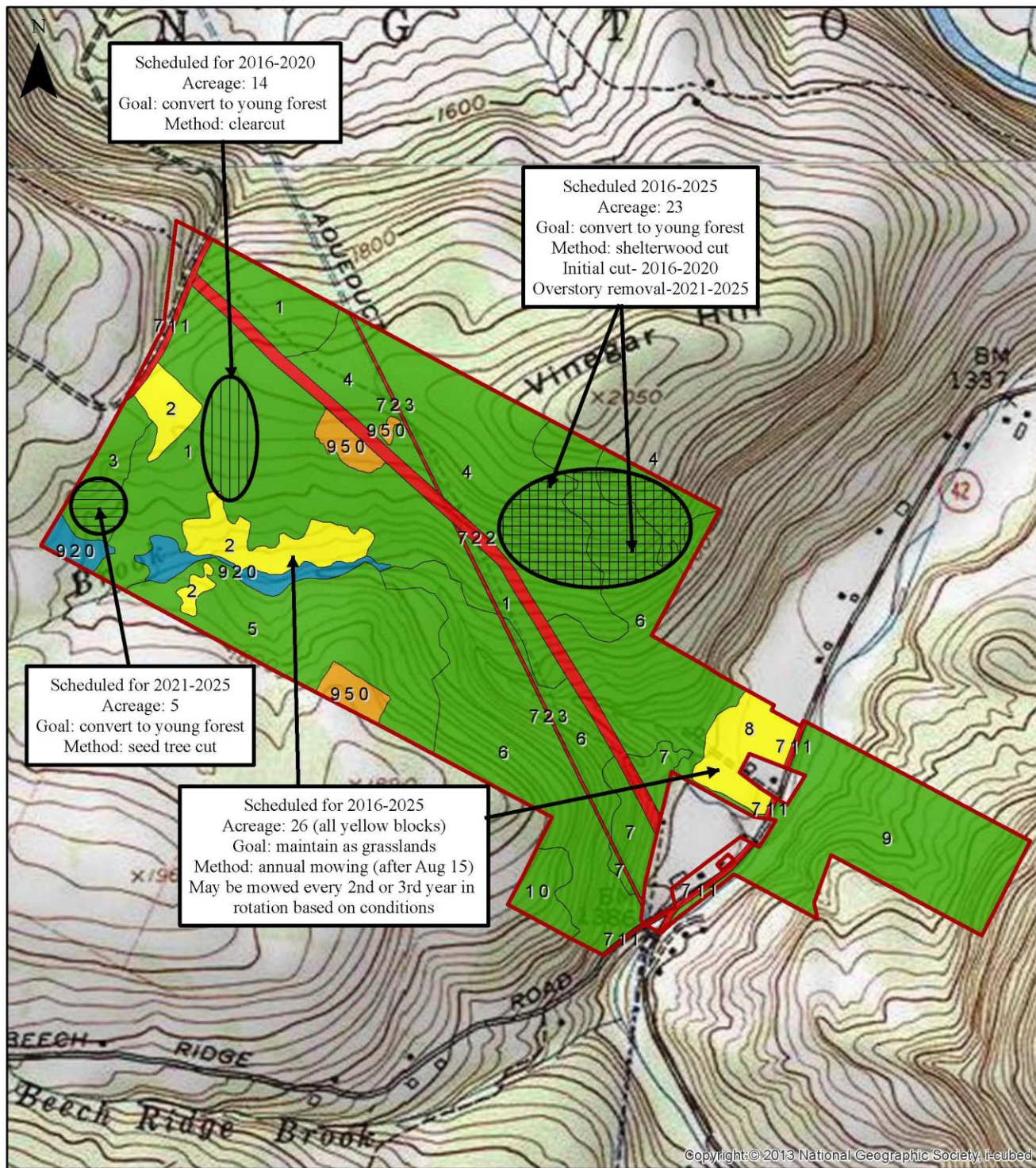


FIGURE 6. Habitat types and locations of proposed management on Vinegar Hill WMA. Numbers indicate the stand number from habitat inventory.

IV. APPENDICES

APPENDIX A: DEFINITIONS

The following key words were used in the development of this Habitat Management Plan. Definitions are from The Dictionary of Forestry, Society of American Foresters, J. A. Helms, Editor, unless otherwise noted.

Best Management Practices: (BMP) A practice or combination of practices that are determined to be the most effective and practicable means of avoiding negative impacts of habitat management.

Biodiversity: The variety and abundance of life forms, processes, functions, and structures of plants, animals, and other living organisms, including the relative complexity of species, communities, gene pools, and ecosystems at multiple spatial scales.

Clearcut method: A forest regeneration or harvest method that entails the cutting of essentially all trees, producing a fully exposed microclimate for the development of a new age class. Depending on management objectives, a clearcut may or may not have reserve trees left to attain goals other than regeneration.

Community: An assemblage of plants and animals interacting with one another, occupying a habitat, and often modifying the habitat; a variable assemblage of plant and animal populations sharing a common environment and occurring repeatedly in the landscape. (NY Natural Heritage Program)

Endangered Species: Any species listed on the current state or federal endangered species list as being in danger of extinction throughout all or a significant portion of its range.

Forb: Any broad-leafed, herbaceous plant other than those in the Poaceae (Gramineae), Cyperaceae, and Juncaceae families (i.e., not grass-like).

Forest: An ecosystem characterized by a dense and extensive tree cover, often consisting of stands varying in characteristics such as species composition, structure, age class, and associated processes, and commonly including meadows, streams, fish, and wildlife.

Forest Health: The condition of a forest derived from concerns about such factors as its age, structure, composition, function, vigor, presence of unusual levels of insects or disease, and resilience to disturbance.

Grassland Focus Area: Regions of NY that support key, residual populations of grassland birds. There are currently eight focus areas, within which there is a concentrated conservation effort for these species. (A Plan for Conserving Grassland Birds in New York, Audubon NY.)

Habitat: A place that provides seasonal or year round food, water, shelter, or other environmental conditions for an organism, community, or population of plants or animals.

Hardwood: A broad leaved, flowering tree belonging to the botanical group Angiospermae, such as red maple, yellow birch, American beech, black cherry, etc.

Impoundment: A pond caused by a dam across a stream and used for purposes such as water supply, water power, or wildlife habitat. (Edinger et al. 2002. Ecological Communities of New York State, Appendix B)

Landscape: A spatial mosaic of several ecosystems, landforms, and plant communities across a defined area irrespective of ownership or other artificial boundaries and repeated in similar form throughout.

Mast: The fruit of trees considered as food for wildlife. Hard mast is the fruits or nuts of trees such as oak, beech, walnut, and hickories. Soft mast is the fruits and berries from plants such as dogwood, viburnum, elderberry, huckleberry, hawthorn, grape, raspberry, and blackberry.

Multiple Use Area: Lands that were acquired by DEC to provide outdoor recreation and wherever possible the conservation and development of natural resources. As their name suggests, they are to be managed for a broader range of public use. (Public Use of Lands Managed by the Bureau of Wildlife)

Native: A plant or animal indigenous to a particular locality.

Old Growth Forest: Forest with an abundance of late successional tree species, at least 180 - 200 years of age in a contiguous forested landscape that has evolved and reproduced itself naturally, with the capacity for self-perpetuation, arranged in a stratified forest structure consisting of multiple growth layers throughout the canopy and forest floor, featuring canopy gaps formed by natural disturbances creating an uneven canopy, and a conspicuous absence of multiple stemmed trees. (Adapted from the NYS Strategic Plan for State Forest Management)

Pole: A tree of a size between a sapling (1" to 5" diameter at breast height) and a mature tree.

Regeneration Cut: A cutting procedure by which a new forest age class is created; the major methods are clearcutting, seed tree, shelterwood, selection, and coppice. The Young Forest Initiative includes these silvicultural treatments: clearcuts, seed tree cuts, and shelterwood cuts. Salvage (following a natural disturbance) will be considered based on the size and scope of the disturbance.

Seed Tree Cut Method: A forest regeneration or harvest method that entails cutting of all trees except for a small number of widely dispersed trees retained for seed production and to produce a new age class in fully exposed microenvironment.

Shelterwood Cut Method: A forest regeneration or harvest method that entails the cutting of most trees, leaving those needed to produce sufficient shade to produce a new age class in a moderated microenvironment.

Shrubland: A community dominated by woody plants typically less than ten feet tall with scattered open patches of grasses and forbs that provide floristic diversity. Typically characterized by >50% cover of shrubs and <25% canopy cover of trees. (Adapted from Edinger et al. 2002. Ecological Communities of New York State, Appendix B)

Softwood: A coniferous tree belonging to the botanical group Gymnospermae, such as white pine, Eastern hemlock, balsam fir, red spruce, etc.

Special Management Zone: A vegetation strip or management zone extending from wetland boundaries, high-water marks on perennial and intermittent streams, vernal pool depression, spring seeps, ponds and lakes, and other land features requiring special consideration. (Adapted from DEC Division of Lands and Forests Management Rules for Establishment of Special Management Zones on State Forests)

State Rank of Significant Ecological Communities:

S1 = Typically 5 or fewer occurrences, very few remaining individuals, acres, or miles of stream, or some factor of its biology making it especially vulnerable in New York State.

S2 = Typically 6 to 20 occurrences, few remaining individuals, acres, or miles of stream, or factors demonstrably making it very vulnerable in New York State.

S3 = Typically 21 to 100 occurrences, limited acreage, or miles of stream in New York State.

S4 = Apparently secure in New York State.

S5 = Demonstrably secure in New York State.

SH = Historically known from New York State, but not seen in the past 15 years.

SX = Apparently extirpated from New York State.

SE = Exotic, not native to New York State.

SR = State report only, no verified specimens known from New York State.

SU = Status unknown.

(Edinger et al. 2002. Ecological Communities of New York State, Appendix A)

Stand: In forestry, a contiguous group of trees sufficiently uniform in age-class distribution, composition, and structure, and growing on a site of sufficiently uniform quality, to be a distinguishable and manageable unit. In this HMP, the term “stand” is also applied to other habitat types (e.g., grassland, shrubland) to describe an area composed of similar vegetation composition and structure, as delineated during the habitat inventory.

Stand Prescription: A planned series of treatments designed to change current stand structure to one that meets management goals. Note: the prescription normally considers ecological, economic, and societal constraints.

Target Species: A suite of high priority wildlife species of conservation interest that are being targeted to benefit from management of a particular habitat type.

Unique Area: Lands that were acquired by DEC for their special natural beauty, wilderness character, geological, ecological, or historical significance for inclusion in the state nature and historical preserve. The primary purpose of these lands is to protect the feature of significance that led to the land being acquired by the state. (Public Use of Lands Managed by the Bureau of Wildlife)

Upland: Sites with well-drained soils that are dry to mesic (never hydric). (Edinger et al. 2002. Ecological Communities of New York State, Appendix B)

Wetland: “Freshwater wetlands means lands and waters of the state as shown on the freshwater wetlands map which contain any or all of the following:

- (a) lands and submerged lands commonly called marshes, swamps, sloughs, bogs, and flats supporting aquatic or semi-aquatic vegetation of the following types: wetland trees, wetland shrubs, emergent vegetation, rooted, floating-leaved vegetation, free-floating vegetation, wet meadow vegetation, bog mat vegetation, and submergent vegetation;
 - (b) lands and submerged lands containing remnants of any vegetation that is not aquatic or semi-aquatic that has died because of wet conditions over a sufficiently long period, provided that such wet conditions do not exceed a maximum seasonal water depth of six feet and provided further that such conditions can be expected to persist indefinitely, barring human intervention;
 - (c) lands and waters substantially enclosed by aquatic or semi-aquatic vegetation as set forth in paragraph (a) or by dead vegetation as set forth in paragraph (b) the regulation of which is necessary to protect and preserve the aquatic and semi-aquatic vegetation as set forth in paragraph (a) or by dead vegetation as set forth in paragraph (b) the regulation of which is necessary to protect and preserve the aquatic and semi-aquatic vegetation; and
 - (d) the waters overlying the areas set forth in (a) and (b) and the lands underlying.”
- (Refer to NYS Environmental Conservation Law, Article 24 § 24-0107 for full definition.)

Wildlife Management Area: Lands that were acquired by DEC primarily for the production and use of wildlife, including hunting and trapping. These areas provide and protect wildlife habitats that are particularly significant in their capacity to harbor rare, threatened or endangered species, host unusual concentrations of one or more wildlife species, provide an important resting and feeding area for migratory birds, provide important nesting or breeding area for one or more species of wildlife, or provide significant value for wildlife or human enjoyment of wildlife. (Public Use of Lands Managed by the Bureau of Wildlife)

Young Forest: Forests that result from a regeneration cut, typically having a dense understory where tree seedlings, saplings, woody vines, shrubs, and herbaceous vegetation grow together. Young forests are typically 0-10 years old. (Adapted from www.youngforest.org). It is acknowledged that “young forests” will differ in their character in different ecological areas of the state and that 0-10 years is a continuum into more mature forest types. (Refer to: A DEC Strategic Plan for Implementing the Young Forest Initiative on Wildlife Management Areas 2015-2020)

APPENDIX B: COMPLIANCE WITH STATE ENVIRONMENTAL QUALITY REVIEW

This plan identifies habitat management activities to be conducted on the Wildlife Management Area. These activities were analyzed in the 1979 *Programmatic Environmental Impact Statement on Habitat Management Activities of the Department of Environmental Conservation; Division of Fish and Wildlife* (PEIS), as updated and amended in 2017 by the *Supplemental Final Environmental Impact Statement* (SFEIS).¹⁸ Any activity that exceeds the thresholds of, or was not analyzed in the 1979 PEIS as amended in 2017, will require individual, site-specific environmental review. Environmental assessment forms prepared as a result of this review will be posted on the Environmental Notice Bulletin (ENB).¹⁹

The activities recommended in this plan:

- Will not adversely affect threatened or endangered plants or animals or their habitat.
 - Prior to implementation of any activity, staff review the NY Natural Heritage Program’s “Natural Heritage Element Occurrence” database and perform field surveys when necessary. If a protected species is encountered in a project area, staff may establish buffer zones around the occurrence, move the project area, follow time-of-year restrictions, or cancel the project.
- Will not induce or accelerate significant change in land use.
 - All lands and waters within the WMA system are permanently protected as wildlife habitat.
- Will not induce significant change in ambient air, soil, or water quality.
 - Activities are designed to protect air, soil, and water quality through careful project planning, use of appropriate Best Management Practices, and establishment of Special Management Zones around sensitive land and water features requiring special consideration.
- Will not conflict with established plans or policies of other state or federal agencies.
 - Activities will follow established plans or policies of other state and federal agencies, including all relevant U.S. Fish and Wildlife Service rules and regulations.
- Will not induce significant change in public attraction or use.
 - The WMA system is part of a long-term effort to establish permanent access to lands in New York State for the protection and promotion of its fish and wildlife resources. Proposed activities will continue to protect, promote, and maintain public access to WMAs and their wildlife resources.
- Will not significantly deviate from effects of natural processes which formed or maintain an area or result in areas of significantly different character or ecological processes.
 - Activities will be conducted in a manner that maintains, enhances, or mitigates ecological processes and/or natural disturbances as appropriate for each WMA and habitat type. Some activities, such as even-aged forest management, intentionally result in areas of different character and ecological processes; however, they are not considered significant because they are ephemeral or transitional and will not permanently alter the landscape.
- Will not affect important known historical or archeological sites.
 - Activities that may result in ground disturbance are reviewed by DEC’s State Historic Preservation Officer (SHPO) and/or the NYS Office of Parks, Recreation and Historic Preservation (OPRHP) to identify potential impacts to historical or archeological sites. Sensitive sites will be protected under the direction of DEC’s SHPO and the OPRHP Archaeology Unit.
- Will not stimulate significant public controversy.

It is not anticipated that activities on WMAs will stimulate significant public controversy. A public comment period was held during development of both the PEIS and the SFEIS; no relevant comments in opposition of proposed management activities were received during the SFEIS public comment period. Staff also hold a public information session after completing each HMP, consider feedback from these sessions, and may adjust management as deemed appropriate. Kiosks, signs, webpages, articles, demonstration areas, and other outreach materials also raise awareness about habitat management activities.

¹⁸ Available online at <http://www.dec.ny.gov/regulations/28693.html>.

¹⁹ Available online at <http://www.dec.ny.gov/enb/enb.html>.

PRESCRIPTION NOTES

Species Composition: At a minimum, the three most common species found in the overstory should be included, assuming at least three species comprise the stand. Species that individually constitute less than 5% of the stand may be lumped together as “Other” or “Miscellaneous.” For instance, if beech, hemlock and yellow birch each make up 3% of the stand, they may be lumped together as “Other – 9%.”

Natural Heritage Element Occurrence layer review: List those species that the Natural Heritage Element Occurrence (EO) data layer indicates are or were known to be present in the stand, or could be affected by treatments to the stand. For instance, if a rare fish was indicated in a water body that is a short distance downstream of a creek that flows through the stand, it should be listed in the prescription.

SMZ layer review: The SMZ data layer includes Special Management Zones around all streams and wetlands, as well as vernal pools, spring seeps and recreation areas that staff have mapped and digitized. If any of these features are mapped incorrectly or are missing from current data layers, staff can correct their locations by editing their office layers.

Retention data: Include numbers of existing snags, cavity trees, Coarse Woody Material, Fine Woody Material, and legacy trees. Ocular estimates are acceptable.

Soil types and drainage: Specifically named soil types are useful, but not necessarily required. “Flat, sandy, well-drained hilltop” or “Steep, gravelly, moderately well-drained mid-slope” may be just as useful as “Hershiser-Koufax Sandy Silt Loam” in describing the soil conditions as they relate to management decisions. The important point is to note those characteristics that may limit equipment operation or establishment of regeneration. Soil type data is available for some counties on the Data Selector.

Interfering vegetation: Indicate the existing amount of interfering vegetation such as beech, striped maple, fern, etc. This may be quantified using mil-acre plots or by ocular estimate.

Technical guidance used: This may include stocking guides, articles found in technical journals, textbooks or other silviculture-related publications. Other sources of guidance may be acceptable as well.

Treatment purpose: As used here, “treatment purpose” and “management objective” (see below) are two different things. Also, “treatment purpose” is not what is to be done (i.e., “reduce basal area by 25%” or “remove every third row”), but rather is an explanation of why it is being done (i.e., “stimulate regeneration and increase growth of residual stand” or “regenerate current stand and convert to young forest”).

Management objective: As used here, the term “management objective” is somewhat general. At a minimum, the prescription should indicate the desired future age structure and stand type. An entry as general as “Even aged hardwood” is acceptable, but regional staff may be more specific if they so choose. The management objective for a stand may be specified in the Habitat Management Plan (HMP) for the Wildlife Management Area in question. If the existing HMP does not specify the management objective regional staff should choose the management objective when the prescription is written.

Clearcut acreage and configuration: If the harvest involves one single clearcut, indicate the total contiguous area, in acres. If the harvest comprises more than one clearcut, indicate the total combined area of clearcuts, as well as the area of the largest clearcut.

Natural Heritage/MHDB considerations: Indicate what measures will be taken to protect those elements or features that were found in the review of the Natural Heritage Element Occurrence and Special Management Zone (not applicable yet) layers.

Retention considerations: Indicate whether or not existing levels meet the standards set forth in the Division’s policy on Retention on State Forests, or whether they are expected to do so as a result of the proposed treatment. Also indicate if or how the treatment was adjusted in order to improve compliance with the policy standards.

Treatment description: The intended treatment should be clearly described. The amount of information necessary to accomplish this will vary greatly. For instance, in a row thinning of a pole timber sized plantation that had no SMZs or other special features, it may be sufficient to simply indicate “Remove two out of every six rows, taking two adjacent rows and leaving four rows between successive pairs being removed.” An intermediate thinning in a sawtimber sized hardwood stand with a recreational trail, two streams and a known occurrence of an endangered plant community would require significantly more detail. One rule of thumb that could be used is to describe the treatment so that a qualified forestry professional could use it to assist in marking the harvest.

Additionally, since we are focused on creating young forests you should also address the presence/absence of advanced regeneration. If you are planning on clearcutting without advanced regeneration, address how you are going to mitigate that. For example, “This aspen stand will be clearcut and it is anticipated that future regeneration will be established through aspen root sprouting”. Or, “This stand will be clearcut and replanted with Norway spruce to establish conifer cover.”

Furthermore, if you are planning on conducting a shelterwood or seed tree cut, please indicate when you are planning on returning to the stand to conduct the final harvest (overstory removal).

APPENDIX D: AMENDMENTS

Any substantive changes to the habitat management described in this plan will be amended to the plan annually or as needed. Such changes may include: land acquisition, unforeseen natural disturbance, or any other change that alters the need for or the scope, method, or timing of management.

FY 20-21 (4/1/20 - 3/31/21)

Prescriptions approved as of May 13, 2020:

- Stand A-1
Approximately 13.5 acre clearcut for American woodcock, white-tailed deer and wild turkey.
- Stand A-4
Approximately 7.6 acre shelterwood cut for American woodcock, white-tailed deer and wild turkey.
- Stand A-6
Approximately 15.7 acre shelterwood cut for American woodcock, white-tailed deer and wild turkey.

REVISIONS

Revisions made on May 13, 2020:

In 2016, acoustic surveys were conducted to determine if protected bat species occurred within the WMA. Survey results identified the probable presence of protected bat species within the property. Due to this occurrence, timber harvest restrictions were implemented on the property (Apr. 1 – Oct. 31).

In 2020, the land manager and YFI staff decided to remove varying hare as a target species at Vinegar Hill WMA. Historically, varying hare were known to inhabit the WMA. They were chosen with the hope that there were remnant populations within the marginal habitat still existing on the property. Timber harvests were planned in areas adjacent to this marginal habitat to create suitable early successional habitat. Extensive track surveys were conducted for four years within the WMA to try and identify an existing varying hare population. Unfortunately, no varying hare were identified during these surveys. Due to the lack of suitable habitat on adjacent properties that would support a source population and the failure to identify any existing population on the property, the chance of varying hare repopulating the WMA is very low. Because of these factors, the decision was made to remove varying hare as a target species at Vinegar Hill WMA. Wild turkey was chosen to replace varying hare as a target species. The WMA and surrounding properties support an existing population of wild turkey. The creation of young forest and early successional habitat will benefit wild turkey populations by creating nesting and foraging habitat.

The changes listed above are referenced in the bulleted list below.

- Page 3
 - Change target species from varying hare to wild turkey.
- Page 5
 - Wildlife Resources:
 - Remove varying hare from bulleted list.
- Page 10
 - Change target species from varying hare to wild turkey.
- Page 11
 - Replace varying hare habitat requirements with wild turkey habitat requirements.
- Page 13
 - Change target species from varying hare to wild turkey.
 - Wildlife considerations:
 - Survey results of acoustic bat surveys added.
 - Timber harvest restriction dates added.
- Page 14
 - Change target species from varying hare to wild turkey.
- Page 15
 - Change target species from varying hare to wild turkey.
- Page 16
 - Grassland:
 - Reference to expired agricultural agreement removed.