Habitat Management Plan
for
Baxtertown Woods Wildlife Management Area
2020 – 2029

Division of Fish and Wildlife
Bureau of Wildlife

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SUMMARY

Baxtertown Woods Wildlife Management Area (WMA) consists of 250 acres of upland forest and forested wetland. The only significant non-forested habitats at the WMA are several small patches of emergent marsh/open water within the WMA's extensive forested swamps and a narrow utility right-of-way that runs through the middle of the WMA. The property was originally purchased in 2005 as an addition to the Stony Kill Farm Environmental Education Center (Stony Kill) for the purpose of providing an undeveloped buffer for Stony Kill. In 2011, DEC reclassified the property as a WMA to provide opportunities for public wildlife-dependent recreation, specifically hunting and trapping, which are not permitted on the Stony Kill property. Upon transfer from Stony Kill, the WMA was intended to be a Quality Deer Management (QDM) habitat management demonstration area, providing the typical matrix of open and forested habitats similar to the landscape at Stony Kill and much of Dutchess County, but also potentially involving both forest management and the creation of food plots that would specifically benefit white-tailed deer. Preliminary discussions for future management activities involved organizations including DEC, the Quality Deer Management Association and representatives from the Dutchess County Sportsmen's Federation. However, access to the WMA is quite restricted by the lack of road frontage and the abundance of wetlands. For this reason, options for habitat management or the development of infrastructure to facilitate recreational access are very limited and plans to develop the WMA into a habitat management demonstration area never came to fruition.

Forested wetlands, such as the red maple swamp found at Baxtertown Woods, are plentiful in the area and across the Dutchess County portion of the Hudson Valley in general. Thus, from a habitat perspective, Baxtertown Woods is not unique. However, the WMA is a larger-than-average forest patch for the area and provides public opportunities to enjoy the outdoors in an ever increasingly urbanized landscape. Other large tracts of public land nearby include the 6,000-acre Hudson Highlands State Park and various properties owned by the New York City Department of Environmental Protection (DEP), both of which provide public opportunities for wildlife-dependent recreation such as hunting, trapping and fishing.

Baxtertown Woods could potentially be home to a number of Species of Greatest Conservation Need (SGCN) that have been identified by various sources, including the New York Breeding Bird Atlas (Table 2). Lack of habitat diversity may limit the presence of most of those species on the WMA, however. The New England cottontail is a rare species of rabbit native to New York that can only be found east of the Hudson River in Columbia, Dutchess, Putnam, and Westchester Counties. Their populations have been in decline due to habitat loss and competition with the more well-known Eastern cottontail. Baxtertown Woods WMA falls within the West Putnam Focus Area for New England cottontails, which is one of 7 focus areas in New York where efforts are being made to restore their habitats and populations. Although New England cottontails have been documented within 5 miles of Baxtertown at nearby Hudson Highlands State Park, they have never been found at the WMA and are not believed to occur there. Further, given the fragmented nature of the surrounding landscape that favors Eastern cottontails and the presence of Interstate 84 that serves as a significant barrier to their movement across the landscape, separating Baxtertown Woods from the nearest New England cottontail

population, colonization of Baxtertown Woods by New England cottontails is highly unlikely and therefor they are not a target species for management at the WMA.

Habitat management goals for Baxtertown Woods WMA include:

- Create 35 acres of young forest (13% of the total forested area) that includes 3 acres of young forested wetland to provide habitat for American woodcock, white-tailed deer, and young forest-dependent songbirds.
- Improve habitat for select reptile and/or amphibian species within the wetland habitat in the utility right-of-way.
- Work with Central Hudson Gas & Electric to continue to provide or improve wildlife habitat in the existing utility right-of-way.

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 5 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 State Historic Preservation Act (SHPA), prior to implementation.

WMA Overview

Location

Baxtertown Woods WMA, Region 3, Town of Fishkill, Dutchess County (Figure 1).

Total Area

250 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 Baxtertown Woods WMA.

Habitat Type	Current Conditions (as of 2017)			Desired Conditions	
	Acres	Percent of WMA	Miles	Acres	Percent of WMA
Forest [a]	238	95%		203	81% [b]
Young forest	0	0%		35	14%
Shrubland	0	0%		0	0%
Grassland/Open space (utility ROW)	4	2%		4	2%
Agricultural land	0	0%		0	0%
Wetland (natural) [c]	8	3%		8	3%
Wetland (impounded) [c]	0	0%		0	0%
Open water	0	0%		0	0%
Roads	0	0%	0	0	0%
Rivers and streams			0.44		
Total Acres:	250	100%		250	100%

[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] The forest management proposed in this plan aims to replace poor quality forest, promote regeneration of native species, and establish a healthy mature forest for the future. See Landscape Context and Forest sections.
[c] Wetland acreage does not include forested wetlands, since they are included in the Forest category.

ECOLOGICAL RESOURCES

Wildlife Overview:

Wildlife species that may occur at Baxtertown Woods WMA include, but are not limited to the following:

- White-tailed deer, Eastern coyote, raccoon, bobcat, striped skunk, Eastern cottontail.
- Wood thrush, Eastern wood-pewee, common yellowthroat, American goldfinch, field sparrow, indigo bunting, scarlet tanager.
- Red-shouldered hawk, red-tailed hawk, Cooper's hawk.
- Wild turkey, American woodcock.

Wildlife and Plant Species of Conservation Concern:

The following federal or state listed Endangered (E), Threatened (T), or Special Concern (SC) species and/or 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]

[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.

Table 2. Species of conservation concern that may be present on Baxtertown Woods 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	Red-shouldered hawk			x
	American woodcock			x
	Wood thrush			x
	Blue-winged warbler			x
Mammals	Indiana bat	E	E	HP
	Northern long-eared bat	T	T	HP
	New England cottontail			HP
Amphibians and reptiles	Spotted turtle			HP
	Four-toed salamander			HP
	Blue spotted salamander			HP
	Marbled salamander			x
	Eastern ratsnake (black rat snake)			x
	Northern black racer			x
	Fowler's toad			x
Plants	Fairywand		E	

Significant Ecological Communities:

There are no rare and significant natural communities located on Baxtertown Woods WMA as identified by the NY Natural Heritage Program.

Soils:

There are six different soil types found on Baxtertown Woods WMA.[5] These soils range from somewhat excessively-drained upland soils to very poorly drained bottomland soils that make up the 110 acres of wetland on the property. Upland soils include the somewhat excessively-drained Knickerbocker fine sandy loam, the well-drained Dutchess-Cardigan Complex and Bernardston silt loam, and the moderately well-drained Pittstown silt loam. Wetland soils include the very poorly-drained Canandaigua silt loam and Carlisle muck. With the exception of the Carlisle muck, these are considered excellent soils for farming, typical of soils found in the Hudson River Valley. The soils are deep, derived mainly from glacial till, fluvial deposits or lacustrine sediment and are susceptible to erosion. However, any management activities that could contribute to erosion, such as timber harvesting, would be conducting during winter months when the ground is frozen. This could even allow for management activities to occur within the wetland boundaries. Erosion can further be easily controlled during timber harvest activities using New York State's Best Management Practices for timber harvesting since the property is relatively flat with few to no steep grades that might contribute to erosion.

[5] 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.

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 Baxtertown Woods WMA include:

- 2 wetlands (WF-18 and WF-19) regulated by Article 24 of the Environmental Conservation Law and several additional wetlands identified by the National Wetlands Inventory (NWI; Figure 2). Each state-regulated wetland is protected by a buffer zone of 100 feet from the delineated wetland boundary, known as the adjacent area. There may be forestry prescriptions associated with forested wetlands and adjacent areas, and each management prescription will be reviewed individually for determination of impacts.
- 1 stream (a watercourse entirely within the WMA) or segment of a stream (a stream that meanders in and out of the WMA). The highest stream classification is C.[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 restricted in order to protect these features. Any deviations from these guidelines will be addressed in the individual stand prescriptions.

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 Baxtertown Woods WMA (Figures 3 and 4). The landscape within a three-mile radius of the Baxtertown Woods is primarily privately-owned but has a significant amount of public lands and undeveloped habitats including:

- 33% deciduous forest
- 26% developed (12% medium intensity, 11% low intensity, 3% high intensity)
- 14% developed open space (ball parks, golf courses, etc.)
- 12% open water
- 6% wetland (5% wooded wetland, 1% emergent wetland)
- 4% pasture/hay
- 3% evergreen forest

Although the majority of the landscape within 3 miles of Baxtertown Woods is private with 40% of that area being human development, there are a number of open space properties that include parks, conservation lands and some other larger tracts of undeveloped lands. Directly adjacent to Baxtertown Woods WMA is the Stony Kill Farm Environmental Education Center, owned by DEC. Stony Kill Farms consists of over 1,000 acres of forest and farmland, offering environmental education workshops for both children and adults. There are over 9 miles of trails at the Stony Kill property that provide opportunities for hiking, snowshoeing and cross-country skiing.

[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.

The nearby Sharpe Reservation in Beacon (Figure 3), owned by the Fresh Air Fund, is a 1,630-acre property (300 of which are within the 3-mile radius of Baxtertown Woods) that hosts approximately 3,000 children from the New York City area, annually. The Reservation provides opportunities for camping and other outdoor-related activities. Facilities on the property include the Gustafson Planetarium and the Sharpe Environmental Education Center. The Sharpe Reservation also hosts annual events such as their Maple Festival and an Earth Day Conference for environmental educators.

Another large tract of public land within 3 miles of Baxtertown Woods is the Hudson Highlands State Park. Though only 1,600 acres of this park falls within that 3-mile-radius, the Park totals 6,000 acres in the Beacon area along the shores of the Hudson River in the Hudson Highlands Region. The Park provides lots of hiking opportunities with breathtaking views of the Hudson River. The most famous trail at the Park is the 5.5-mile Breakneck Trail which features a vertical rise of 1,250 feet over a 3/4-mile stretch.

Other open-space properties within 3 miles of Baxtertown Woods WMA include a 100-acre parcel owned by the Putnam County Audubon Society, open to the public to provide birding opportunities, and a number of smaller tracts in the form of recreation parks and ball fields owned by the Towns of Wappingers, Poughkeepsie, and Fishkill, the City of Beacon and the Village of Fishkill. All of these properties combine to secure open spaces in an otherwise highly developed landscape, providing the public with the ability to enjoy outdoor activities and connect with nature. In all, open-space lands contribute over 3,000 acres to the total area within 3 miles of Baxtertown Woods WMA.

The Hudson River (Figure 3) comprises over 10% of the total area within three miles of Baxtertown Woods WMA. The river provides a significant barrier to the movement of mammals in that landscape, especially for species smaller than a deer. However, it is an important part of the Hudson Valley landscape as it provides diversity to the landscape and the species that inhabit the area. It also provides excellent opportunities for outdoor recreation, including boating, kayaking, fishing, waterfowl hunting and wildlife viewing.

II. MANAGEMENT STRATEGIES BY HABITAT TYPE

DEC will continue active management of wildlife habitats on Baxtertown Woods 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 trapping, hunting, and 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 Baxtertown Woods 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. [8]

MANAGEMENT OBJECTIVES

- Create 32 acres of young forest habitat in upland areas for American woodcock and young forest-dependent songbirds.
- Create 3 acres of young wetland forest for American woodcock and willow flycatcher.
- Maintain 55 acres of red maple forested wetland as a core mature forest habitat with a spice bush understory for wood thrush nesting habitat.

Mature wetland forest with a spicebush understory is a common habitat type at Baxtertown woods WMA.

Photo: Nathan Ermer, DEC.

[8] 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.

DESCRIPTION OF EXISTING FOREST HABITAT AND TARGET SPECIES

With the exception of a power line right-of-way that bisects the property, Baxtertown Woods WMA is predominantly a forested landscape—238 acres of the 250 total acres (Figure 3). Of those 238 acres of forest, more than one third is forested wetland (Table 3). The most common hardwood species on the property is red maple, which dominates in basal area in almost every forest stand, including the upland stands. The red maple forested wetlands have a relatively dense understory, comprised mainly of spice bush. All of the forested habitats at Baxtertown Woods are either second or third growth forest stands. The red maple on the property tend to be in the pole timber size class, while the Northern red and white oaks reaching into the saw timber size class in the upland stands. White ash was once very prevalent across much of the landscape. However, most of the white ash on the property are now dead snags as the result of an emerald ash borer invasion that took place over the last ten years.

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

Forest Type	Acres (as of 2015)	Desired Acres	Overstory species
Natural forest (mature/intermediate)	150	118	Red maple, white ash, Northern red oak, white oak, sugar maple, yellow poplar, black locust, Northern red cedar
Forested wetland	88	85	Red maple, white ash, elm sp., Norther pin oak
Young forest	0	32	Red maple, red oak, white oak
Young forest (forested wetland)	0	3	Red maple, Northern pin oak
Total Forested Acres:	238	238	

There are many species that would benefit from forest management at Baxtertown Woods WMA. The creation of 35 acres of young forest habitat alone would benefit a long list of songbirds that occur in the area, but either not at all or to a limited degree on the WMA. Priority species for the creation of young forest at Baxtertown Woods include the brown thrasher, black-billed cuckoo, and blue-winged warbler, all of which require young forest for nesting and foraging. All three species are listed as Species of Greatest Conservation Need (SGCN) in NY that have been declining over the last few decades as forests have matured or habitat has been lost to urban sprawl. Although not an SGCN in NY, the willow flycatcher is another songbird of concern whose populations would benefit from the creation of young forest in the forested wetland at Baxtertown Woods. Improving habitat for these species at Baxtertown Woods may provide birders, including those that use the adjacent Stony Kill Farm with increased public land opportunities. In addition, timber harvest could provide increased opportunities to pursue game species at Baxtertown Woods. The creation of 3 acres of young forest wetland would provide excellent cover and foraging habitat for woodcock as well as food and cover for white-tailed deer. Regarding New England cottontails, even though they are not a species targeted for management at this WMA due to the lack of any documented occurrences, management efforts to create young forest, especially in or near the forested wetlands, should benefit the species if dispersing individuals from nearby populations were to successfully reach the WMA.

The more mature forest stands on the property will provide habitat for songbirds, deer, turkey, a host of small mammal species, forest nesting raptors and any species that require cavities for nesting. Among the songbirds that utilize mature forests in NY, including smaller woodlots in relatively fragmented landscapes, is the wood thrush. The wood thrush is another SGCN in NY and they prefer mature forests with red maple and a spice bush understory. This habitat component is common in the forested wetland at Baxtertown Woods and recent songbird surveys show that wood thrush currently utilize and nest in these forest stands. After management, 85 acres of contiguous, red maple forested wetland will remain intact for now as nesting habitat for wood thrush. New England cottontail populations are also known to inhabit these types of forested wetlands within Dutchess County and would serve them well if colonization were to occur.

Habitat requirements for a few of the species that will benefit from both mature and young forest habitats at Baxtertown Woods WMA are as follows:

- 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.[9]

- Willow flycatcher:
  - Breeding – Shrub/scrub in wet areas.
  - Diet – Insects.
  - Nesting – Nests are built 2-3 feet off the ground in shrubs or ferns, often in willows, dogwood, box elder or bracken fern.
  - Overwintering – Central America in pastures, shrublands and forest edges.

- Black-billed cuckoo:
  - General habitat – Woodland edges and thickets in the Northeast.
  - Breeding – Thickets associated with woodland edges, often adjacent to marshes or in second growth, mixed forests.
  - Nesting – Shrubs or low trees up to 20’ off the ground.
  - Diet – Primarily insects, especially caterpillars. Will also feed on snails and other invertebrates and soft mast.
  - Overwintering – South America.

[9] Sepik, G. F. et al. 1981. A Landowner’s Guide to Woodcock Management in the Northeast, Moosehorn National Wildlife Refuge, USFWS. 25 pp.

- Blue-winged warbler:
  - Breeding – Young forests, shrublands, forest edges associated with old fields and sometimes wetlands.
  - Diet – Insects.
  - Nesting – On or near the ground in forest edges associated with shrublands and young forest.
  - Overwintering – Mexico and Central America.

- Brown thrasher:
  - Nesting – Thickets, hedgerows, forest edges and old fields/young forest in deciduous forests. Sometimes breeds in the understory of open pine forests. Will sometimes utilize shrubs and hedges in suburban neighborhoods. Nests are typically placed 2-7' off the ground in a shrub or low tree.
  - Foraging and diet – Ground feeders that use their long bill to root for insects or even to crack open acorns. Also feeds on berries when available.
  - Overwintering – Southern United States.

- Wood thrush:
  - Breeding – Mature deciduous and mixed forests, typically with red maple, American beech, American hornbeam, oaks, pines and Eastern hemlock in the Northeast. Prefer a somewhat shrubby understory that includes spice bush among other species.
  - Nesting – Mature tree in forests as well as fragmented habitats and even park lands if larger trees are present.
  - Diet – primarily insects but also includes soft mast.
  - Overwintering – Tropics.

Wood thrush commonly nest in mature forest with a spicebush understory as can be found in the forested wetlands at Baxtertown Woods WMA.

Photo: Courtesy of Michael Pogue.

MANAGEMENT HISTORY

Since state acquisition of Baxtertown Woods WMA, there has been no forest management on the property. However, the soils are valuable for farming and much or all of the local uplands, including the area that is now Baxtertown Woods WMA, had been converted to farmland at some point. The existing forests on the property are second, or even more likely, third growth forests. Although no recent forest management has occurred, tree cutting was once common in the area. There was, however, some recent logging activity that had occurred on the adjacent Stony Kill Farm Environmental Education Center in the late 1980s (Figure 1). A shelterwood cut was employed with the intent of regenerating oak species. Oak regeneration at this site was

not successful and the resulting species composition was primarily birch species, American beech, and hop hornbeam. These species may not necessarily be valuable from a timber harvest perspective, but tree species like American beech can be valuable for wildlife. Hard mast like beech nuts provide the necessary nutrition for deer, wild turkeys and a host of small mammal species to survive the winter. Further, the high stem densities associated with young forests provides important cover for wildlife, especially during the timeframe of 3 to 15 years post-harvest.

IMPLEMENTATION PLAN AND ANTICIPATED SCHEDULE

The following management is proposed in order to reach the goal of 35 acres of young forest within ten years:

- **Management planned for 2020-2024** (Table 4, Figure 5):
    - Shelterwood cut 3 acres of red maple forested wetland in Stand 2 to regenerate red maple.
    - Seed tree cut 32 acres of the upland forest in Stands 4 and 5 to regenerate red oak primarily.
    - Maintain 55 acres of mature forested wetland in Stand 3.
- **There is no management planned for 2025-2029.**

Table 4. Forest management schedule for the first five-year period of this HMP (2020-2024).

Stand	Acres	Size Class	Forest Type		Management Direction	Treatment Type
			Current	Future		
2	3	Pole timber	Red maple swamp	Young red maple swamp	Wildlife	Shelterwood cut
4	19	Pole timber	Upland hardwood forest	Young hardwood forest	Wildlife	Seed tree cut
5	13	Saw timber	Upland hardwood forest	Young forest forest	Wildlife	Seed tree cut

Stand locations and planned management actions are also summarized in Figure 5. 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 2:** Stand 2 is an uneven-aged forested wetland stand. Red maple is dominant in all canopy positions, with lesser components of white ash, black cherry, and various other hardwood species in smaller diameter classes. Advanced regeneration of red maple can be found in patches of this stand. Three acres of this stand will be harvested using a shelterwood cut to regenerate red maple. This young forest habitat in moist, wetland soils will provide important foraging habitat and cover for American woodcock in close proximity to large open areas on the adjacent Stony Kill property that likely already serve as peenting/breeding habitat.
- **Stand 3:** This stand makes up the majority of the forested wetland acreage (56 acres) on the property. The stand is an uneven-aged and comprised almost exclusively of two tree

species; red maple and white ash in the pole to sawtimber size classes. Red maple is dominant in all canopy positions, with scattered white ash in a co-dominant canopy position. Spicebush occupies the understory and there is little to no advanced tree regeneration, though red maple and white ash seedlings are sparsely distributed. This stand will be maintained as a core mature forest patch to provide habitat for both wood thrush and American woodcock. Both species likely nest and forage in this habitat already. The mature forest in this stand, combined with the young forest to be created on adjacent stands and the nearby open areas of Stony Kill will provide an ideal habitat matrix for woodcock and other species.

- **Stand 4:** Stand 4 is an even-aged upland stand. Red maple and red oak are dominant in the canopy of this stand, with red maple and white ash in the intermediate and suppressed canopy positions. Regeneration levels in this stand are low, and multiflora rose is prevalent as an understory species. Approximately 17 acres of this stand will be harvested using a seed tree cut to regenerate the red oak in the stand. If red oak regeneration fails, it is likely that the red maple would regenerate well, especially through stump sprouting. Although mature oaks are a more valuable wildlife species due to their acorn production, stands of regenerating red maple provide important cover to young forest species. Young red maples are also an important browse component for several species of wildlife, including deer and rabbits.
- **Stand 5:** Stand 5 is another even-aged upland forest stand with red maple, red oak, and white oak in the canopy. However, red oak is by far the dominant species in the upper canopy. Intermediate and suppressed canopy positions have generally fewer red oaks present and are comprised mainly of sugar maple and hickories. There is little to no regeneration noted on this site. This upland stand will also be harvested using a seed tree treatment with the hopes of regenerating the red oak in the stand. As with Stand 4, the desire is to regenerate oak species, but red maple regeneration is an acceptable outcome and expected, especially as the result of stump sprouting. Although red maple does not provide the benefit of hard mast production like the oaks, it can be especially beneficial in the sapling/young forest stage by providing important browse and cover for wildlife species.

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 5).

Table 5. Best Management Practices for forest management on WMAs.

Resource	**Guidance Document** [10]
Soils	*Rutting Guidelines for Timber Harvesting on Wildlife Management Areas*
Water quality	*NYS Forestry Best Management Practices for Water Quality*
Wildlife	*Retention Guidance on Wildlife Management Areas*
Plantations	*Plantation Management Guidance on Wildlife Management Areas*

[10] All guidance documents referenced here are available online at http://www.dec.ny.gov/outdoor/104218.html.

Wildlife Considerations:

Indiana bats are a State and Federally listed endangered species that likely occur on Baxtertown Woods WMA during summer months. A maternity colony of Indiana bats was documented less than one half mile from the property. Indiana bats have not been documented roosting at Baxtertown Woods, although it is very likely that they do. Northern long-eared bats, a State and Federally threatened species, are also likely to occur at Baxtertown Woods with a hibernaculum documented within 10 miles. Bat acoustic/vocalization surveys will be employed to determine whether these bats are using the forested habitats on the property. Regardless of the outcome of the surveys, tree cutting will be restricted to winter months so as not to disturb bats that may be using roosts on the property during their active periods from spring to fall. Further, the limited amount of tree clearing to be conducted on the property should not negatively impact local bat populations since it is believed that summer roosting habitat is not a limiting factor for their populations. Further, the proposed young forest habitat will provide excellent feeding opportunities during for both species.

Efforts will be also be made to avoid impacts on forest nesting raptors, including but not limited to red-shouldered hawks, Cooper's hawks, and sharp-shinned hawks. DEC staff will conduct forest nesting raptor surveys during the spring just prior to any planned timber harvests to document nesting territories and possibly nest locations so that those area can be avoided during timber harvest operations. Since tree cutting will occur during winter months only, nests will not be disturbed while active if they are present.

Forest Health Considerations:

The most significant forest pest on Baxtertown Woods WMA is the Emerald Ash Borer (EAB). Approximately 90% of the mature ash on the WMA are dead as the result of an EAB infestation that began around 2012. Oak wilt is another forest pest that is now of great concern in New York State. Oak wilt is a fungus that can kill oak trees and red oaks seem to be most susceptible. This pest has the potential to drastically change the composition of the forest stands on this property as oak is a dominant species in the upland forest stands. It was first discovered in NY in 2008 but has yet to be documented at Baxtertown Woods. However, the property will be monitored for this forest pest and appropriate actions will be taken to prevent spread if found. The closest infestation to Baxtertown Woods WMA was in Brooklyn, NY in 2018.

White-tailed deer will likely provide the greatest impediment to successful regeneration on this property following any timber harvest activities. Red maple and red oak are two of their most preferred browse species at the seedling and sapling stages. Although red maple is fairly resilient in its response to being browsed, oak species often become stunted by deer browsing and eventually die. Because red maple and oak species are so highly preferred by white-tailed deer, small timber harvests such as the 35-acre cut planned for Baxtertown Woods have the potential to be greatly impacted, increasing the likelihood that less preferred plant species could become established. The vegetation response after timber harvest activities will be monitored to determine the impacts of deer on the desired hardwood regeneration.

Pre- and Post-treatment Considerations:

It is not anticipated that any measures to be taken to control invasive plant species on the property. Red maple responds very well to forest management, even on a small scale, and will likely stump sprout vigorously to provide ample hardwood regeneration. Oak regeneration and native shrub species could be hindered by non-native, invasives such as Japanese barberry and multiflora rose. If it is determined that these or other invasives are prohibiting the establishment of native vegetation, efforts can be made to attempt to control them. The most feasible approaches to controlling invasive plants on Baxtertown Woods WMA would be either mechanical pulling or chemical treatment. Pre- and post-treatment actions to promote the desired forest regeneration will be addressed in detail in the silvicultural prescriptions.

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

MANAGEMENT EVALUATION

In order to determine whether the desired forest regeneration and wildlife response(s) have been achieved by the management outlined above, pre- and post-management assessments will be conducted in accord with guidelines that will be established in a Young Forest Initiative Monitoring Plan. 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.

Wildlife target species selected for Baxtertown Woods WMA, which may be assessed to determine response to management, include:

- Wood thrush, black-billed cuckoo, blue-winged warbler and other songbirds that utilize early successional habitats
- American woodcock
- White-tailed deer

Point counts will be utilized to determine the response of songbirds to implemented forest management practices. Point counts will be conducted in the spring, late enough to decipher presence as breeding individuals versus temporary residents during migration. Surveys points will encompass forest habitats of all age classes from young to mature. White-tailed deer surveys would be conducted mainly to document impacts on regeneration. Peenting/singing surveys will be conducted throughout the property for American woodcock during the early breeding period in the spring. Wildlife surveys will be conducted at least one season prior to and post-management. Some wildlife surveys may use a more focused/stratified approach incorporating only what is considered preferred habitat for a species, while others may incorporate a more inclusive approach with a variety of forested conditions, including both treated and non-treated stands.

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. Currently, there is no shrubland habitat nor any plans to create such habitat at Baxtertown Woods WMA.

GRASSLAND AND OTHER OPEN SPACE

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. Grasslands may include areas where hay is harvested by late season mowing once per year. Although there is no grassland habitat on Baxtertown Woods WMA, there is open field habitat provided exclusively by a maintained powerline right-of-way (ROW) that runs through the property. The ROW is approximately 12 acres in total, but more than half (8 acres) are wetland, leaving 4 acres of open field/non-wetland habitat in the ROW and on the property as a whole. Due to the size and proximity of the open field and wetland (non-forested) habitats at Baxtertown woods, both within the ROW and differentiated only by site specific soil hydrology and some variation in plant species composition, they essentially function as one contiguous habitat utilized in its entirety by those species found within.

MANAGEMENT OBJECTIVES

- Continue the maintenance of the 4 acres of open field habitat within the powerline ROW under an agreement with CHG&E in a way that provides the maximum benefit to wildlife while also meeting the needs of CHG&E for ROW maintenance.

DESCRIPTION OF EXISTING OPEN FIELD HABITAT AND TARGET SPECIES

As described in the wetland section, the ROW is managed by Central Hudson Gas & Electric (CHG&E) and mowing and tree removal are done "as needed". The current maintenance schedule provides enough time between mowings to allow for excellent herbaceous plant development, as well as some modest shrub and tree sapling development that mimics the early stages of old field development. These open areas, as with the wetland sections of the ROW, are important feeding areas for insect eating birds. But again, the minimal shrub development in the ROW provides limited nesting opportunities as a whole for songbirds. Songbird species composition within the non-wetland and wetland portions of the powerline ROW are the same and those species utilize the entirety of the habitat due to the size and distribution of those areas within the ROW.

IMPLEMENTATION PLAN AND ANTICIPATED SCHEDULE

The open field acreage, as with the wetland acreage associated with the CHG&E ROW will continue to be mowed and maintained by CHG&E. Maintenance of both habitats with the ROW will also continue to occur as one habitat type with considerations for mowing alternatives such as longer periods between mowings and rotational mowing that would allow for some more advanced shrub development in the entire ROW to benefit songbirds.

The following management is proposed for Baxtertown Woods' open field habitat within ten years:

- **Management planned for 2020-2029** (Table 4, Figure 5):
    - Ensure the continued maintenance of the 4 acres of open field habitat in the powerline ROW with mowing "as needed" to provide some level of woody and herbaceous vegetation development for wildlife.
    - Work with Central Hudson to extend the periods between mowings and undertake rotational mowing for 4 acres of open field habitat in the ROW.

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. Currently, there is no agricultural land associated with Baxtertown Woods WMA nor are there any plans to create food plots or introduce any agricultural practices or crops to the property.

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

- Continue the maintenance of the 8 acres of wetland habitat within the powerline ROW under an agreement with CHG&E in a way that provides the maximum benefit to wildlife while also meeting the needs of CHG&E for ROW maintenance.

DESCRIPTION OF EXISTING WETLAND HABITAT AND TARGET SPECIES

There is approximately 102 acres of wetland (state regulated or otherwise) at Baxtertown Woods WMA. However, only 8 acres are non-forested wetland (see the Forest habitat section for a description of the forested wetlands and planned management). Those 8 acres of non-forested wetland are associated with a powerline right-of-way (ROW) that runs through the middle of the property (Figure 5). The ROW has historically and will continue to be managed by Central Hudson Gas & Electric (CHG&E). Vegetation maintenance within this ROW occurs on an as-needed basis, and currently the habitat within the wetland sections is a combination of wetland shrubs and herbaceous vegetation. There is some Phragmites established in some of the wetter sections of the ROW as well. Shrub development is fairly limited in the ROW, as are tree saplings, due to the current mowing regime. Overall, the current wetland habitat provides limited opportunities for songbird nesting but good feeding opportunities for insect-eating birds.

Species recently documented using the ROW include, but are not limited to common yellowthroat, yellow-billed cuckoo, indigo bunting, American goldfinch, and cedar waxwing. Efforts to maintain the existing mowing regime will continue to benefit these species, but this should not exclude the possibility of working with CHG&E to consider alternative mowing regimes that would be even more beneficial to the current suite of songbird species currently utilizing the ROW. Improving the habitat might also increase the likelihood that species like the black-billed cuckoo and blue-winged warbler will begin using the WMA since there have been observations of those species in similar habitats nearby.

Floret in the wetland habitat at Baxtertown Woods WMA.

Photo: Nathan Ermer, DEC.

Within the non-forested wetland habitat acreage at Baxtertown, there is one small, 0.5-acre pool (seen in photo) located on the north end of the ROW in a habitat best described as a wet meadow. Some limited shrub development around the pool provides nesting opportunities for yellow warblers and other songbirds. Small, still waterbodies such as this one also serve as breeding pools for a variety of reptile and amphibian species. In addition, some turtle species will spend a great deal of time outside of these pools in wet meadows like the habitat surrounding this pool within the CHG&E ROW. These wet meadows can serve as both feeding and nesting habitat as they are typically rich with invertebrates and have sandy soils that turtles will burrow into to lay their eggs.

Protection of the small pool in the ROW at Baxtertown will be a priority, as well as the protection of the wet meadow habitat surrounding it. For example, mowing of the ROW should take place outside of the nesting period that runs from May through July. Further efforts could be made to improve the habitat surrounding the pool by providing snags or logs for basking and cover and removing any encroaching hardwood regeneration to prevent habitat succession and consequential changes to the hydrology.

The wetlands at Baxtertown Woods WMA could provide habitat for species such as:

- Great blue heron, green heron
- Black-billed cuckoo, blue-winged warbler, common yellowthroat, yellow warbler, indigo bunting
- Spotted turtle, spotted salamander, red-spotted newt
- Raccoon, southern bog lemming

IMPLEMENTATION PLAN AND ANTICIPATED SCHEDULE

The open habitats associated with the CHG&E ROW will continue to be mowed and maintained by CHG&E. Although vegetation maintenance of the powerline ROW is essential for CHG&E operations, it does not preclude the possibility of applying alternate management routines that would improve the quality of habitat for early successional wildlife species. At minimum we would want to maintain the current mowing regime since this as-needed approach already allows for some level of shrub and woody stem development between mowings. If CHG&E were amenable, extending the time between mowing to allow some more advanced shrub development in the wetland areas of the powerline could both benefit wildlife species as well as contributing to more stable soils that could minimizing the impacts of mowing equipment. Consideration should also be given to concepts like rotational mowing so that only a portion of the ROW acreage gets mowed in any given year to ensure that quality habitat for wildlife is always available.

The following management is proposed for Baxtertown Woods' wetland habitat within ten years:

- **Management planned for 2020-2029** (Table 4, Figure 5):
    - Work with Central Hudson to ensure the continued maintenance of the 8 acres of wetland habitat in the powerline ROW with mowing "as needed" to provide some level of woody and herbaceous vegetation development for wildlife.
    - Explore the possibility of extending periods between mowings and/or rotational mowing for 8 acres of wetland habitat in the ROW.
    - Enhance basking opportunities by providing logs, laydowns or other natural structures.
    - Remove encroaching woody vegetation in the wet meadow habitat surrounding the small pool in the ROW.

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). There is no open water habitat nor any plans to create such habitat on Baxtertown Woods WMA.

HABITAT MANAGEMENT SUMMARY

In summary, Table 6 lists the habitat management actions planned for Baxtertown Woods WMA over the next ten years. Any substantive changes will be appended to this HMP annually or as needed (Appendix D).

Table 6. Summary of habitat management actions recommended for Baxtertown Woods WMA, 2016-2025. (Also see Figures 2 and 5.)

Habitat	Management Action	Acres	Timeframe
Forested wetland	Shelterwood cut red maple in Stand 2.	3	2020-2024
Forested wetland	Maintain mature forested wetland Stand 3.	55	2020-2029
Forest	Seed tree cut upland hardwood Stands 4 and 5.	32	2020-2024
Grassland and Other Open Space	At minimum, maintain existing mowing schedule in the open field habitat created by the CHG&E Powerline ROW. Consider altering that schedule only if it improves the existing habitat conditions in the ROW to further benefit wildlife. Consider extending the time periods between mowings and even rotational mowing.	4	2020-2029
Wetland	Minimize woody vegetation encroachment in wet meadow habitat surrounding small pool at north end of ROW.	2	2020-2029
Wetland	Provide basking structures for spotted turtles around small pool at north end or ROW.	0.5	2020-2024
Wetland	At minimum, maintain existing mowing schedule in the wetland habitat in the CHG&E Powerline ROW. Consider altering that schedule only if it improves the existing habitat conditions in the ROW to further benefit wildlife. Consider extending the time periods between mowings and even rotational mowing.	8	2020-2029

III. FIGURES

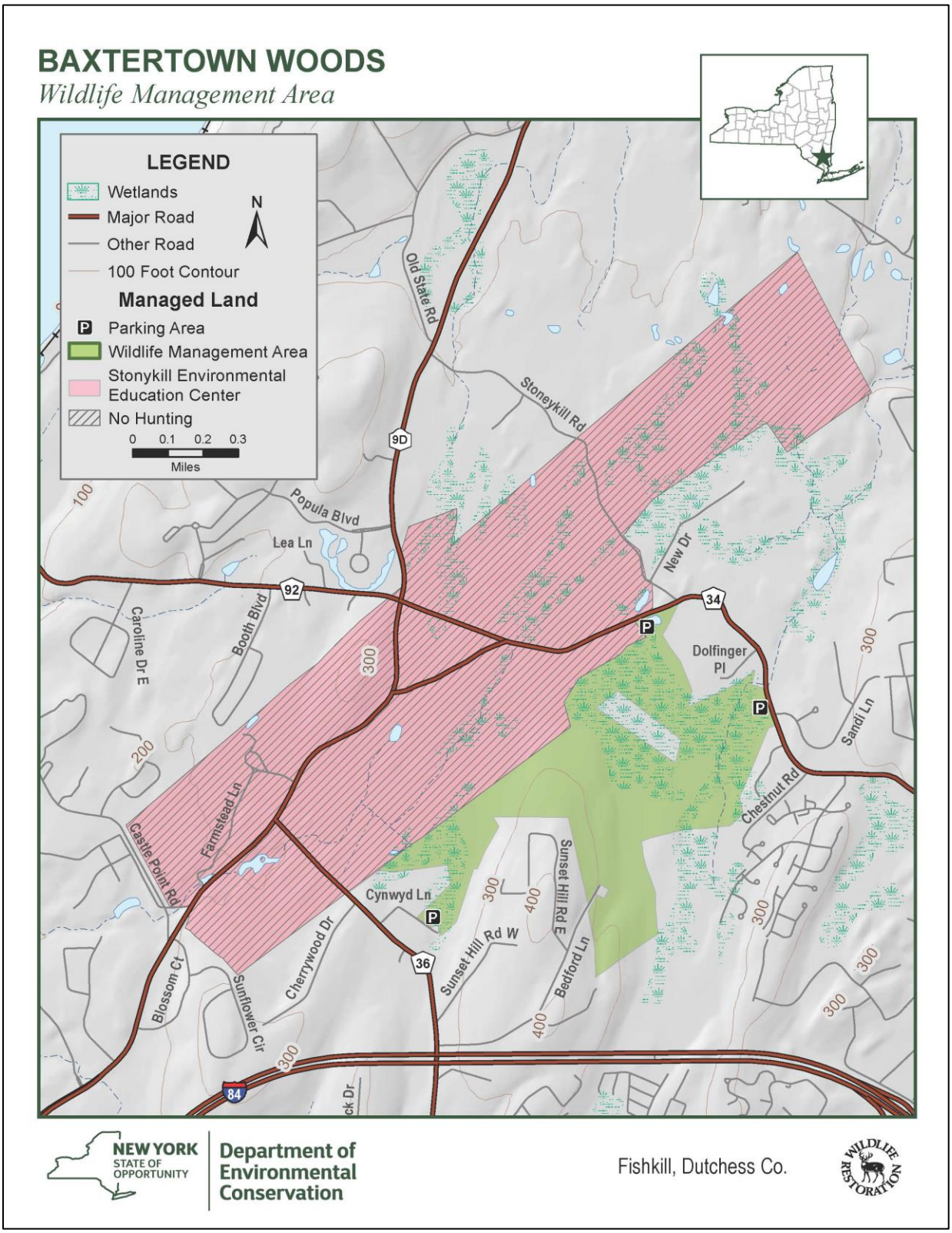

FIGURE 1. Location and access features at Baxtertown Woods WMA.

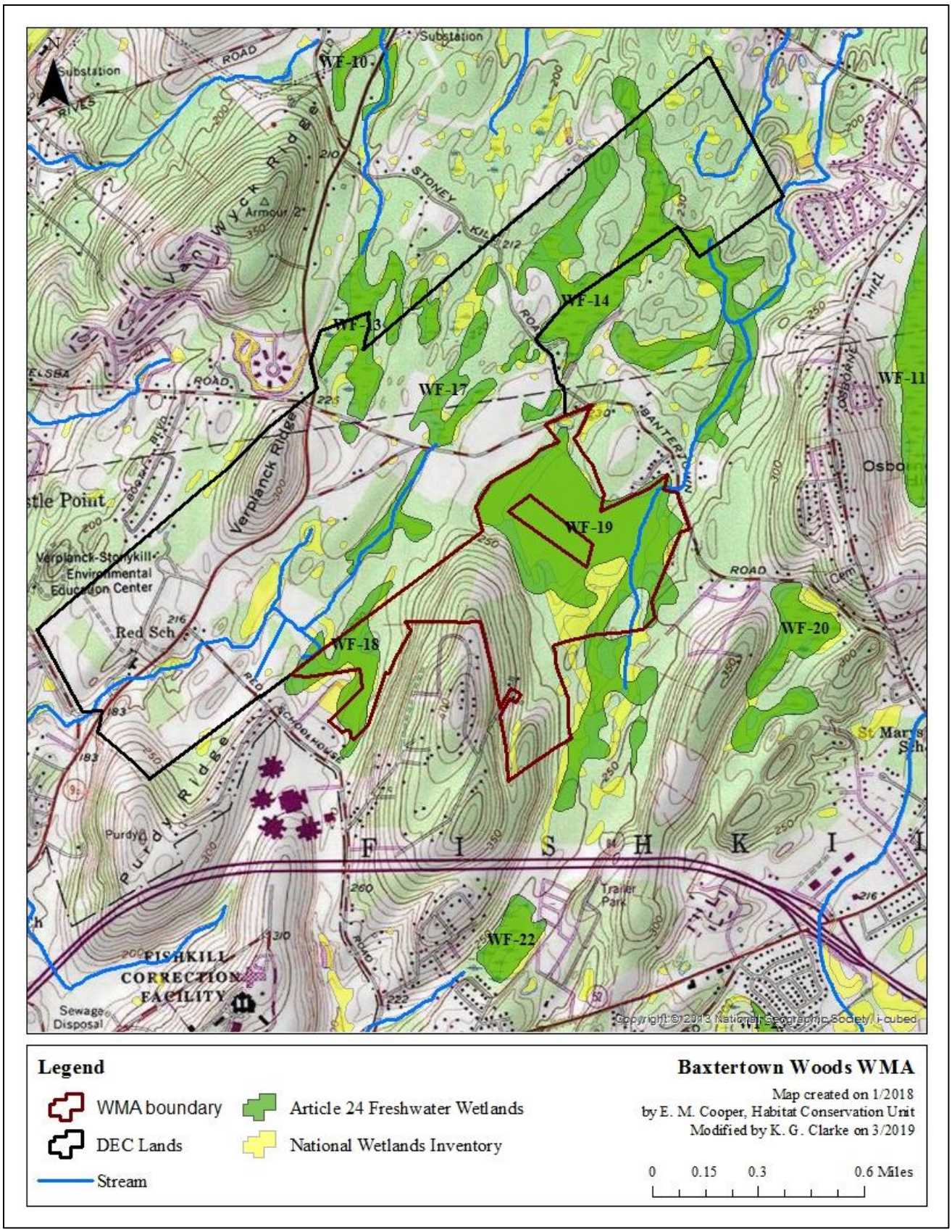

FIGURE 2. Wetlands, open water, and streams of Baxtertown Woods WMA. Note: Wetland boundaries are not exact and may not be used for regulatory purposes without a current delineation.

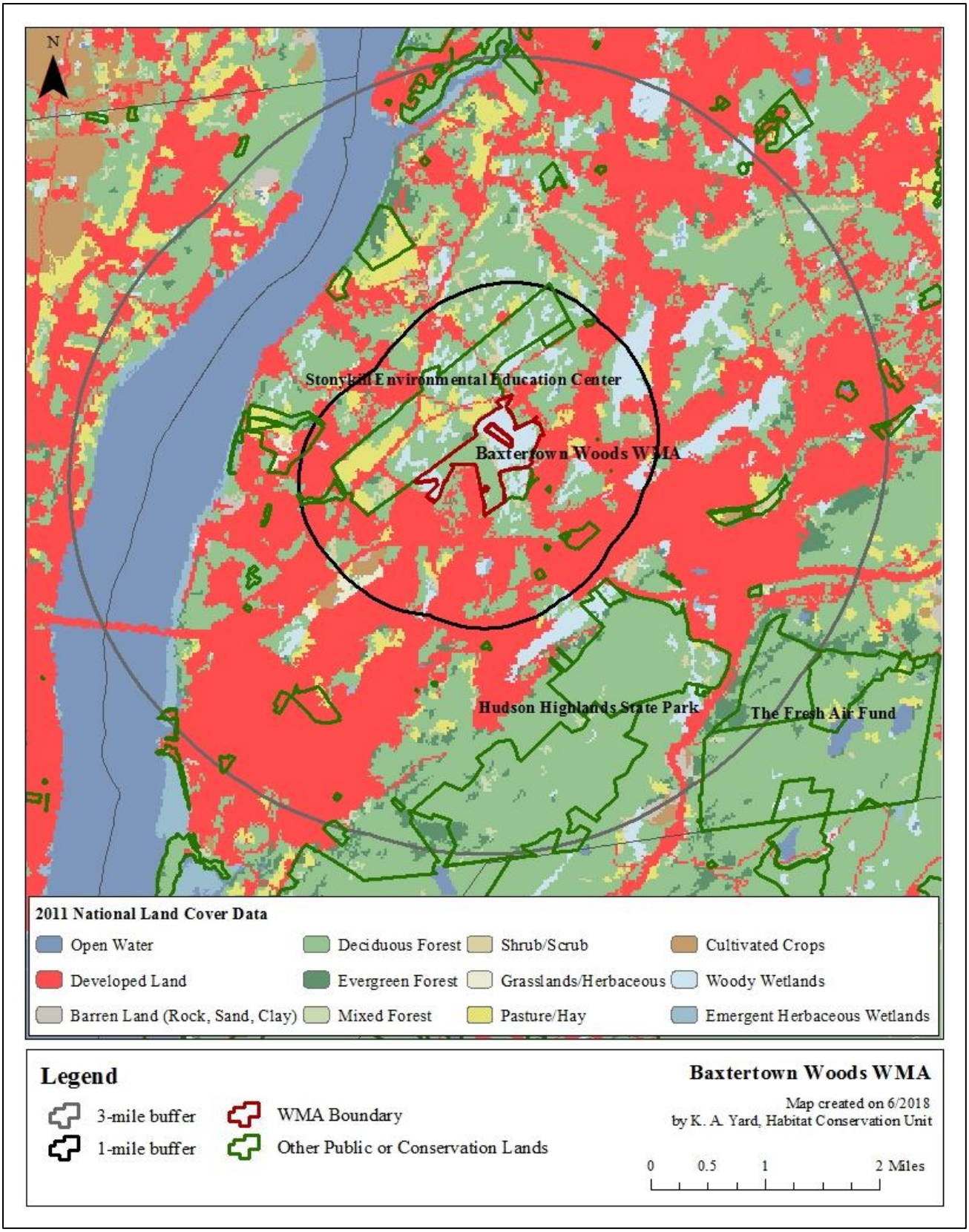

FIGURE 3. Land cover types and conservation lands in the landscape surrounding Baxtertown Woods WMA. Conservation lands are from the NY Protected Areas Database available online at http://www.nypad.org/. Land cover types are from the 2011 National Land Cover Data (NLCD) and differ from the habitat types 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.

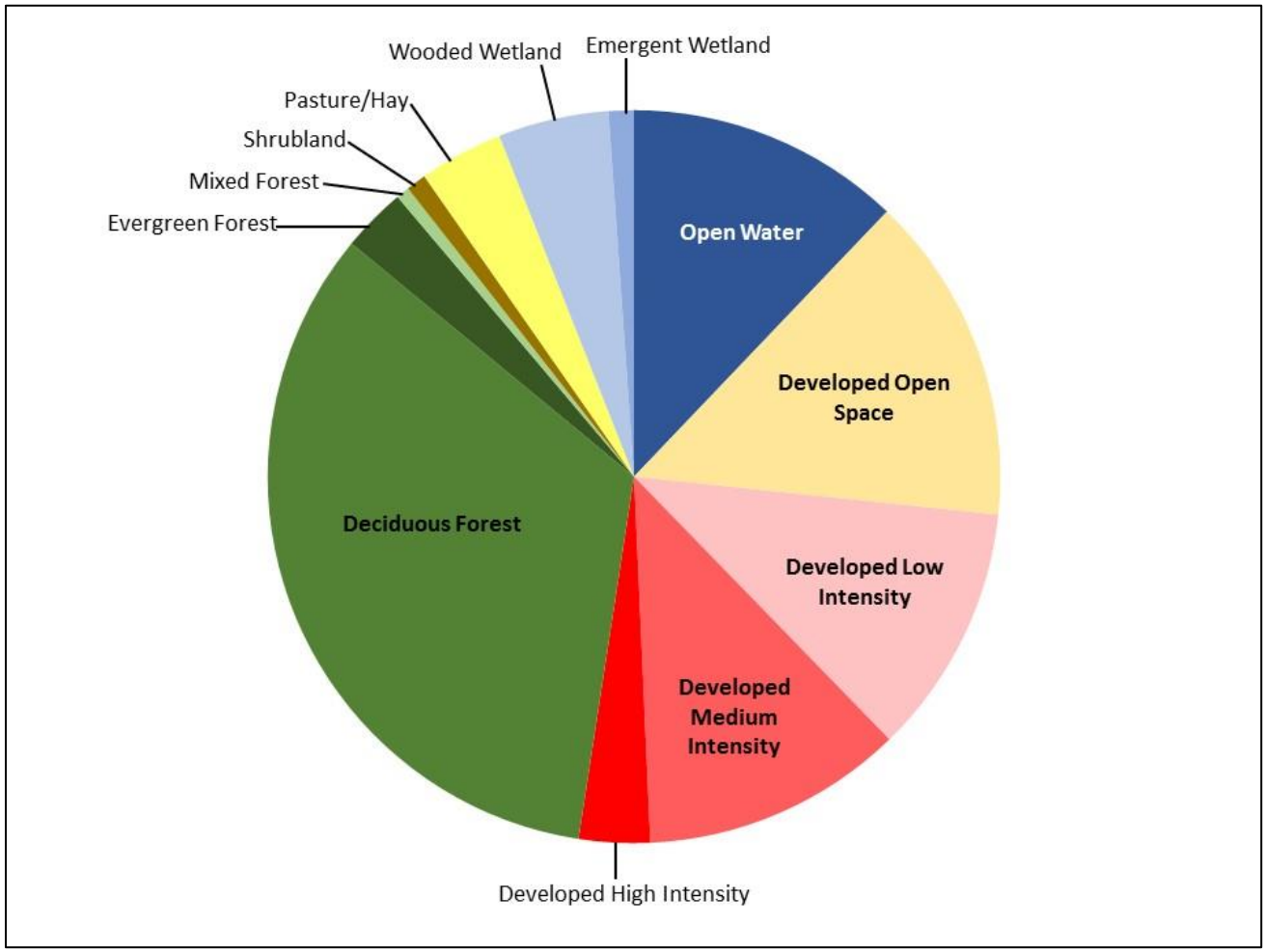

FIGURE 4. Percent cover of land cover types within three miles of Baxtertown Woods WMA.
Land cover types are from the 2011 National Land Cover Data (NLCD) and differ from the habitat types used in the WMA habitat inventory. NLCD definitions are available online at https://www.mrlc.gov/data/legends/national-land-cover-database-2011-nlcd2011-legend.

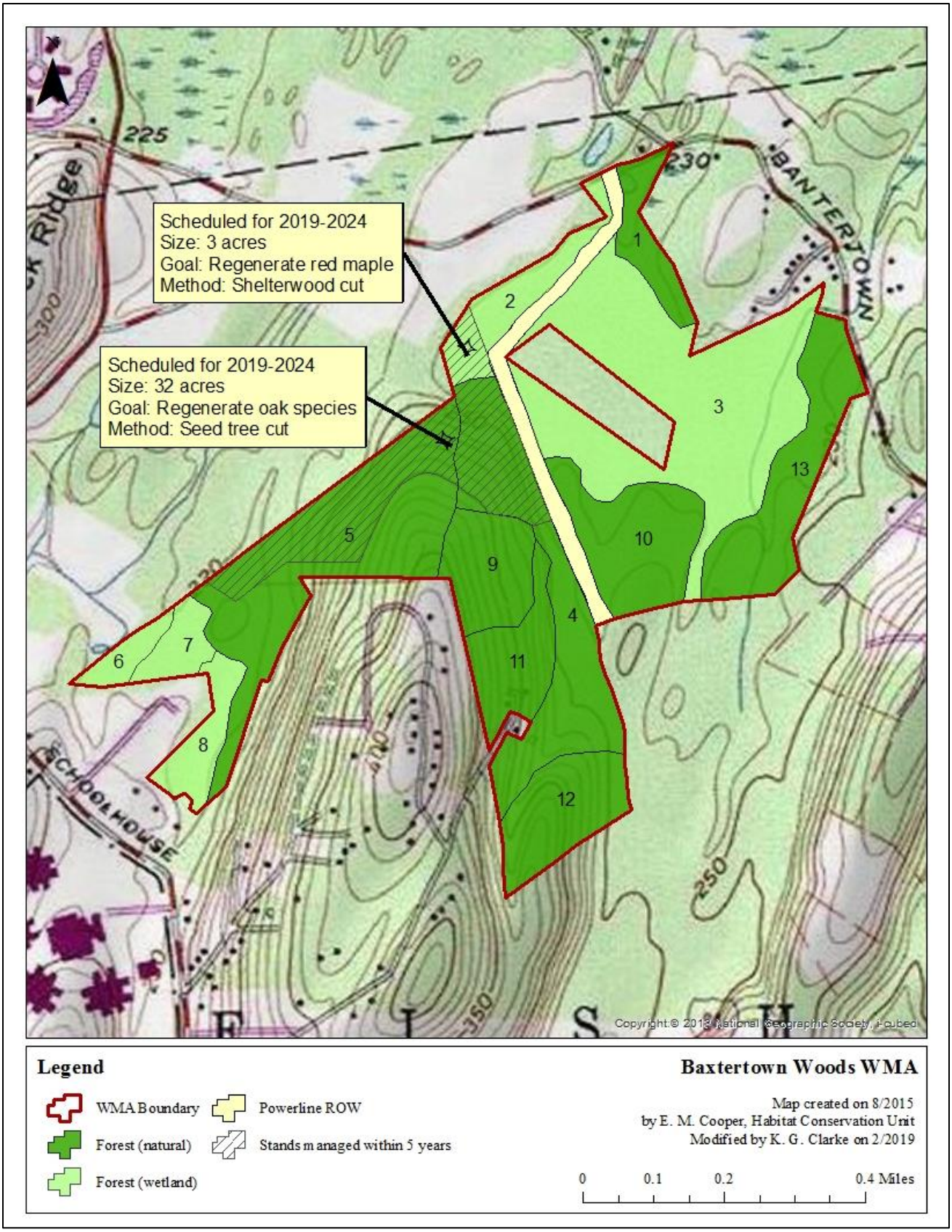

FIGURE 5. Habitat types and location(s) of proposed management on Baxtertown Woods WMA. Numbers indicate the stand number from habitat inventory.

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: 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 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 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).[11] 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).[12]

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.

[11] Available online at http://www.dec.ny.gov/regulations/28693.html.
[12] Available online at http://www.dec.ny.gov/enb/enb.html.

APPENDIX C: FOREST MANAGEMENT PRESCRIPTIONS

PRESCRIPTION FOR WILDLIFE MANAGEMENT AREA TIMBER HARVEST

Region: **Wildlife Management Area:** **Stand number:** **Stand acreage:**

Species composition:

Basal area: **Trees per acre:** **Mean stand diameter:**

Stand inventory or analysis date:

Regeneration data:

Natural Heritage Element Occurrence layer review:

SMZ layer review:

Retention data:

Soil types and drainage:

Interfering vegetation:

Acres to be treated: **Target basal area:**

Technical guidance/stocking guide:

Treatment purpose:

Management Objective: Even aged or Uneven Aged

-If even aged, specify treatment (i.e. shelterwood, seed tree, clearcut)

Clearcut acreage and configuration: (if applicable)

Natural Heritage /MHDB considerations and mitigation: (if applicable)

Retention considerations and adjustments:

Treatment descriptions:

Name and Title of Preparer:

Central Office Lands and Forests Staff **Date**

Regional Wildlife Manager **Date**

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.