Habitat Management Plan
for
Honeoye Inlet Wildlife Management Area
2020 - 2029


Photo: Mike Palermo

Division of Fish and Wildlife
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SUMMARY

Honeoye Inlet Wildlife Management Area (WMA) is located in Ontario and Livingston Counties, directly south of Honeoye Lake, and consists of 1,977 acres. The property was acquired in 2003 to protect the large block of undeveloped land and manage it for wildlife habitat and wildlife-dependent recreation.

Most of the WMA is situated on the valley bottom around Honeoye Inlet, which flows from south to north. Sections of the WMA also extend up onto the hillsides to the east and west. Prior to State ownership, much of the property was cleared and used for agriculture and most of the upland forest was logged.

The north end of the WMA contains one of the largest silver maple-ash swamps in western New York and includes 1,200 feet of lake shore. The southern half of the WMA includes several large fields that provide valuable diversity to the mostly forested surrounding landscape. In recent years, multiple patches of alder thicket have established in wetter parts of these fields and provide valuable shrubland habitat. Upland forests of the WMA are mostly located on the hills surrounding the valley and are primarily an Appalachian oak-hickory type.

Habitat management since state acquisition has mostly focused on maintaining fields as open habitat through routine mowing. In 2016, a project rerouted a segment of the Honeoye Inlet's channel to restore natural hydrology that was degraded from past ditching and straightening. This project reconnected the Honeoye Inlet to its floodplain and enhanced adjacent wetland and aquatic habitats.

This plan elaborates upon habitat objectives described in the Northern Finger Lakes Unit Management Plan (UMP).[1] Honeoye Inlet WMA is primarily managed to provide a diversity of wetland and upland habitats, and also affords multiple recreational opportunities including hunting, trapping, fishing, and bird watching.

Habitat management goals for Honeoye Inlet WMA include:

- Maintaining the majority of forest cover, including forested wetlands, in an intermediate or mature age-class to provide a diversity of forest habitats (69% of WMA);
- Increasing the young forest component to promote ruffed grouse, wild turkey, and other young forest wildlife (5% of WMA, 7% of forested acreage);
- Managing grasslands to benefit grassland-dependent birds, such as bobolink and meadowlark, and popular game species, such as deer and turkey (15% of WMA);
- Increasing the acreage of shrublands to benefit associated species, such as American woodcock and eastern cottontail (3% of WMA);
- Maintaining and enhancing the habitat value of natural and impounded wetlands to benefit associated wildlife (3% of WMA);
- Maintaining the water quality of Honeoye Inlet and its tributaries (2% of WMA); and
- Maintaining access features (3% of WMA).

[1] Information about the Northern Finger Lakes UMP is available at https://www.dec.ny.gov/lands/99999.html.

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, considering juxtaposition of all habitat types to guide the conservation and management of popular game species and 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.

The draft Northern Finger Lakes UMP was completed and submitted for approval to the DEC Central Office in early 2018. As of the writing of this HMP, approval is still pending. A public comment period and public meeting were included in the drafting process. The UMP addresses habitat objectives detailed in this HMP, as well as management provisions for facilitating compatible wildlife-dependent recreation, access, and facility development and maintenance.

The effects of climate change and the need to facilitate habitat adaptability and resilience under projected future conditions will be incorporated into the habitat management planning process and will be considered in any actions that are recommended in HMPs. Changing conditions that may affect habitat composition include warmer temperatures, milder winters, longer growing seasons, increased pressure from invasive species, more frequent intense storms, and moisture stress. It is also important to consider landscape level effects to maintain the connectedness of habitats to allow range adjustments of both plant and animal species.

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. Definitions are provided in Appendix A.

WMA Overview

Location

Honeoye Inlet WMA is in DEC Region 8, Towns of Canadice, Richmond, Naples, and South Bristol in Ontario County, and Town of Springwater in Livingston County (Figure 1 & Image 1).

Total Area

1,977 acres

Habitat Inventory

A habitat inventory of the WMA was conducted in 2014 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.

Approximately 800 acres may be acquired and added to this WMA in the near future. At that time, these additional acres will be inventoried and the HMP will be amended.

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).

Image 1: Location of Honeoye Inlet WMA.

Table 1. Summary of current and desired habitat acreage on Honeoye Inlet WMA.

Habitat Type	Current Conditions (as of 2014)			Desired Conditions	
	Acres	Percent of WMA	Miles	Acres	Percent of WMA
Forest [a]	1,450	73%		1,361	69%
Young forest	19	1%		109	5%
Shrubland	48	2%		61	3%
Grassland	320	16%		306	15%
Agricultural land	0	0%		0	0%
Wetland (impounded)	11	1%		11	1%
Wetland (natural)	40	2%		40	2%
Streams	38	2%	9.5	38	2%
Roads and parking	51	3%	13	51	3%
Total Acres:	1,977	100		1,977	

[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.

ECOLOGICAL RESOURCES

Fish and Wildlife Overview:

Honeoye Inlet WMA contains a diversity of wetland and upland habitats, and most of the WMA is part of an Audubon Important Bird Area (also includes Hemlock and Canadice Lakes and the surrounding forest).[2] The diverse habitat conditions here also sustain numerous non-avian species, including a variety of mammals, amphibians, reptiles, and invertebrates. Several rare or at-risk species are present, and popular small and big game species are quite abundant.

Species diversity and abundance on the WMA varies throughout the year, being largely influenced by seasonal migrations. Common or notable species occurring here include:

- Small and big game (e.g., American woodcock, black bear, cottontail rabbit, gray and red squirrels, ruffed grouse, white-tailed deer, wild turkey)
- Furbearers (e.g., bobcat, coyote, gray and red foxes, fisher, long and short-tailed weasels, mink, opossum, otter, raccoon, skunk)
- Small mammals (e.g., deer mouse, white-footed mouse, big brown bat, eastern red bat)
- Songbirds (e.g., bobolink, hooded warbler, ovenbird, scarlet tanager, song and swamp sparrows, red-eyed vireo, red-winged blackbird, tree swallow, wood thrush)
- Raptors (e.g., red-tailed hawk, northern harrier, barred owl, eastern screech owl)
- Waterfowl (e.g., Canada goose, hooded merganser, mallard, wood duck)
- Amphibians and reptiles (e.g., common garter snake, milk snake, red-backed salamander, spotted salamander, green frog, spring peeper, painted turtle, snapping turtle)
- Fish (e.g., brown trout, brook trout, rainbow trout, black crappie, bluegill, largemouth bass, pumpinkseed, walleye)

[2] Information about Audubon Important Bird Areas is available at http://www.audubon.org/important-bird-areas.

Wildlife and Plant Species of Conservation Concern:

There are no federally listed Endangered or Threatened species known to occur on the WMA. The following state listed Endangered (E), Threatened (T), or Special Concern (SC) species and/or Species of Greatest Conservation Need (SGCN) may occur on the WMA (Table 2). [3] Species listed below have been documented on or within the vicinity of the WMA and are likely to occur in suitable habitat on the WMA. Other species of conservation concern may also be present. Data sources include: the NY Natural Heritage Program, NY Breeding Bird Atlases,[4] NY Reptile and Amphibian Atlas,[5] DEC wildlife surveys and monitoring, eBird,[6] and the Finger Lakes Community College biodiversity study of the southern Honeoye Valley.

Table 2. Species of conservation concern that may be present on Honeoye Inlet 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 [a]	Federal Status	NY Status	NY SGCN Status
Birds	American bittern		SC	x
	American black duck			HP
	American kestrel			x
	American woodcock			x
	Bald eagle		T	x
	Black-billed cuckoo			x
	Black-throated blue warbler			x
	Blue-winged teal			x
	Blue-winged warbler			x
	Bobolink			HP
	Brown thrasher			HP
	Canada warbler			HP
	Cerulean warbler		SC	x
	Cooper's hawk		SC	
	Eastern meadowlark			HP
	Golden-winged warbler		SC	HP
	Grasshopper sparrow		SC	HP
	Great egret			x
	Horned lark		SC	HP
	Louisiana waterthrush			x
	Northern goshawk		SC	x
	Northern harrier		T	x
	Osprey		SC	
	Prothonotary warbler			HP
	Red-headed woodpecker		SC	HP
	Red-shouldered hawk		SC	x
	Ruffed grouse			x

[3] 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.
[4] Available online at http://www.dec.ny.gov/animals/7312.html.
[5] Available online at http://www.dec.ny.gov/animals/7140.html.
[6] Available online at http://ebird.org/content/ebird/about/. © Audubon and Cornell Lab of Ornithology.

Table 2. Continued

Species Group	Species	Federal Status	NY Status	NY SGCN
	Rusty blackbird			HP
	Scarlet tanager			x
	Sedge wren		T	HP
	Semipalmated sandpiper			HP
	Sharp-shinned hawk		SC	
	Wood thrush			x
Mammals	Eastern red bat			x
Amphibians and reptiles	Black rat snake			x
	Blue-spotted salamander		SC	HP
	Eastern ribbon snake			x
	Four-toed salamander			HP
	Jefferson salamander		SC	
	Northern black racer			x
	Northern coal skink			x
	Smooth green snake			x
	Snapping turtle			x
	Eastern spiny softshell		SC	HP
	Timber rattlesnake [b]		T	HP
	Western chorus frog			x
Fish	Brook trout			x
Invertebrates	None known to occur			
Plants	Green gentian		T	
	Northern wild comfrey		E	

[a] Some species were omitted from this listing because they are particularly subject to collection and disturbance.
[b] This species was last observed near the WMA in the early 1980s and the den is considered likely extirpated.

Significant Ecological Communities:

There are two significant natural communities located on Honeoye Inlet 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; community description is from *Ecological Communities of New York State, Second Edition* [7] (Figure 2):

- **Appalachian oak-hickory forest** (S4) - a hardwood forest that occurs on well-drained sites, usually on ridgetops, upper slopes, or south and west facing slopes. The soils are usually loams or sandy loams. This is a broadly defined forest community with several regional and edaphic variants.

[7] 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. Available online at https://www.dec.ny.gov/animals/29384.html.

- **Silver maple-ash swamp** (S3) - a hardwood basin swamp that typically occurs in poorly drained depressions or along the border of large lakes, and less frequently in poorly drained soils along rivers. These sites are characterized by uniformly wet conditions with minimal seasonal fluctuations in water levels.

Soils and Topography:

Most of the soils on Honeoye Inlet WMA are of the following soil associations:

- Palms-Edwards-Carlisle (42%)
- Volusia-Mardin-Lordstown (42%)
- Valois-Howard-Bath (16%)

The Palms-Edwards-Carlisle association is muck soil mostly present within the expansive wetlands on the northern half of the WMA. The Volusia-Mardin-Lordstown association is a silt loam mostly located on hilltop and steep slope terrain of the WMA. The Valois-Howard-Bath association is generally a gravelly loam and occurs in the fields at the southern half of the WMA.

According to the National Soil Survey, most of the soils on the WMA are classified as not prime farmland (80%), while 1% are prime farmland if drained, 8% are prime farmland, and 11% are farmland of statewide importance.[8] These classifications describe the suitability of soils for farmland, not the current land use or cover (there are currently no agricultural lands on the WMA). Approximately 55% of the WMA contains soils that are considered poorly drained. Most of these poorly drained soils are in wetlands; however, some occur in fields or upland forest stands and management will use best management practices to avoid erosion.

Elevations of land on the WMA range from approximately 820 feet above sea level at the valley bottom to 2,180 feet on the eastern hilltop. Approximately 63% of the WMA is located within the valley bottom where the terrain is flat or has gentle slope. To the east and west of the valley bottom, elevations increase and slopes become moderate and then abruptly become steep. Slopes are very steep in several areas on the hillsides, and then near the hilltop slopes decrease and become moderate to gentle. Management actions on steep slopes will generally be avoided.

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. Approximately 872 acres of SMZs (44% of the WMA) are on Honeoye Inlet WMA, including:

- One wetland (SP-3) regulated by Article 24 of the Environmental Conservation Law that covers the large wetland on the northern half of the WMA, and 54 wetlands shown on the National Wetlands Inventory (NWI; Figure 3). State-regulated wetlands are protected by a buffer zone of 100 feet (regulated adjacent area). There may be habitat management activities within wetlands and adjacent areas, and each action is reviewed individually for determination of impacts.
- Approximately 9.5 miles of streams, composed of Honeoye Inlet and its tributaries (Figure 3). Of these streams, 1.2 miles are classified as C(T) and 0.2 miles as AA and are

[8] National Soil Survey data is available online at https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm.

regulated by Article 15 of the Environmental Conservation Law. Water quality standards will be adhered to on all streams. [9]

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.*[10] 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 the WMA.

The landscape within three-miles is primarily composed of these cover types (Figures 4 and 5):

- Forest, combining deciduous, evergreen, and mixed (72%)
- Pasture/hay and grassland (9%)
- Early-successional shrubland (7%)
- Open water (5%)
- Cultivated crops (3%)
- Developed (3%)
- Wetland, combining emergent and woody (1%)

Seven other conservation lands occur within 3 miles of the WMA and cover approximately 10% of the surrounding landscape (Figure 4). This includes:

- Cumming Nature Center (900 acres) - mature forest, shrubland, fields, and wetlands.
- Harriet Hollister Spencer State Recreation Area (1,596 acres) - mostly mature hardwood forest with some conifer plantations, gullies, and fields.
- Hemlock-Canadice State Forest (7,035 acres) - most of this property is further than 3 miles from the WMA and is primarily mature forest with some wetlands and fields.
- J. Warren Cutler Scout Reservation (1,240 acres) - mostly mature forest, with a minor young forest component, small fields, ponds, streams, and developed facilities.
- Muller Field Station of Finger Lakes Community College (48 acres) - fields, ponds, shrubland, mature forest, and developed facilities.
- Honeoye Inlet Preserve (Camp Muller), The Nature Conservancy (164 acres) - mature forest, shrubland, old fields, ponds, and borders approximately 1 mile of Honeoye Inlet.
- Wesley Hill Nature Preserve, Finger Lakes Land Trust (390 acres) - mostly mature forest with small fields, a pond, and part of a large gully.

Honeoye Inlet WMA is located at the southern end of Honeoye Lake in the Finger Lakes region. Nearby lakes include Hemlock and Candice Lakes to the west and Canandaigua Lake to the east. Multiple other public lands are located close to the WMA, providing a unique concentration of

[9] Information about stream classification is available online at http://www.dec.ny.gov/permits/6042.html.
[10] Available online at http://www.dec.ny.gov/outdoor/104218.html.

conserved habitat. Opportunities to acquire adjacent private lands should be considered to improve access, consolidate conservation lands, and/or protect important habitats.

Most of this WMA is part of an Audubon Important Bird Area that also includes Hemlock and Canadice Lakes and a large portion of the surrounding forest. Important Bird Areas are designated to identify, monitor, and protect the most important places for birds, including both public and private lands. Management of this WMA should maintain and enhance habitat values for resident and migratory birds.

Forest composes 72% of the landscape surrounding the WMA, and much of this forest, including all of the WMA, is within the Bristol Hills forest matrix block. Forest matrix blocks are large, unfragmented examples of the dominant forest communities throughout the state. The management of forest stands at Honeoye Inlet WMA is important to promote the persistence of these forest communities. More information regarding forest matrix blocks can be found within the *Strategic Plan for State Forest Management*.[11]

The surrounding forest cover is contiguous with the WMA, providing connectivity for wildlife to use both the WMA and private forest lands. Most of these forests are mature in character, with about 7% of the surrounding landscape containing young forest or shrubland. Young forest habitat and several associated wildlife species have steeply declined in the northeast over recent decades due to maturing forests and a lack of natural and human-caused forest disturbances. It is a goal of this plan to manage a greater component of this limited habitat type on the WMA while retaining the forested character of the greater landscape.

Only 1% of the landscape within 3 miles of the WMA is wetland (both emergent and woody), most of which is located more than a mile away. The lack of wetlands nearby increases the value of the WMA's large forested wetland to the landscape. It is an important goal of this HMP to maintain the high value of wetlands occurring on the WMA.

II. Management Strategies by Habitat Type

DEC will continue active management of wildlife habitats on Honeoye Inlet 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.

[11] The Strategic Plan for State Forest Management is available online at http://www.dec.ny.gov/lands/64567.html.

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 vegetation accounts for greater than 50% of hydrophytic vegetative cover and the soil or substrate is periodically saturated or inundated.
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 Honeoye Inlet 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. [12]

MANAGEMENT OBJECTIVES

- Maintain most forest cover (1,361 acres) in an intermediate to mature age class to benefit associated wildlife and protect sensitive resources (e.g., steep slopes and wetlands).
- Increase young forest from 19 to 109 acres (7% of WMA forested acreage) by regenerating mature forest stands on suitable terrain.
- Monitor infestation of emerald ash borer and subsequent regeneration of forested wetlands. As needed, treat stands to ensure desirable tree and shrub composition.
- Encourage regeneration of native hardwoods and conifers (e.g., oak, hickory, hemlock, and white pine) to increase availability of mast and cover for wildlife.
- Control non-native invasive vegetation to maintain forest biodiversity.

DESCRIPTION OF EXISTING FOREST HABITAT AND TARGET SPECIES

There are 1,469 acres of forest covering approximately 74% of Honeoye Inlet WMA (Figures 7 and 8). Table 3 provides a summary of the forested areas, including the most common tree species present in each.

Nearly half the forest acreage (47%) is forested wetland located on the valley bottom that is influenced by water levels in Honeoye Lake, Honeoye Inlet, and several small streams draining the nearby hills. Mature upland forest composes 52% of WMA forests and is primarily located on the hillsides and hilltops. Currently, young forest is a minor component of the WMA (1% of forest acreage) and occurs on the valley bottom where fields have been abandoned and let revert.

[12] 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.

The majority of forested wetland on the WMA is a large, contiguous stand (approximately 655 acres) directly south of Honeoye Lake (Photo 1). This stand is classified as a silver maple-ash swamp community and is one of the largest examples of this habitat type in western New York. Some sections of this stand are inundated year-round, with trees and a dense shrub layer established on large hummocks, while other sections are shallower and only inundated seasonally. Silver and red maple compose most of the canopy in this stand, while ash species compose approximately 20%. The shrub layer includes winterberry, spicebush, and highbush blueberry, which provide valuable berries for songbirds. The other forested wetlands on the WMA are located further south and are riparian stands along the Honeoye Inlet. In some areas, invasive vegetation (e.g., knotweed, Phragmites, reed canarygrass) is a problem, but in the core of the silver-maple ash swamp these are uncommon.

Photo 1: The silver maple-ash swamp provides valuable habitat for numerous species, including wood duck, river otter, swamp sparrow, least flycatcher. and breeding salamanders.

Photo: Michael Palermo, DEC

Most upland forest on the WMA is located on the hill at the southeast side of the WMA, with a smaller portion on the hill at the northwest side. These stands have a mature forest structure and provide abundant habitat to associated wildlife species. Most of this forest is classified as an Appalachian oak-hickory forest community and is connected to the greater forest landscape of the Bristol Hills (Photo 2). Oaks provide exceptional wildlife habitat by producing abundant food (e.g., acorns, foliage, and insects) and much of the associated ecosystem is influenced by oak detritus (i.e., leaf litter and woody debris). Management to regenerate some oak stands would be beneficial to ensure this forest type persists on the landscape.

Photo 2: Most upland forest stands on the WMA are mature and contain an oak-hickory component which provides valuable hard mast for wildlife.

Photo: Michael Palermo, DEC

Other upland forest types on the WMA include northern hardwood stands that contain an abundance of red and sugar maple, and pioneer stands composed of black locust, walnut, and ash. Conifers

are a minor component of forest on the WMA and mostly includes scattered hemlock and white pine on the hillsides and in gullies. Several of the upland forest stands are on moderate to steep slopes, and forest management actions will avoid areas with high erosion potential. In some of the steepest parts of the hillside are small rock slides with patches of blueberry and huckleberry that provide exceptional reptile basking habitat and valuable berries for wildlife.

Photo 3: Stands of young forest have naturally established in old fields on the WMA and provide valuable early-successional habitat lacking from the greater landscape.

Photo: Michael Palermo, DEC

Approximately 19 acres of young forest are present on the WMA (1% of forest acreage). These stands are located near the restored Honeoye Inlet channel and are the result of fields not being maintained, allowing young trees to establish. Composition of these stands vary, including tall, dense thickets of ash (Photo 3), open patches dominated by young ash and maple seedlings, and sections of planted tree seedlings with installed tree protectors.

Although ash is the dominant tree species naturally regenerating in these young forest stands, there is a natural maple and alder component. It is expected that emerald ash borer (EAB) will prevent ash from becoming a significant component of the overstory as these stands mature, and maple or alder are expected to dominate at that time. These stands contain minimal invasive vegetation and they currently provide excellent habitat, especially to those species that prefer seasonally moist soils, such as American woodcock.

Table 3. Summary of acreage and dominant overstory species present on Honeoye Inlet WMA.

Forest Type	**Acres (as of 2014)**	**Desired Acres**	**Overstory species**
Natural forest (mature/intermediate)	762	673	Oak, hickory, red and sugar maple, white ash, white pine, hemlock
Plantation	2	2	Norway spruce
Forested wetland (mature/intermediate)	686	686	Silver and red maples, green and black ashes, willow, cottonwood
Young forest	19	109	Green ash, speckled alder
Young forest (forested wetland)	0	0	Currently not present on WMA
Total Forested Acres:	1,469	1,470 [a]	

[a] The increase in total forest acreage is due to grassland planned to revert to young forest.

Forest Management Target Species:
To address the diverse needs of various wildlife, the target species for forest habitat management on Honeoye Inlet WMA are categorized by the dominant forest types present and are shown in Table 4. These species were designated as targets because they are species of greatest conservation need (SGCN) and/or popular game animals that have well-studied habitat requirements with established best management practices. These species were also selected because they can be considered umbrella species, meaning habitat management to maintain, enhance, or create their habitat will also benefit numerous other species that utilize similar habitats.

Table 4. Target species for forest management on Honeoye Inlet WMA and their habitat needs.

Habitat Type	Target Species	Beneficial Habitat Structure
Forested wetland	Woodland salamanders	*Breeding*: shaded waterbodies lacking fish.
		Non-Breeding: nearby forested uplands with undisturbed soil and downed woody debris.
	Wood duck	*Nesting*: snags or live trees with cavities near accessible water.
		Brood-rearing: wetland or other waterbody with abundant aquatic invertebrates.
Mature upland forest	Wild turkey	*Foraging*: mast producing trees (e.g., oak and hickory) provide important forage during the fall and winter.
		Nesting: varied, includes woody debris cover and overturned tree root wads in mature forest, to dense areas in young forest.
		Brood-rearing: small herbaceous openings near forest.
	Cerulean warbler	*Nesting*: well-spaced, large diameter trees in stands with uneven-aged structure, including canopy gaps and tall exposed perches.
		Foraging & post-fledging: high density understory vegetation.
	Wood thrush	*Nesting*: hardwood forest of intermediate to old age with tall shrub and sapling layer to conceal nest.
		Foraging: thick leaf litter on open forest floor for invertebrates, and fruit-bearing trees and shrubs for migration.
Young forest	American woodcock	*Nesting*: Young, open, second growth woodlands.
		Foraging: Moist, rich soils with dense overhead cover.
		Singing ground: open areas, such as fields or recent clearcuts.
	Ruffed grouse	*Drumming*: downed trees surrounded by small diameter woody cover with high stem density.
		Nesting: young, open forest stands or second growth woodlots.
		Brood-rearing: herbaceous ground cover with a high midstory woody stem density.

Young forest has been declining throughout the state in recent decades, including the heavily forested landscape surrounding the WMA. Wildlife species dependent upon young forest habitat have also been declining and has led to some of these species being designated as SGCN in New York. Establishing a higher percentage of this habitat type on the WMA is a priority and will benefit multiple SGCN, as well as more common wildlife species, such as cottontail, wild turkey, and white-tailed deer. Coal skink (SGCN), western New York's only lizard, should benefit from increased basking sites and woody debris that will occur in actively managed forests.

It is important to note that young forest habitat is also beneficial to many species typically associated with mature forest. The abundant and diverse food (e.g., berries, catkins, insects) present in young forests attract juvenile interior nesting bird species, such as black-throated blue warbler, during critical growth periods as well as juveniles and adults preparing for energy intensive migrations.

A variety of pollinator species, such as bees and butterflies, are also expected to benefit from the abundance of flowering plants in young forests. Pollination is critical to the reproduction of wild and cultivated plants and providing habitat to sustain these pollinator populations is important both ecologically and economically.[13]

MANAGEMENT HISTORY

Honeoye Inlet WMA was acquired by New York State in 2003, in cooperation with the Nature Conservancy and the property's previous owner, the Muller family.

Settlement in the southern Honeoye Valley began in the late 1700s and led to much of the landscape changing. By the late 1800s, several hundred acres of forest on the valley bottom had been cleared for agriculture, and most of the forests on the hills had been heavily logged. In fall of 1952, a wildfire burned approximately 1,200 acres of forest on the hill southeast of Honeoye Lake, likely including part of the WMA. Heavy logging followed by this fire likely contributed to the establishment of the oak-hickory dominated forest and extensive lowbush blueberry on this hill.

Photo 4: In 2017, several areas near the new stream channel were planted with native trees and protected with tubes.

Photo: Michael Palermo, DEC

The Muller family began purchasing land along Honeoye Inlet in the 1960s, with the intent to conserve and protect most of the site. However, there were several notable alterations to forests on the property during this time, including the excavation and rerouting of Honeoye Inlet through the silver

[13] The NYS Pollinator Protection Plan can be viewed at http://www.dec.ny.gov/animals/279.html.

maple-ash swamp, additional clearing and draining of forested wetlands on the valley bottom, and road building and timber harvesting on the hilltop and hillside around Blueberry Hill Road. Many of the skid trails associated with this past logging are still very visible.

Since DEC management of the WMA began, very little active forest management has occurred. Noteworthy management of WMA forests during this time include small scale firewood harvests above Blueberry Hill Road and the reversion of some fields to young forest on the valley bottom that were too wet for routine mowing.

In 2016 and 2017, a restoration project occurred that rerouted part of Honeoye Inlet (more information can be found in the Wetlands and Streams sections). Several sites along the new Inlet channel were planted with tree seedlings to establish a forested buffer (Photo 4).

IMPLEMENTATION PLAN AND ANTICIPATED SCHEDULE

The following management is proposed during the timeframe of this plan:

- **Management planned for 2020-2024** (Table 5, Figure 8):
  - Clearcut Stand B7.1 (1 acre)
  - Shelterwood harvest of Stands B12 and B13 (100 acres).
  - Convert Stand B23 to grassland (1 acre).
- **Management planned for 2025-2029** (Table 6, Figures 7 and 8):
  - Single-tree and group selection harvest in Stand B9 (20 acres).
  - Timber stand improvement harvest in Stands B4, B8, B17 and B20 (56 acres).
- **Ongoing management throughout 2020-2029** (Figures 7 and 8):
  - Monitor for non-native, invasive vegetation throughout all forest stands and as needed control mechanically, biologically, and/or with herbicide. Priorities:
    - Monitor impacts of EAB in forested wetlands, especially Stand B19 to ensure the regeneration of desirable trees and shrubs.
    - Control knotweed in Stand B18.
    - Control swallow-wort in Stands B12 and B13.
    - Reduce the extent of black locust on the WMA.

Table 5. Forest management scheduled for the first five-years of this HMP (2020-2024).

Stand	Acres	Size Class	Forest Type		Treatment Type
			Current	Future	
B7.1	1	Pole Timber 6”-11” DBH	Pioneer Hardwood	Young forest	Clearcut
B12	40	Small Saw Timber 12”-17” DBH	Transition Hardwood	Young Forest / Oak	Shelterwood
B13	60	Small Saw Timber 12”-17” DBH	Transition Hardwood	Young Forest / Oak	Shelterwood
B23	1	Pole Timber 6”-11” DBH	Black Locust	Grassland	Clearcut, convert to grassland

Table 6. Forest management scheduled for the second five-years of this HMP (2025-2029).

Stand	Acres	Size Class	Forest Type		Treatment Type
			Current	Future	
B4	6	Small Saw Timber 12”-17” DBH	Pioneer Hardwood	Pioneer Hardwood	Timber Stand Improvement
B8	17	Pole Timber 6”-11” DBH	Pioneer Hardwood	Pioneer Hardwood	Timber Stand Improvement
B9	20	Small Saw Timber 12”-17” DBH	Northern Hardwood	Northern Hardwood	Single-tree and Group Selection
B17	14	Pole Timber 6”-11” DBH	Black Locust / Pioneer Hardwood	Pioneer Hardwood	Timber Stand Improvement
B20	19	Small Saw Timber 12”-17” DBH	Black Locust / Northern Hardwood	Northern Hardwood	Timber Stand Improvement

Although 1 acre of forest is planned to be converted to grassland, total forest acreage is planned to increase by 1 acre because 2 acres of grassland are planned to revert to young forest.

Stand locations and planned management are summarized in Figures 7 and 8. Specific forest stand descriptions and detailed management prescriptions will be prepared for each proposed forest management area prior to implementation (see template, Appendix C). Most mature forest stands on the WMA are not planned to receive a cutting treatment and will be managed passively, maintaining current habitat values. Planned timber management would convert 7% of WMA forested acreage (13% of upland forest) to young forest. Establishing more than 7% would be challenging on this WMA because of difficult access into wetland stands, erosion concerns on steep slopes, and avoidance of stands occupied by cerulean warblers (Species of Special Concern, SGCN).

Briefly, forest habitat management will include the following:

- **Stand B7.1:** This stand is just below the overlook high on the WMA’s eastern boundary and has been cleared in the past. Clearcutting this stand will re-establish young forest while re-opening the view, which serves as a valuable observation site for the public to view both habitat management and wildlife in the valley below.
- **Stands B12 and B13:** Both of these stands are on the hilltop above Blueberry Hill Road and were last harvested in the 1970s. They are primarily composed of red maple, red oak, and chestnut oak and based upon tree age and site conditions are considered susceptible to oak decline. Desirable regeneration is lacking, especially oak, and without intervention these stands will likely continue to transition from an oak forest type to a northern hardwoods type. Snags, coarse woody debris, and mid-story vegetation are also lacking in much of these stands and a timber harvest can improve these conditions. A shelterwood harvest is planned to establish oak regeneration and create conditions favorable for oak stand development. After the final harvest of the shelterwood system, these stands will provide valuable young forest habitat. Large reserve trees should be permanently retained to add diversity to these stands as the young forest ages.

- **Stands B4 and B8:** Both of these stands are narrow in shape and have reverted from old fields since the 1970s. They are primarily composed of white ash, black walnut, and black locust, with sugar maple, black cherry, and hickory also present. The understory is dominated by both native and non-native shrubs, and the overstory ash component is expected to die in the near future from EAB. A timber stand improvement cut is planned to reduce competition around desirable trees and control non-native invasive vegetation.
- **Stand B9:** This stand is primarily composed of sawtimber sized sugar maple with basswood and hickory also present. Sugar maple regeneration is well distributed throughout the stand. A single tree and group selection harvest is planned to establish a new cohort of young trees while reducing competition among residual mature trees. The subsequent development of larger crowns on retained trees and increased vertical diversity from understory and midstory growth should improve nesting opportunities for cerulean warbler and wood thrush.
- **Stands B17 and B20:** Both of these stands reverted from old fields since the 1970s and are primarily composed of black locust, with white ash, sugar maple, hickory, and walnut also present. In both stands the understory contains scattered non-native, invasive shrubs. A timber stand improvement cut is planned to reduce competition around desirable trees and control non-native invasive vegetation.
- **Stand B23:** This stand includes two isolated patches of mostly black locust surrounded by grassland habitat. Clearcutting this stand, removing stumps, and reseeding to a desirable grass and forb mix would increase the size and improve the connectivity of nearby grassland habitat, which should benefit associated SGCN grassland birds. Black locust should be treated with herbicide (e.g., basal bark or frill application) prior to cutting to prevent root sprouting.

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 7).

Table 7. Best management practices for forest management on WMAs.

Resource	**Guidance Document** [14]
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*

Wildlife Considerations:

Sensitive species known to be present on or near Honeoye Inlet WMA that warrant special consideration include:

- *Forest raptors*. Pre-timber harvest surveys will be conducted and if nesting is documented, harvest activities nearby may be adjusted to occur outside the breeding season and nest buffers may be established.

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

- *Indiana, northern long-eared, and tri-colored bats*. There are no known occurrences of these species on the WMA. However, surveys will occur in suitable habitat prior to timber harvest activities to detect presence or probable absence, or harvests will take place in winter to avoid potential impacts.
- *Blue-spotted and Jefferson salamanders*. These salamanders breed in vernal pools and forested wetlands and then spend most of their adult lives in the surrounding uplands. In stands planned for timber harvest, vernal pools should receive at least a 100-foot buffer where 75% of canopy cover is retained and soil/leaf litter disturbance is minimized.
- *Cerulean warbler*. This species is known to occupy some stands on the WMA. Pre-timber harvest surveys will be conducted and if nesting is documented, harvest activities nearby may be adjusted to occur outside the breeding season. The selection harvest, timber stand improvement, and first stage of the shelterwood harvest planned on the WMA should enhance nesting habitat for this species.

Due to the sensitivity of endangered, threatened, and special concern species, and SGCN, special management guidelines may be implemented if additional species become known to occur in or within close proximity to the forest stand to be harvested.

Forest Health Considerations:

Forest pests, diseases, and invasive vegetation are an ongoing problem for habitat management. When pests or diseases attack forests in high numbers and cause decline and mortality, habitat values can shift to the detriment of many resident wildlife species. Likewise, as invasive plants invade an area, outcompeting and dominating native vegetation, a lower diversity plant community is created (Photo 5). This decrease in habitat values means less wildlife may be able to utilize the area. All efforts to manage habitats on the WMA must consider forest pests, diseases, and invasive plants and ensure that measures are taken to control their presence or prevent their establishment. One way to protect against future forest health issues is to promote species diversity, so when a pest or disease outbreak occurs, it only impacts part of a forest.

Photo 5: Knotweed is present at multiple sites on the WMA and is a priority for control to prevent further spread. This species is especially aggressive and forms dense monoculture thickets.

Photo: Tom Huette, USDA

Infestations of introduced insects such as EAB, gypsy moth, hemlock wooly adelgid (HWA), pear thrips, and pine shoot beetle are of present concern and bear persistent monitoring. Gypsy moth and pear thrips densities fluctuate and occasionally can reach outbreak levels where complete defoliation of host trees can occur. Gypsy moth most commonly attacks oak and aspen species while pear thrips favors sugar maple. HWA has not yet been

confirmed on the WMA; however, it is present nearby. Hemlock is a minor component of forests on the WMA, and although management actions to prevent or control HWA infestation are currently limited, they may be implemented should effective methods be developed.

EAB is present on the WMA and is expected to cause extensive mortality of ash trees within the next decade, which will significantly alter forest composition in some stands. However, these changes may benefit some wildlife species; recent studies have shown increases in abundance for some woodpecker and nuthatch species after EAB infestation. Likewise, cerulean warblers are known to respond positively to reduction in forest stocking levels. Monitoring forest regeneration and controlling invasive vegetation in stands effected by EAB will be important.

Native insect species such as eastern tent caterpillar and fall cankerworms are cyclic in population and may impact vegetation through defoliation at some time in the future. Both species feed on a wide-range of tree species including: ash, basswood, beech, black cherry, maples, and oaks.

Oak wilt is a fungal disease that can infect and kill oak trees. Although rare in New York, the disease was found in Ontario County in 2016, 2018, and 2019. Oak wilt primarily spreads in two ways: 1) through root connections with adjacent oak trees, and 2) from *Nitidulid* beetles that spread spores to open wounds on other oak trees. Current recommendations for treating affected areas include removing infected trees and severing root connections to reduce the chance of spread. This WMA should be closely monitored over the next several years to spot any signs of oak wilt. To prevent spread to the WMA, timber harvests involving oak may be restricted to only occur from November through February, when fungal pathogens and insect vectors are inactive.

Invasive plants that are known to be on or near the forested areas of the WMA include: autumn olive, barberry, buckthorn, garlic mustard, honeysuckle, knotweed, multiflora rose, reed canarygrass, swallow-wort, and Phragmites.

Pre- and Post-treatment Considerations:

Regeneration of a forest stand requires suitable conditions to ensure that desired species will succeed. Non-native invasive vegetation and undesirable native vegetation (e.g., fern, striped maple, beech) are present in the understory of some stands here and left untreated could interfere with forest regeneration. Although these native species have many beneficial qualities, they are considered undesirable when they have the potential to interfere with forest regeneration. Pre-treatment herbicide application may be necessary in some forest stands planned to be managed.

Conifers are a minor component of forests on the WMA; however, retaining this component provides valuable habitat diversity. Promoting the regeneration of naturally occurring conifers (e.g., hemlock and white pine) should be encouraged throughout the WMA, and in cases where these species are not present, conifers (including non-native species) may be planted.

Deer herbivory may be an issue at Honeoye Inlet WMA. If it is determined that herbivory is intense enough to prevent regeneration of desired tree species, fencing of treatment areas or installation of tree shelters may be necessary. Efforts to promote deer hunting on the WMA to manage the local deer herd at desired levels will continue.

If it is concluded post-treatment that desired tree species are not regenerating in a high enough frequency, or that undesirable species are dominating the area and suppressing regeneration, then the stand may be re-treated. This may include mechanical and/or herbicidal control of undesirable species, removal of additional trees to increase available sunlight, scarification of forest floor to stimulate seedling establishment, and/or the direct seeding of desired tree species.

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 established in the Young Forest Initiative Monitoring Plan[15]. The Monitoring Plan provides 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 Honeoye Inlet WMA, which may be assessed to determine response to management, include: American woodcock and ruffed grouse.

Monitoring of these species may include woodcock singing-ground surveys and grouse drumming surveys to determine habitat use and abundance in response to forest management. The establishment of periodic bird point counts and amphibian and reptile surveys in all forest types would be beneficial to better understand species diversity and use.

SHRUBLAND

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

MANAGEMENT OBJECTIVES

- Increase shrubland from 48 acres to 61 acres by allowing 14 acres of old, wet fields to continue to revert and be colonized by alder and other shrubs.
- Convert 1 acre of hedgerow to grassland to improve connectivity of grassland habitat.
- Maintain shrubland stands to provide continued dense cover (especially alder thickets) and abundant soft mast that benefit target species.
- Maintain hedgerows to provide dense cover, flowering shrubs, and corridors for wildlife movement across the valley.
- Control invasive vegetation and promote dominance of native shrub species.

[15] Available online at http://www.dec.ny.gov/outdoor/104218.html.

DESCRIPTION OF EXISTING SHRUBLAND HABITAT AND TARGET SPECIES

There are currently 48 acres of shrubland on Honeoye Inlet WMA that are all located on the valley bottom (Figures 7 and 8). Approximately 30 acres of this are small patches (1 to 8 acres) that established from fields not being maintained and naturally succeeding to a shrub-dominated plant community, while 18 acres are hedgerows that divide grassland fields.

Approximately 16 acres of these stands are dense alder thickets (Photo 6). These currently provide excellent American woodcock habitat, with a varying soil moisture gradient that ensures prime foraging conditions throughout the summer. These thickets are part of a larger mosaic on the valley bottom of grassland, wetland, and forest habitat that provides a unique diversity of conditions that are particularly important and beneficial to several early-successional wildlife species. Approximately 10 additional acres of shrubland contain scattered alder patches and are on track to become dense alder thickets over the next decade or so. As alder thickets age, their stem density decreases and habitat values for woodcock decline, allowing shade-tolerant trees (e.g., ash, maple) to establish and eventually dominate. Routine maintenance (strip cutting on a 20-year rotation) is required to perpetuate these alder thickets.

Photo 6: Several patches of alder thicket are present on the WMA. The dense cover and proximity to moist soils make these stands especially important to American woodcock.

Photo: Michael Palermo, DEC

Approximately 4 acres of a more diverse shrubland type also occurs on the WMA. These stands occur on drier soil than the alder thickets and contain a greater diversity of shrub species. Some areas within these stands are dense thickets, while others are scattered shrub clumps. Dominant native shrubs include dogwoods, hawthorns, and wild apples. Non-native shrubs are also present in these stands and are primarily autumn olive, common buckthorn, honeysuckle, and multiflora rose. The abundance of fruit-bearing shrubs in these stands has exceptional value to wildlife, having a variety of berries that provide high-energy food for fall migration and food that persists through winter (Photo 7).

Approximately 18 acres of hedgerow are present on the WMA which are located between several fields and along their borders. Most of the hedgerows between fields are along ditches that were excavated to improve drainage (prior to State ownership). In general, these hedgerows are densely vegetated with both trees and shrubs and provide excellent cover for wildlife and act as habitat corridors linking various patches of shrubland and forest across the valley bottom.

Shrublands are important to numerous wildlife species because they provide the dense cover and abundant food (e.g., twig browse, insects, berries) that many depend upon. The prolific flowers produced by these shrubs are also highly beneficial to various pollinator species. Similar to young forests, a suite of species is reliant upon this disturbance-dependent, early-successional habitat and many of these species will utilize both young forest and shrublands. The primary difference between these habitats is that young forests are mostly composed of trees whereas shrublands are mostly composed of shrubs, which can often persist longer as a habitat type due to the exclusion of tree growth in shrub thickets. Although young forests and shrublands provide habitat for similar species, both are needed to provide for the full range of disturbance-dependent wildlife species.

Photo 7: Native shrubs, like this silky dogwood, produce an abundance of blossoms and subsequent berries that are important to pollinators and various wildlife, especially songbirds.

Photo: Michael Palermo, DEC

Table 8. Target species for shrubland management on Honeoye Inlet WMA.

Target Species	Beneficial Habitat Structure
American woodcock	*Nesting*: Stands of an acre or more with woody stem density of at least 6,000 stems per acre, on mostly dry soil.
	Foraging: Moist, rich soils with dense overhead cover and abundant invertebrates, especially earthworms.
	Singing ground: Open areas, such as fields or recent clearcuts near nesting and foraging habitat.
Brown thrasher	*Nesting*: Areas of dense low growth, especially thickets around edges of forest or swamps.
	Foraging: Diet includes insects, berries, and nuts. Berries and small fruit are very important in fall and winter.
Eastern cottontail	*Breeding and escape cover*: Dense, young woody vegetation near food sources. Brush piles are important in winter when herbaceous cover has died back.
	Foraging: During the growing season, grasses and forbs are most important. During the winter, woody plant material is most important. Food should be within 300 feet of cover.

These species were selected as targets because they are either SGCN (woodcock and brown thrasher) or popular game species (woodcock and cottontail). Each of these species utilize shrublands for breeding and foraging, and much of their habitat requirements overlap. A difference among these habitat requirements is the woodcock's need for herbaceous openings within or adjacent to a shrubland for singing and courtship. Managing shrublands on the WMA targeting these species is expected to promote several other SGCN, including black-billed cuckoo, blue-winged warbler, ruffed grouse, smooth green snake, and black rat snake. White-tailed deer, wild turkey, and various pollinator species are also expected to benefit.

MANAGEMENT HISTORY

Most shrublands on the WMA reverted from old fields after DEC acquired the property in 2003 (some of the hedgerows were already present). In some areas this was allowed because the soil was generally too wet for routine mowing to maintain the previous grassland. There has been very little management within these stands since mowing stopped. The Honeoye Inlet restoration project in 2016 and 2017 excavated part of the new stream channel through an alder thicket and plantings associated with this project included some native shrubs.

IMPLEMENTATION PLAN AND ANTICIPATED SCHEDULE

- **Management planned for 2020-2029** (Figures 7 and 8):
    - Throughout Stand B950 (4 acres), perform maintenance as needed.
        - Selective cutting to remove young trees that would eventually dominate.
        - Small stands of trees may be left as islands of second growth.
        - Stumps should be removed or cut low to facilitate future maintenance.
        - Brush cutting using a rotary mower or forestry cutter will be utilized to create and maintain an interspersion of openings and travel corridors.
        - When and where practicable prescribed fire may be utilized.
    - In Stand B951 (16 acres), clearcut strips through alder thickets approximately every 5 years to rejuvenate alder growth and produce high stem density.
        - Strips should alternate and be 50 to 100 feet wide, so each strip has a 20-year cutting rotation.
        - Strips should be oriented perpendicular to the moisture gradient.
        - Cutting should occur when soil is frozen or dry to avoid erosion concerns.
        - The stretch of Honeoye Inlet that flows through this stand will be buffered and a corridor of mature trees will be allowed to establish along its banks to shade and stabilize the channel.
    - Allow Stands B952 and B953 (10 acres) to continue to be colonized by alder and develop into alder thickets. Introduce strip cutting as conditions require.
    - Cut ash trees from hedgerows to prevent future maintenance obstacle that would occur when these trees die from EAB and fall over into adjacent fields.
        - Tree debris may be removed from site and/or used to create brushpiles. Debris may also be placed in ditches where erosion is a concern.
    - Remove or thin hedgerows to improve habitat connectivity of adjacent grasslands.
        - Convert hedgerow between Fields 24 and 25 to grassland (1 acre).
            - Remove trees, shrubs, and stumps and plant to grass and forbs.
        - Cut most trees (retain shrubs) in hedgerow between Fields 20, 21, and 26.

- Black locust should be treated with herbicide (e.g., basal bark or frill application) prior to cutting to prevent root sprouting.
- Some tree debris may be placed in fast flowing sections of the associated ditch to provide erosion control.
- A few healthy, well-spaced mast trees may be retained (e.g., black cherry, oak, hickory).

- Throughout all shrubland stands, promote the dominance of native shrub species.
  - Monitor for non-native, invasive vegetation and as needed control mechanically, biologically, and/or with herbicide.
  - Habitat type conversion to grassland may be necessary to effectively control invasives. Either the converted stand or another area of grassland would then be planted or allowed to revert to a native shrubland to maintain acreage of each habitat type.
  - Knotweed is present in some hedgerows and is a priority for control.

BEST MANAGEMENT PRACTICES

In order to minimize disturbance to shrubland wildlife species during management activities, brush-cutting and tree removal, if possible, should be done outside the bird nesting and brood rearing part of the year (April 15 to August 15). However, management may occur within this timeframe if it is to be done for long term benefits to the habitat/wildlife (such as invasive species management).

MANAGEMENT EVALUATION

Current monitoring of shrubland habitat use at Honeoye Inlet WMA is informal and data are often derived opportunistically, and will be continued. However, the establishment of periodic bird point counts and other wildlife surveys would be beneficial to better understand species diversity and habitat use.

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. Grasslands may include areas where hay is harvested by late season mowing once per year.

MANAGEMENT OBJECTIVES

- Maintain 306 acres of grassland to encourage favorable herbaceous species and prevent reversion to shrubland and forest.
- Convert 1 acre of forest and 1 acre of hedgerow to grassland to improve connectivity of adjacent fields.
- Allow 14 acres of old, wet fields to revert to shrubland, and 2 acres to revert to a forested riparian buffer along the restored Honeoye Inlet channel.
- Encourage a diversity of grasses and forbs beneficial to target species.
- Identify and control invasive plant species to prevent their dominance in fields.

DESCRIPTION OF EXISTING GRASSLAND HABITAT AND TARGET SPECIES

There are currently 320 acres of grassland habitat on Honeoye Inlet WMA (Figures 7 and 8). This is composed of several fields, ranging from 1 to 46 acres. Most of these fields are located on the valley bottom and are adjacent to each other, separated by hedgerows.

Habitat condition and quality varies widely among these fields, including warm-season grasses, cool-season grasses, and some fields that are mostly forbs (e.g., legumes and wildflowers). Some fields are overgrown with shrub and tree seedlings and need maintenance. Some fields are well-drained and dry most of the year, while others are seasonally wet. Some fields are regularly occupied by grassland-dependent songbirds, such as bobolink, while other fields are instead more valuable to song sparrows, red-winged blackbirds, and white-tailed deer.

In an effort to promote hunting opportunities, the ring-necked pheasant is occasionally stocked in grasslands here. Pheasant, and several other wildlife species, benefit from the abundant seeds and herbaceous cover that often persists in grasslands throughout the winter.

Photo 8: Large grasslands are uncommon in New York and provide important habitat to several dependent bird species.

Photo: Michael Palermo, DEC

The fields on the WMA with the greatest value for grassland-dependent birds are generally the drier, larger fields (Photo 8). Grassland dependent bird species typically require large patches (25+ acres) of grassland with low perimeter-to-area ratios in an open landscape. Currently, there are four large grassland habitat patches on the WMA, which measure 32, 36, 41, and 46 acres. Removing hedgerows, or reducing the height of hedgerows, could increase grassland patch sizes here that would benefit grassland birds. Most of the hedgerows on the WMA are located on ditches, so complete removal is not recommended, but removing trees and promoting shrubs instead would reduce the overall height of the hedgerow and provide a more open border between fields.

Several smaller fields (< 25 acres) are present on the WMA and are adjacent to forest, shrubland, and wetland (Photo 9). Although these smaller fields do not provide significant benefits to grassland birds, they are very beneficial to numerous other wildlife species. For example, grassland adjacent to wetland provides important nesting habitat for waterfowl, such as mallard, and grassland adjacent to forest provides habitat for upland animals, such as deer (fawning) and turkey (brood rearing). Grassland near shrubland is valuable for woodcock singing grounds and roosting sites. Pollinators and various other insects also thrive in these herbaceous areas, which provide an important high-protein food for grouse chicks, turkey poults, and songbirds.

A diversity of warm and cool season grasses and forbs have been planted in some fields on the WMA to improve habitat value (Photo 10). For example, warm season grasses (e.g., big blue stem, indiangrass, switchgrass) often grow in bunches, which provides bare ground between plants that allows for wildlife movement and foraging. Many bunch grass species also retain their upright form through winter, providing valuable cover when most vegetation is matted down by heavy snow. Cool season grasses (e.g., wildrye, wheatgrass, timothy) develop rapidly in spring, providing a flush of valuable cover with high forage value.

Photo 9: Small fields near other habitat types, such as forest or shrubland, provide valuable diversity of cover and food sources.

Photo: Michael Palermo, DEC

Some of the fields on the WMA contain an abundance of woody growth (e.g., ash, alder, dogwood). These shrubs and tree saplings are typically suppressed by routine mowing, but not completely controlled. Continued restoration and replanting of fields is necessary to prevent reversion to shrubland and to maintain long-term grassland habitat values for wildlife.

Some of these fields have overgrown because conditions are often too wet to mow and would provide greater wildlife habitat values if mowing were discontinued and they were allowed to revert to shrubland. These fields currently contain a component of ash and alder seedlings that have been suppressed by occasional mowing. Ash is not expected to become a significant component of the future overstory as these fields revert, due to EAB, and the alder component is expected to dominate.

Reed canary grass (RCG) is a non-native, invasive grass that is present in many fields here and has degraded some habitat values. In drier fields on the WMA, RCG is typically a minor component of the plant community; however, in wetter fields it has established large monoculture stands. In fields dominated by RCG, fewer grassland-dependent songbirds are

Photo 10: This field was planted to native warm-season grasses in 2009 to improve the grassland's habitat value.

Photo: Michael Palermo, DEC

observed, and in winter the grass flattens, providing less valuable cover for wildlife. Control of RCG is difficult, especially large infestations; however, actions should occur on the WMA to limit its spread and attempt to convert some areas back to native grasses.

Table 9. Target species for grassland management on Honeoye Inlet WMA.

Target Group	Example Species	Beneficial Habitat Structure
Grassland-dependent breeding birds	Bobolink, eastern meadowlark, northern harrier, and sedge wren	Large grassland patches, generally greater than 25 acres, with a low perimeter-to-area ratio. A diversity of grass types (e.g., warm and cool season), with varying height and density, provide for a greater range of species use.
Wintering raptors	Northern harrier, rough-legged hawk	Large grassland patches that support high populations of small mammals (e.g., meadow vole and deer mouse).
Upland game	Pheasant, white-tailed deer, and wild turkey	Fields that support abundant insect populations are important protein sources for turkey poults. Cool-season grasses offer early cover for fawns. Warm-season grasses provide valuable cover in winter.
Pollinators	Bees, butterflies, and moths	Abundant and diverse native wildflowers that bloom consistently throughout spring, summer, and fall. Alternating annual mowing regimes.

MANAGEMENT HISTORY

Historically, the southern Honeoye Valley was likely a mix of forest and emergent wetland, with far less open fields than today. Much of this area was drained and cleared for agriculture in the 1800s by early settlers, with additional clearing and field expansion as recent as the 1980s.

Prior to DEC management, these fields were part of the Wild Rose Ranch and were primarily used to graze cattle and to cultivate corn, wheat, alfalfa, and hay. In the mid-1990's, the ranch ultimately failed because the site proved unsuitable for economically productive agriculture.

DEC management of these fields began in 1998, under a cooperative agreement with The Nature Conservancy (the owner at the time), who then transferred ownership to the

Photo 11: Mowing is the primary method for maintaining grassland here; however, prescribed fire would be beneficial to promote native warm-season grasses and control invasive plants.

Photo: Michael Palermo, DEC

state in 2003. DEC has maintained many of these former agricultural fields as grassland to prevent reversion to shrubland and forest (Photo 11).

Several of the fields were enrolled in the Wildlife Habitat Incentive Program of the Natural Resources Conservation Service (NRCS) from approximately 2003 to 2016. Related activities included mowing plans and planting some fields to warm season grasses. A partnership with Genesee Valley Pheasants Forever has also helped enhance grassland habitat here by planting grass and forb mixes favored by wildlife.

In 2004, a few of the wetter fields on the WMA were enrolled in the NRCS Wetland Reserve Program (WRP) and mowing was discontinued. Parts of these former fields were colonized by emergent vegetation (e.g., cattails, rushes) and are considered wetland habitat in this plan, while other parts have reverted to young forest and alder thickets. Some areas of these WRP fields are still considered grassland since dense stands of reed canarygrass have suppressed tree and shrub establishment.

IMPLEMENTATION PLAN AND ANTICIPATED SCHEDULE

- **Management planned for 2020-2029** (Figures 7 and 8):
    - Throughout all grassland stands, routinely perform maintenance actions.
        - Mow fields every 1-3 years to prevent establishment of woody vegetation.
            - Mowing fields heavily invaded by woody plants may be most effective if conducted in early spring and again before senescence.
        - When resources are available, utilize prescribed fire where appropriate.
            - Controlled burning of fields would favor native warm-season grasses and control undesirable invasive vegetation.
        - As needed: lime, fertilize, disk, and/or reseed grasslands.
    - Throughout all grassland stands, control invasive vegetation.
        - Depending on the species, invasive vegetation can be controlled mechanically, biologically, and/or with herbicide.
        - Control of small reed canarygrass patches in fields predominantly composed of desirable herbaceous species is a priority. Actions that are known to be most effective include: targeted herbicide application, early mowing, prescribed fire, and/or cultivating the soil and reseeding.
        - Control of knotweed in Field 17 and wild parsnip in Field 21 are priorities.
    - Improve connectivity of large, adjacent fields to increase habitat patch sizes that benefit grassland-dependent breeding birds.
        - Convert the hedgerow between Fields 24 and 25 to grassland (1 acre).
            - Combined with the 1 acre of forest planned to also be converted to grass should result in a grassland habitat patch of 63 acres.
        - Cut most trees (retain shrubs) in hedgerow between Fields 20, 21, and 26.
            - This should result in a grassland habitat patch of 71 acres.
            - Black locust should be treated with herbicide (e.g., basal bark or frill application) prior to cutting to prevent resprouting.
            - A few healthy, well-spaced mast trees may be retained (e.g., black cherry, oak, hickory).

- Establish a forested riparian buffer where the Honeoye Inlet flows through or along grassland fields.
    - Approximately 1,800 feet of Honeoye Inlet bank is adjacent to fields planned to be maintained as grassland. A 40-foot buffer from the stream bank will be established in these areas (approximately 2 acres).
    - This riparian buffer will primarily be allowed to naturally revert to native trees and shrubs but may also be planted with desirable trees.
- Allow Fields 8, 11, 14b, & 16 to continue to revert to shrubland stands (14 acres).
    - These are wet fields currently overgrown with young trees and shrubs.

One objective of the Honeoye Inlet restoration project (completed in 2017) was to reconnect the Inlet with its historic floodplain. It is currently too soon to fully understand the effects of the restoration project on the grasslands in this floodplain. Some fields near the Inlet may become too wet for routine maintenance or may naturally shift toward a wetland plant community (e.g., cattails and rushes). These fields should be monitored and if conditions become too wet for grassland management or emergent vegetation begins to dominate, then they should be allowed to revert naturally.

BEST MANAGEMENT PRACTICES

The following sub-sections provide guidelines for grassland habitat management on all WMAs in NY. For more detailed information and recommendations see *A Plan for Conserving Grassland Birds in New York*.[16] In particular, refer to the plan for species-specific habitat requirements and recommendations regarding grassland management and restoration techniques.

General Management Recommendations

- Target management for grassland bird species known to be in the vicinity and consider the needs of both breeding and wintering grassland bird species.
- Consider the surrounding landscape when making management decisions.
- Conduct baseline grassland bird surveys on newly acquired fields or fields targeted for management changes to determine species present.
- Increase field size by hedgerow removal, removing trees, etc. to benefit species that require large fields.
- Conduct invasive species control (e.g., reed canarygrass, thistle, Phragmites, wild parsnip, etc.) to improve habitat quality.
- Consider a variety of factors, such as the targeted grassland bird species, pollinators, seed mix (warm versus cool season grasses, forbs, wildflower mixes, grass height and density), timing of planting, existing conditions, and vegetation removal techniques (including herbicide and intensive disking) in developing grassland planting or restoration projects.
- Utilize mowing, haying, disking, burning, and grazing for maintaining grassland habitat, after evaluating the appropriateness of these methods relative to site conditions and management objectives. In particular, burning cool season grasses is not advisable in most situations in New York.

[16] Morgan, M. and M. Burger. 2008. A Plan for Conserving Grassland Birds in New York: Final Report to the New York State Department of Environmental Conservation under Contract #C005137. Audubon New York, Ithaca, NY.

Timing of Management

- Fields over 25 acres (including all contiguous fields) or fields with a history of listed (federally listed and/or state E/T or SC) grassland bird species within the last 10 years, including fields of any size AND contiguous fields. Can also include nearby fields if deemed necessary:
  - Mowing or other management should be avoided between April 23 and August 15 unless at least one of the following criteria are met and the fields are assessed or surveyed to confirm there is no active nesting by E/T/SC grassland birds:
    - Management is to be done for long term benefits to the habitat/wildlife (such as invasive species management).
    - Nesting locations can be avoided, such as using spot treatment for invasive species, reducing any negative impact to the species of concern.
- Fields under 25 acres (including all contiguous fields) with no history of listed species:
  - Fields can be managed/mowed between April 23 and August 15 if necessary to:
    - Control the growth of invasive vegetation in fields where grassland habitat value is degraded.
    - Ensure that suitable grass cover will be present to provide important winter habitat for grassland birds and ring-necked pheasants.
    - If early management is proposed, then the habitat requirements and nesting periods of other species should be considered (e.g., nesting waterfowl, American bittern, reptiles and amphibians).
- Due to the possible presence of state listed wintering raptors, including short-eared owl and northern harrier, late winter/early spring mowing should be delayed or certain areas should be avoided until these birds leave the area.

Additional Mowing Guidelines

- Frequency of mowing, size of area mowed, and mowing techniques should be based on species present and current and desired habitat conditions.
- Block or spot mowing is preferred and strip mowing should be limited (especially in fields over 25 acres).
- Unmowed blocks should be in the shape of a square as opposed to long rectangles.
- When mowing, consider mowing from one side of the field to the other side or start in the center and mow outwards to avoid concentrating animals in the area yet to be mowed.
- In general, mow grass to a residual height of 6-12 inches.

MANAGEMENT EVALUATION

Current monitoring of grassland habitat use at Honeoye Inlet WMA is informal and data are often derived opportunistically and will be continued. However, the establishment of periodic grassland bird surveys would be beneficial to better understand species diversity and habitat use. Monitoring of invasive vegetation control efforts will be necessary to ensure success and prevent future spread.

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 Honeoye Inlet WMA that is managed as agricultural land and no plan to develop such habitat during the timeframe of this plan.

WETLANDS (NATURAL AND IMPOUNDED)

Approximately 37% of Honeoye Inlet WMA is wetland habitat (737 acres). These wetlands are primarily composed of forested wetlands (686 acres), which are discussed in the previous Forest section. The remaining 51 acres of wetlands are discussed in the following section and includes ponds, emergent marsh, scrub-shrub wetlands, and wet meadows. These wetlands are categorized as either natural or impounded.

Natural wetland: includes areas where the soil or substrate is periodically saturated or covered by water, the vegetative community is predominantly composed of hydrophytes, and hydrologic processes have not been greatly altered by human construction.
Impounded wetland: are areas similar to natural wetlands, but where water is held back by a berm, road, or other human-made structure.

MANAGEMENT OBJECTIVES

- Allow ecological succession to continue on 40 acres of natural wetland.
- Enhance habitat value of degraded natural wetlands with scrapes and/or potholes.
- Maintain 11 acres as impounded wetlands that provide diverse wetland habitats.
- Identify and control invasive plant species to maintain and enhance biodiversity.

DESCRIPTION OF EXISTING WETLAND HABITAT AND TARGET SPECIES

There are 40 acres of natural wetlands and 11 acres of impounded wetlands managed on Honeoye Inlet WMA (Figures 3, 7, and 8). Most of these wetlands occur on the valley bottom and are either small ponds (< 1 acre), emergent marsh, or wet meadow. On the hilltop above Blueberry Hill Road there are just a few small wetlands.

Most of the natural wetlands on the WMA are emergent marsh or wet meadow that naturally established in former agricultural fields (Photo 13). The largest concentration (28 acres) of natural wetland is just south of the silver maple-ash swamp and is primarily composed of cattail, rushes, and reed canarygrass. A wet meadow swale (9 acres) also occurs further south, flowing north through fields just east of West Lake Road toward the Inlet, and is connected to a small beaver pond. Water levels in this swale and beaver pond can range from 6 inches to over 2 feet throughout the year. Besides a few small vernal pools, the only significant natural wetland on the hilltop above Blueberry Hill Road is a half-acre shrub swamp dominated by winterberry.

Most of the impounded wetlands on the WMA are small ponds that contain open water and a fringe of cattail (Photo 14). The largest impoundment (7 acres) was created during the Inlet restoration project and is primarily composed of shallow water, emergent vegetation, and dead trees and shrubs. Also present are several small pools that are the remnants of the old Inlet channel that was partially filled during the restoration project.

Photo 12: Emergent wetlands in old fields on the WMA are dominated by reed canarygrass and rushes, but cattail and other desirable plants are present and spreading.

Photo: Michael Palermo, DEC

The Honeoye Inlet restoration project (completed in 2017) improved hydrology of the valley bottom on the WMA by reconnecting the Inlet to its historic floodplain, returning a natural flood regime that was lacking for several decades. This seasonal flooding will likely increase soil moisture in fields and wet meadows near the Inlet, including periods of saturation and inundation. It will take several years to recognize the full effects of this project, but it is expected to improve and increase wetland habitats here.

Several non-native, invasive plant species are present in wetlands on the WMA. Infestations of Phragmites and knotweed are the biggest concern and are a priority for control. Large monocultures of reed canarygrass (RCG) are present and effective control options are limited; however, native emergent plants (e.g., cattail and rushes) and ash and alder are present in some locations and should be encouraged. Excavating small scrapes and potholes throughout some of these wet monocultures of RCG should improve wetland habitat values by creating open water accessible to wildlife and the shallow water condition that promotes cattails over RCG. Other invasive plant species that are present and may require control actions to prevent habitat degradation include creeping jenny, yellow iris, and purple loosestrife.

Photo 13: Several small ponds occur on the WMA and provide valuable habitat for breeding amphibians and waterfowl.

Photo: Michael Palermo, DEC

Many species of wildlife use and benefit from the wetlands here. Most of the small ponds and pools do not contain fish and therefore are valuable for amphibian reproduction. Numerous salamanders migrate each spring from nearby forest to breeding pools on the valley bottom, and Finger Lakes Community College annually holds events to monitor and protect salamanders at road crossings. Great blue herons are frequently observed foraging along the edges of open water areas and Wilson's snipe can reliably be heard each spring. One of the most common songbirds in these wetlands is the red-winged blackbird, which nests in emergent marsh and wet meadows. Mallard, a popular waterfowl species, nests in grasslands and wet meadows, and rear their young in ponds and other open water areas. Various snakes, including northern water snake and eastern ribbon snake, forage for prey in dense vegetation in and near wet areas. Mink and otter are both present and regularly travel between various wetland types in search of fish, frog, and invertebrate prey. Muskrat and beaver are present and feed on cattails and woody plants, respectively. These wetlands are also very important for the reproduction of many invertebrates, which are a significant component of the food web that many other species depend on.

Table 10. Target species for wetland management on Honeoye Inlet WMA.

Target Group	Example Species	Beneficial Habitat Structure
Breeding waterfowl	Mallard and wood duck	Mallard nesting occurs in meadows near open water. Wood duck brood rearing occurs in wetlands that have an open water component.
Furbearers	Beaver, mink, muskrat, and otter	A diversity of wetland types that support preferred foods: beaver (woody plant material), muskrat (cattails), mink (small mammals), otter (fish).
Amphibians and reptiles	Western chorus frog and eastern ribbon snake	Chorus frogs breed in shallow temporary pools near fields and meadows. Ribbon snake forage along the edges of ponds, streams, and marshes and seek cover in dense shrubs.

Management targeting these species, as well as the overall continued protection of this wetland complex, will also benefit numerous other species that use these habitats.

MANAGEMENT HISTORY

The land composing Honeoye Inlet WMA has a history of wetland alteration, including draining and clearing, which began in the 1800s and has occurred as recently as the 1980s. Drainage activity primarily occurred to establish and expand agricultural fields and included ditch excavation, and rerouting and straightening the Inlet channel. In the 1960s and 1970s, four small ponds were constructed on the valley bottom and one on the eastern hilltop.

Under DEC management, several of the wetter fields on the valley bottom were enrolled in the NRCS Wetland Reserve Program and mowing actions were discontinued, allowing wet meadow and emergent vegetation to establish. Minimal wetland management occurred on the WMA until 2016, limited to avoiding disturbance and allowing wetlands to undergo ecological succession.

The Honeoye Inlet restoration project (2016 to 2017) was a partnership between DEC, Ontario County Soil and Water Conservation District, the Nature Conservancy, Honeoye Lake Watershed Task Force, U.S. Fish and Wildlife Service, Finger Lakes Community College, and the Honeoye Valley Association. Approximately 3,500 feet of new, meandering channel was excavated to reroute the Inlet through low-lying fields and was designed to flood during seasonally wet months and significant storm events, reconnecting the Inlet with its historic floodplain. The old section of Inlet channel, which was ditched and straightened in the 1960s, was disconnected and partly filled, creating multiple small pools. Several small ponds and ditch plugs were also installed in nearby fields to slow and disperse concentrated flows from seasonal streams draining the surrounding hillsides. Additionally, an old farm lane just west of the new stream channel was raised in height and reinforced to impound water traveling across the valley bottom, establishing an approximately 7-acre marsh (Photo 15).

Photo 14: In 2016, a farm lane was improved to impound water and shallowly flood 7 acres of old field and alder thicket.

Photo: Michael Palermo, DEC

IMPLEMENTATION PLAN AND ANTICIPATED SCHEDULE

- **Management planned for 2020-2029** (Figures 3, 7, and 8):
  - Maintain integrity of existing wetland impoundments in accordance with Dam Safety Inspection and Management Plans (currently being developed).
    - Mow dams annually to prevent establishment of woody vegetation.
    - Inspect dams and spillways annually and repair as needed.
    - Excavate built-up sediment from ponds as necessary to maintain open water and water depth.
  - Enhance natural emergent marsh and wet meadows to improve habitat value.
    - In areas of dense reed canarygrass, excavate small scrapes and/or potholes (approximately 1/10 to 1/4 acre each) to provide open water for wildlife.
    - Spoil material from potholes can be spread nearby and seeded with vegetation favored by nesting waterfowl.
    - If spoil contains a significant component of sand and/or gravel, this may be used to establish turtle nesting sites near the Inlet.
  - Monitor for invasive vegetation (e.g., Phragmites, knotweed, & purple loosestrife) and as needed control mechanically, biologically, and/or with herbicide.
    - Phragmites control in the marsh near the overlook parking lot is a priority.
  - Consider additional wetland projects that will benefit wetland-dependent species as opportunities and funding arise.

BEST MANAGEMENT PRACTICES

Management activities within wetlands will take into consideration the timing of wildlife breeding and hibernating seasons and when practicable these periods of time will be avoided. Wetland management will follow guidelines established in the General Permit GP-0-16-003: Habitat Management by NYSDEC, and any necessary permits will be obtained.

MANAGEMENT EVALUATION

Current monitoring of wetland habitat use at Honeoye Inlet WMA is informal and data are often derived opportunistically and will be continued. However, the establishment of periodic breeding and migrating waterfowl surveys would be beneficial to better understand species diversity and habitat use. Monitoring of invasive vegetation control efforts will be necessary to ensure success and prevent future spread.

STREAMS

Streams are defined as any watercourse on the WMA, including both year-round and intermittent flows. This includes the aquatic habitat associated with the stream channel but does not include the wetland habitat that may occur within the floodplain or riparian zone of a watercourse. For management purposes and habitat acreage calculations, some streams are lumped within surrounding habitat stands (e.g., an intermittent stream that flows through a forest stand is included in that stand's acreage calculation).

MANAGEMENT OBJECTIVES

- Maintain the habitat value of streams used by walleye and trout.
- Allow a forested riparian buffer to develop along the restored Honeoye Inlet channel.
- Maintain the quality of waters found on the WMA.

DESCRIPTION OF EXISTING STREAM HABITAT AND TARGET SPECIES

Approximately 9.5 miles of streams occur on Honeoye Inlet WMA (Figures 3, 7, and 8). This includes approximately 5.5 miles of Honeoye Inlet and several intermittent streams flowing off the surrounding hills. Honeoye Inlet comprises approximately 38 acres of the WMA.

The lower (most northern) 3 miles of the Inlet is wide and slow moving, as it flows through the silver maple-ash swamp (Photo 16). This stretch was dredged in the 1960s to a width of 40 feet and a depth of 8 feet. A half mile branch channel was dredged at the same time and connects with the Inlet near the Finger Lakes Community College Muller Field Station. This part of the Inlet and the branch channel have warm water temperatures with a silt, mud, and cobble substrate.

Just upstream from the swamp, there is approximately 3,500 feet of new channel (Photo 17), that was excavated in 2016 to reroute the stream and replace the old channel, which was ditched and straightened in the 1960s. The new channel was designed to contain meanders, riffles, and pools that mimic natural stream conditions. Currently, the banks of this reach are fairly open and most of the stream is in full sunlight, but as tree plantings mature and natural succession continues, a riparian forest is expected to develop and shade the water.

From the bridge at the south end of the new Inlet channel, upstream to West Lake Road, the channel has small meanders and is partly shaded by riparian forest. Much of this section has likely been significantly altered in the past, as nearly 2,000 feet of it flows in a straight north-south line, but historic aerial imagery and topographic maps suggest it has been located here for at least 60 years.

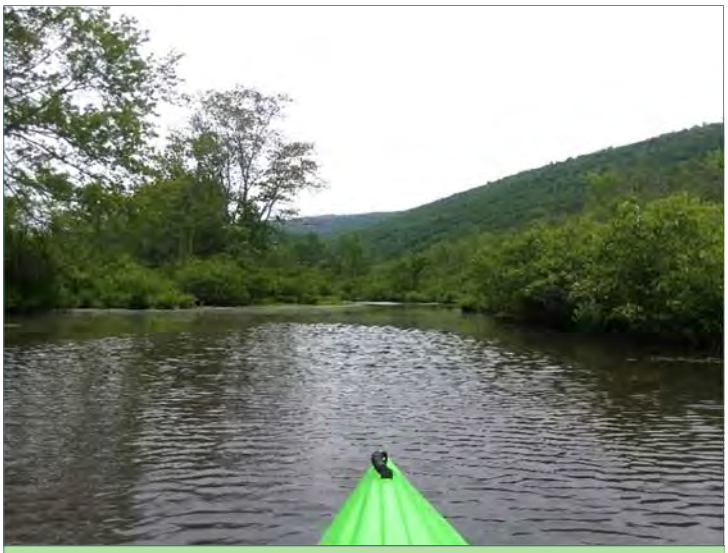

Photo 15: From the mouth of the inlet to about 3 miles south, the channel is wide and slow moving as it flows through the swamp.

Photo: Michael Palermo, DEC

South of Cross Road flows just over 1 mile of the original Honeoye Inlet stream (Photo 18). This reach contains extensive meandering with abundant woody debris, gravel, and cobble, and is surrounded by a wet riparian forest that provides reliable shade, keeping waters cool. The gradient of elevation loss is also higher here, dropping approximately 80 feet in 1 mile, creating faster flows than in downstream sections of the Inlet. This stretch contains most of the trout occurring on the WMA.

Several intermittent streams flow off the surrounding steep hillsides (Photo 19). Maximum flows occur in spring and after heavy precipitation events. Substrate for these streams is primarily cobble, shale, and/or bedrock. The smallest of these streams will dry up by late summer, but some of the larger streams often contain pools and moisture even through dry periods. These streams provide valuable water for terrestrial wildlife on the dry hillsides.

Photo 16: The Inlet restoration project excavated a new stream channel through old fields, and trees were planted to stabilize banks and establish a future riparian forest.

Photo: Michael Palermo, DEC

Both Honeoye Inlet and its tributaries provide valuable fish and wildlife habitat, and the associated water quality directly impacts habitats within Honeoye Lake. The lower reaches of the Inlet contain a relatively good warm water fishery, similar to what is contained in the lake, including black crappie, bluegills, largemouth bass, pickerel, pumpkinseeds, and walleye. Most of the walleye in Honeoye Lake are stocked fish; however, each spring many migrate up the Inlet in search of

spawning habitat. Walleye prefer to spawn on rocky substrate, which is limited on the WMA, as much of the substrate in the larger streams is silty and muddy.

Photo 17: The original, natural Inlet stream is present south of Cross Road and provides appropriate habitat conditions for trout.

Photo: Michael Palermo, DEC

Wild brook trout, brown trout, and rainbow trout are all present on the WMA. Since Honeoye Lake is generally too warm to support trout, these populations are resident to the cooler reaches of the Inlet toward the headwaters. Recent surveys have found that brook trout are mostly upstream of the WMA and only occasionally move onto the property. Brown trout provide a relatively good fishing opportunity on the WMA, mostly south of Cross Road. The restored Inlet channel contains stream habitat features beneficial to fish, and as a riparian forest develops and shades the water in that stretch, it may begin to support trout. The restored channel should also benefit freshwater mussels that occur here, which includes common species, such as giant floater and eastern elliptio.

River otter and beaver are commonly present in Honeoye Inlet. River otter are a semi-aquatic species that spend a lot of time foraging in and along the water for fish, mussels, and frogs. Several active beaver dams are present on the Inlet, mostly on the slow flowing section in the silver maple-ash swamp and provide beneficial structural diversity to the stream. Multiple fish-eating birds also frequent the Inlet, including kingfisher, bald eagle, and osprey.

Photo 18: Several small streams flow off the steep hillsides and contain rocky substrate and small shale bluffs.

Photo: Michael Palermo, DEC

Stream salamanders, such as spring and dusky salamanders, depend upon the habitat provided by streams on the WMA. They are typically under rocks and woody debris within and along both large and small streams and are indicators of good water quality.

Non-native, invasive aquatic plants, such as curly pondweed and Eurasian watermilfoil, are likely present in the Inlet, especially the deeper, slow-moving downstream stretch, since these species are present in Honeoye

Lake. Knotweed is also present along the banks of the Inlet, mostly in the vicinity of Cross Road, and has the potential to negatively impact stream habitats as it creates thickets with bare soil that is susceptible to erosion. Controlling these invasives is a challenge and is a priority for management.

Table 11. Target species for stream management on Honeoye Inlet WMA.

Target Group	Example Species	Beneficial Habitat Structure
Fish	Brook, brown, and rainbow trout	Cool, clean water with in-stream rocky and woody structure.
Furbearers	River otter and beaver	Open water that supports preferred foods: beaver (woody plant material) and otter (fish).
Freshwater mussels	Giant floater and eastern elliptio	Unpolluted, unfragmented waterways with undisturbed substrate and low rates of sedimentation.

MANAGEMENT HISTORY

Prior to DEC management, Honeoye Inlet and several tributary streams were manipulated to improve drainage, including rerouting, dredging, and diversion into ditches. Most intermittent streams on the forested hillsides are unaltered; however, some of these were impacted by skid trails crossing them during logging operations in the 1960s and 1970s.

Under DEC management, only one significant project has occurred to manage streams on the WMA. The Honeoye Inlet restoration project began in 2016 and was completed in 2017, and redirected flow into an excavated channel that mimics the natural meanders that were historically present, while abandoning the old linear channel that was excavated in the 1960s. Several plugs were also installed in ditches on the valley bottom, slowing and dispersing flow into the floodplain.

IMPLEMENTATION PLAN AND ANTICIPATED SCHEDULE

- **Management planned for 2020-2029** (Figures 7 and 8):
    - Maintain and improve the quality of waters found on the WMA.
        - All habitat management activities on the WMA will adhere to the Environmental Conservation Law and follow best management practices.
    - Establish a forested riparian buffer along Honeoye Inlet where it borders fields.
        - Approximately 1,800 feet of Inlet bank borders fields that are planned to be maintained as grassland. A 40-foot buffer from the stream bank will be established in these areas.
        - This buffer area will primarily be allowed to naturally revert to native trees and shrubs, but may also be intentionally planted.
        - This forested buffer will enhance Inlet habitat values by stabilizing streambanks, providing woody material and leaf litter inputs, shading water to keep temperatures cool, absorbing runoff, and filtering nutrients and pollutants.

- Monitor and control for aquatic and riparian invasive vegetation.
    - Control may include mechanical, biological, and herbicidal methods.

BEST MANAGEMENT PRACTICES

All management activities on the WMA will comply with the New York State Freshwater Wetlands Act (ECL Article 24) and Water Resources Law (ECL Article 15, Title 5).

MANAGEMENT EVALUATION

Surveys for fish in Honeoye Inlet are periodically conducted by DEC and Finger Lakes Community College, and will be continued. Periodic surveys of freshwater mussels and stream salamanders would be beneficial to better understand species diversity and use.

HABITAT MANAGEMENT SUMMARY

In summary, Table 12 lists the habitat management actions planned for Honeoye Inlet WMA over the next ten years. Any substantive changes will be appended to this HMP annually or as needed (Appendix D).

Table 12. Summary of habitat management actions recommended for Honeoye Inlet WMA, 2020-2029 (also see Figures 7 and 8).

Habitat	Management Action	Acres	Timeframe
Forest	Clearcut Stand B7.1	1	2020-2024
Forest	Shelterwood harvest of Stands B12 and B13	100	2020-2024
Forest	Convert Stand B23 to grassland	1	2020-2024
Forest	Single-tree and group selection harvest in Stand B9	20	2025-2029
Forest	Timber stand improvement harvest in Stands B4, B8, B17, and B20	56	2025-2029
Forest	Monitor infestation of EAB in ash dominated stands and treat stands to ensure desirable regeneration	≤ 686	2020-2029, as needed
Forest	Monitor and control invasive vegetation throughout all forest stands	≤ 1,470	2020-2029, ongoing
Shrubland	Maintain Stand B950 as shrubland by cutting trees, brush cutting, and potentially prescribed fire	4	2020-2029, as needed
Shrubland	Strip clearcut Stand B951 approximately every 5 years to perpetuate alder thickets	16	2020-2029
Shrubland	Allow stands B952 and B953 to continue to develop into alder thickets	10	2020-2029
Shrubland	Maintain most hedgerows but remove ash where practicable to prevent maintenance issues	17	2020-2029
Shrubland	Convert hedgerow between Fields 24 and 25 to grassland	1	2020-2024
Shrubland	Cut most trees from hedgerow between Fields 20, 21, and 26	4	2020-2029

Table 12. Continued

Habitat	Management Action	Acres	Timeframe
Shrubland	Monitor and control invasive species throughout all shrubland stands	≤ 61	2020-2029, ongoing
Grassland	Maintain grassland acreage with mowing and potentially prescribed fire	≤ 306	Annual, biennial, or triennial
Grassland	Improve grassland quality (e.g., lime, fertilize, disk, and/or reseed)	≤ 306	2020-2029, as needed
Grassland	Allow a 40-foot wide strip of field along the Honeoye Inlet to revert to a forested riparian buffer	2	2020-2029
Grassland	Revert Fields 8, 11, 14b, and 16 to shrubland	14	2020-2029
Grassland	Monitor and control invasive species throughout all grassland fields	≤ 306	2020-2029, ongoing
Wetlands	Maintain impounded wetland dikes and control structures (e.g., inspect, mow, burn, and repair)	2,660 ft	Annually
Wetlands	Excavate small scrapes and/or potholes throughout natural emergent marsh and wet meadows	≤ 40	2020-2029
Wetlands / Streams	Monitor and control invasive species	≤ 89	2020-2029, ongoing
Streams	Establish a forested riparian buffer where fields border Honeoye Inlet	2	2020-2029

III. FIGURES

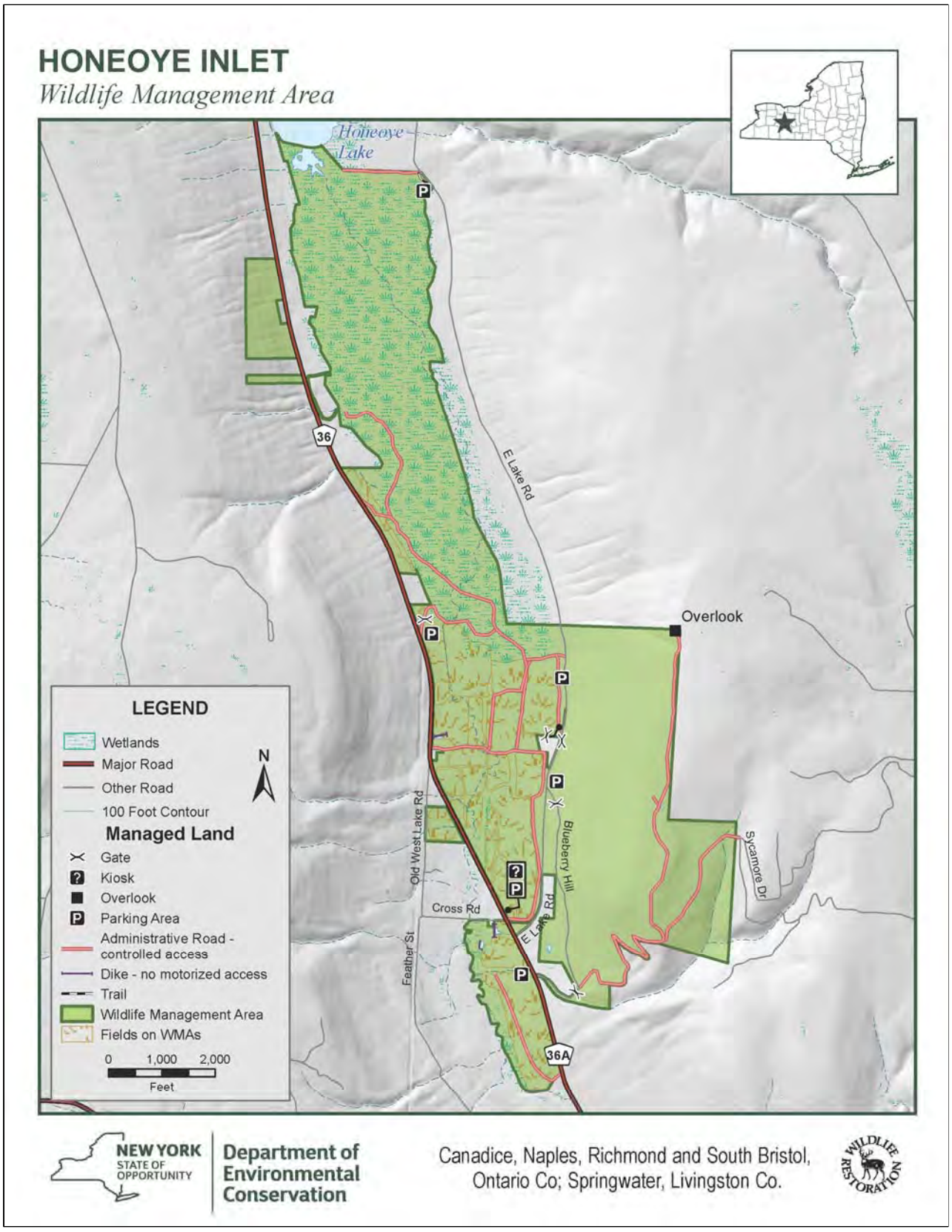

FIGURE 1. Location and access features at Honeoye Inlet WMA.

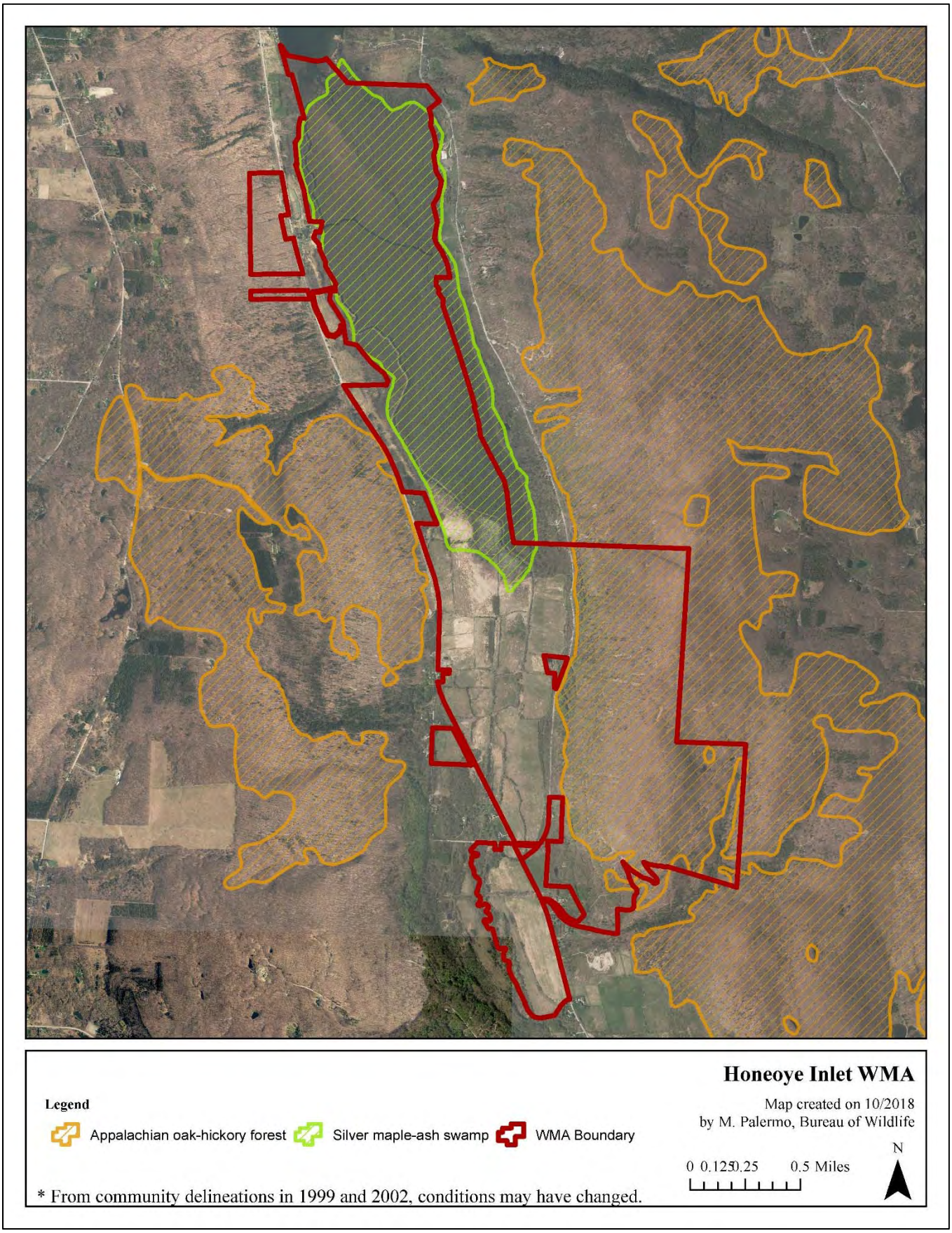

FIGURE 2. Significant ecological communities on Honeoye Inlet WMA. Data from the NY Natural Heritage Program.

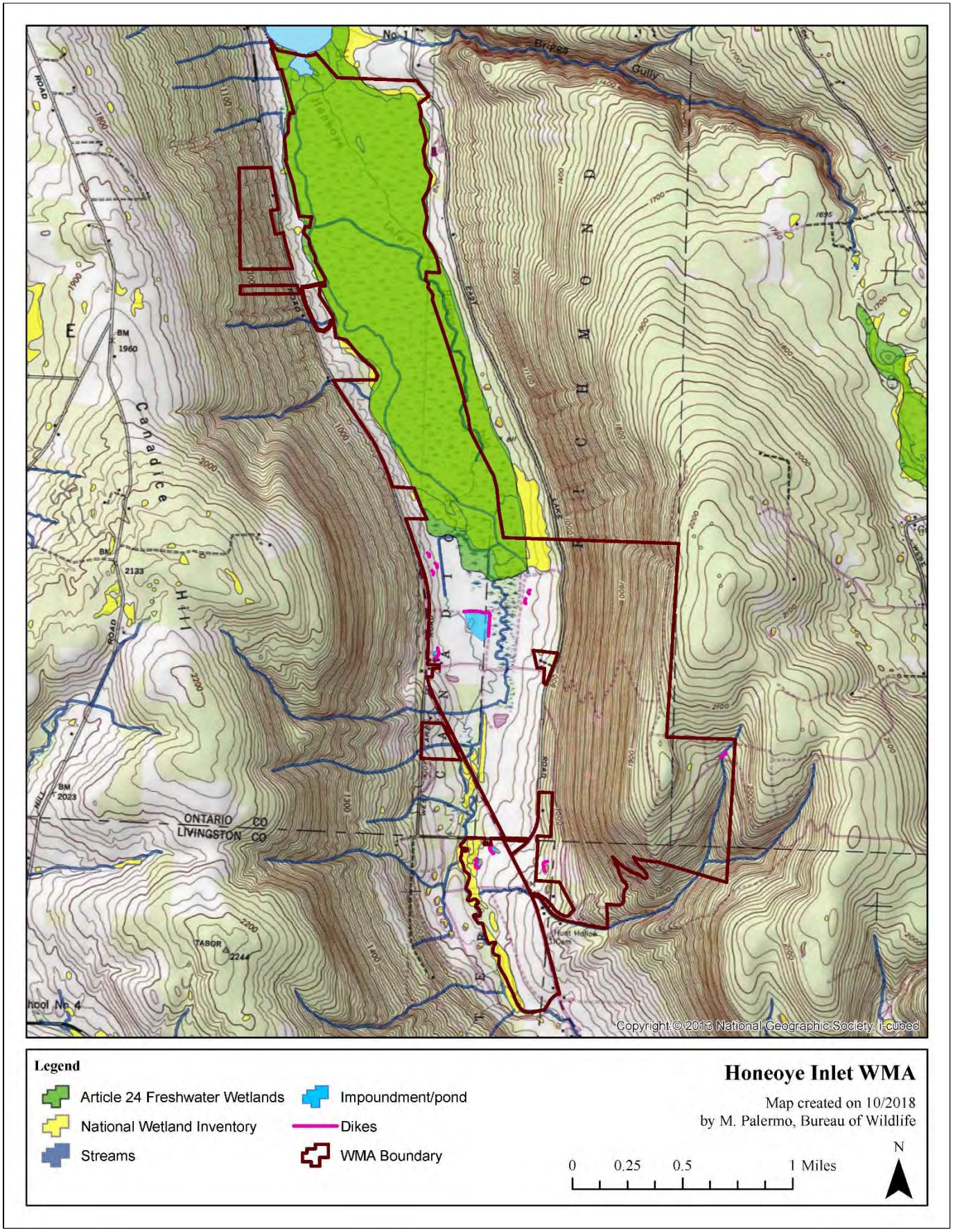

FIGURE 3. Wetlands, open water, and streams of Honeoye Inlet WMA. Note: Wetland boundaries are not exact and may not be used for regulatory purposes without a current delineation.

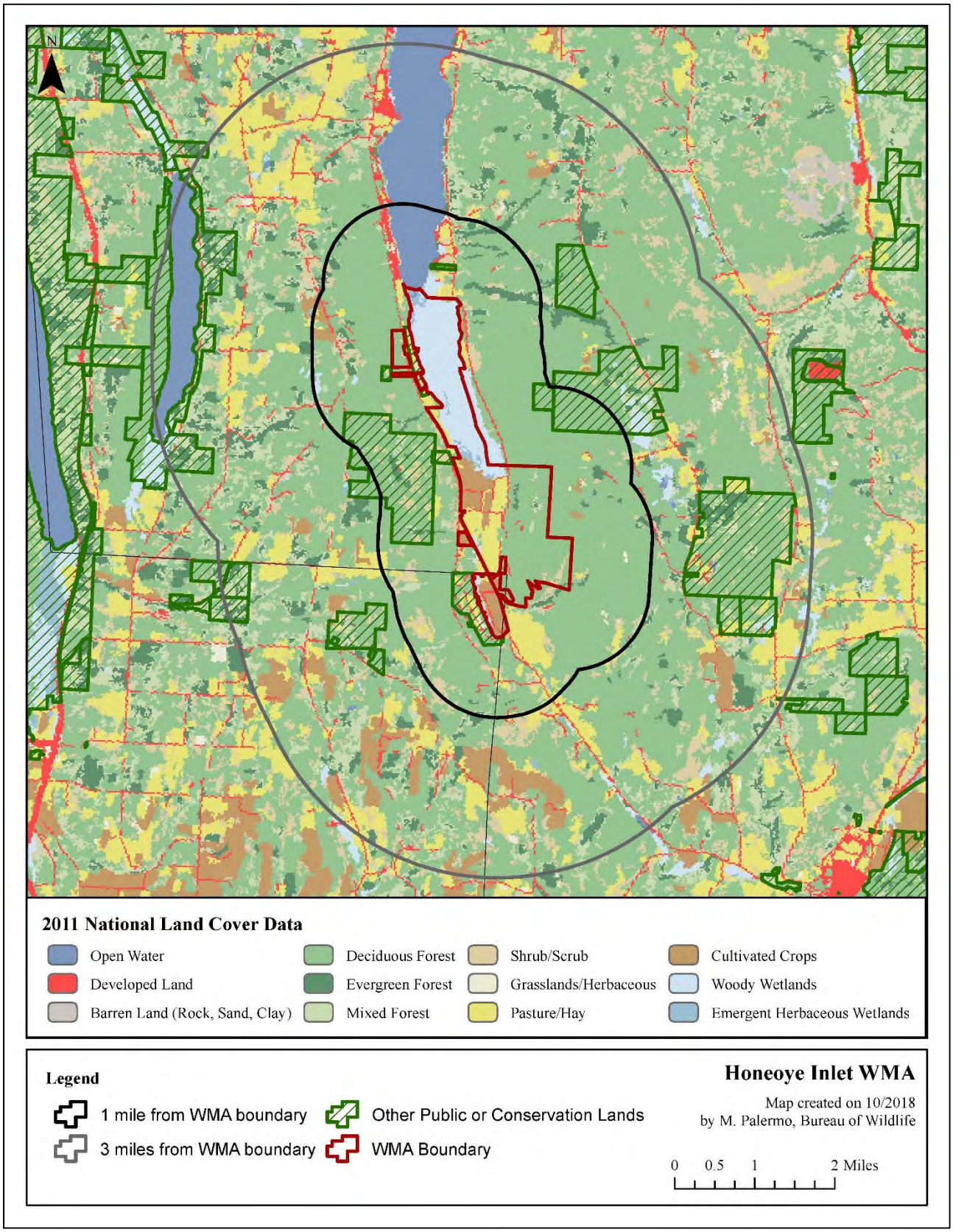

FIGURE 4. Land cover types and conservation lands in the landscape surrounding the WMA. Conservation lands are from the NY Protected Areas Database available at http://www.nypad.org/. Land cover types are from the 2011 National Land Cover Data (NLCD) and differ from the habitat types used in the WMA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

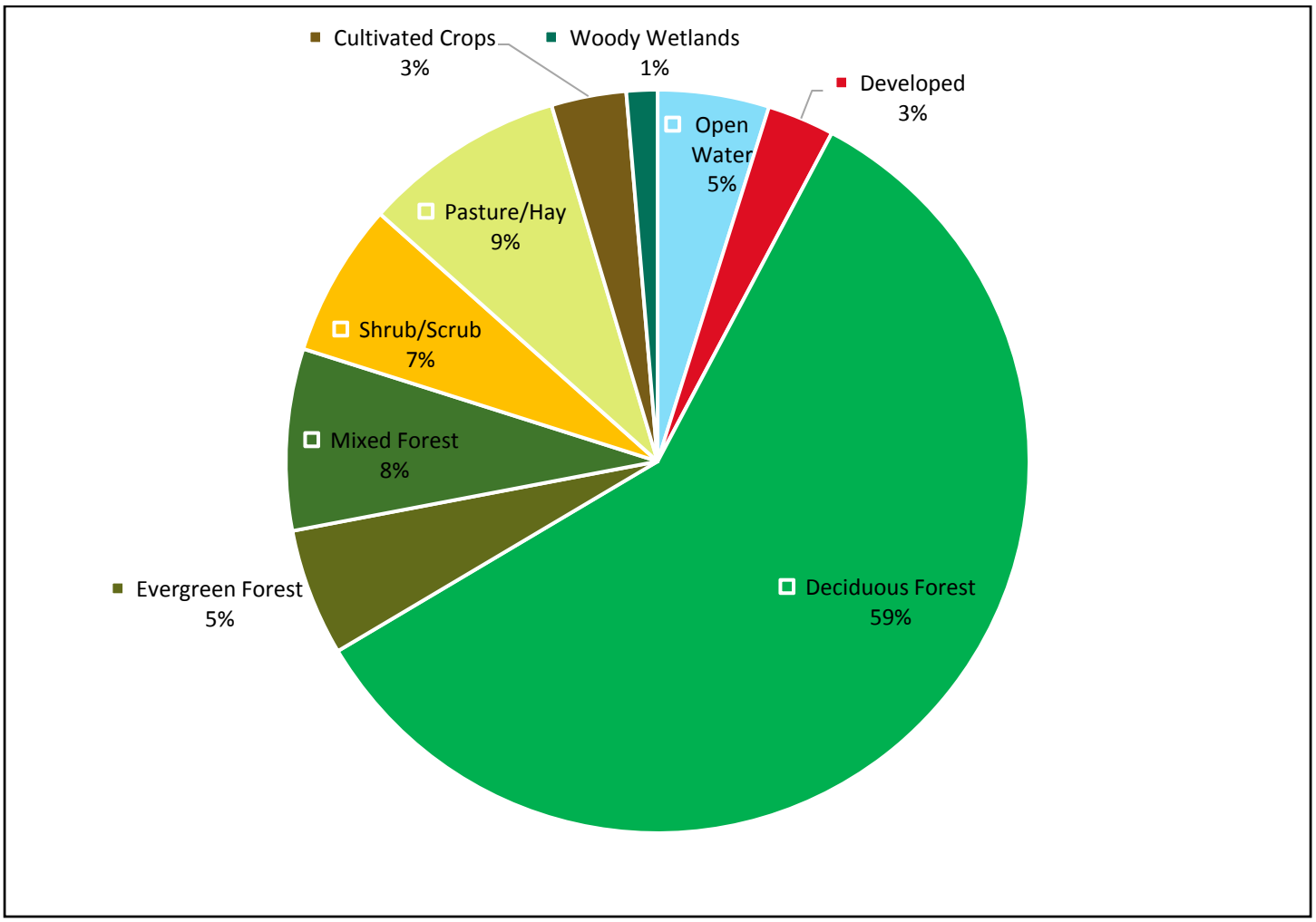

FIGURE 5. Percent cover of land cover types within three miles of Honeoye Inlet WMA. Land cover types are from the 2011 National Land Cover Data (NLCD) and differ from the habitat types used in the WMA habitat inventory. NLCD definitions are available online at https://www.mrlc.gov/data/legends/national-land-cover-database-2011-nlcd2011-legend.

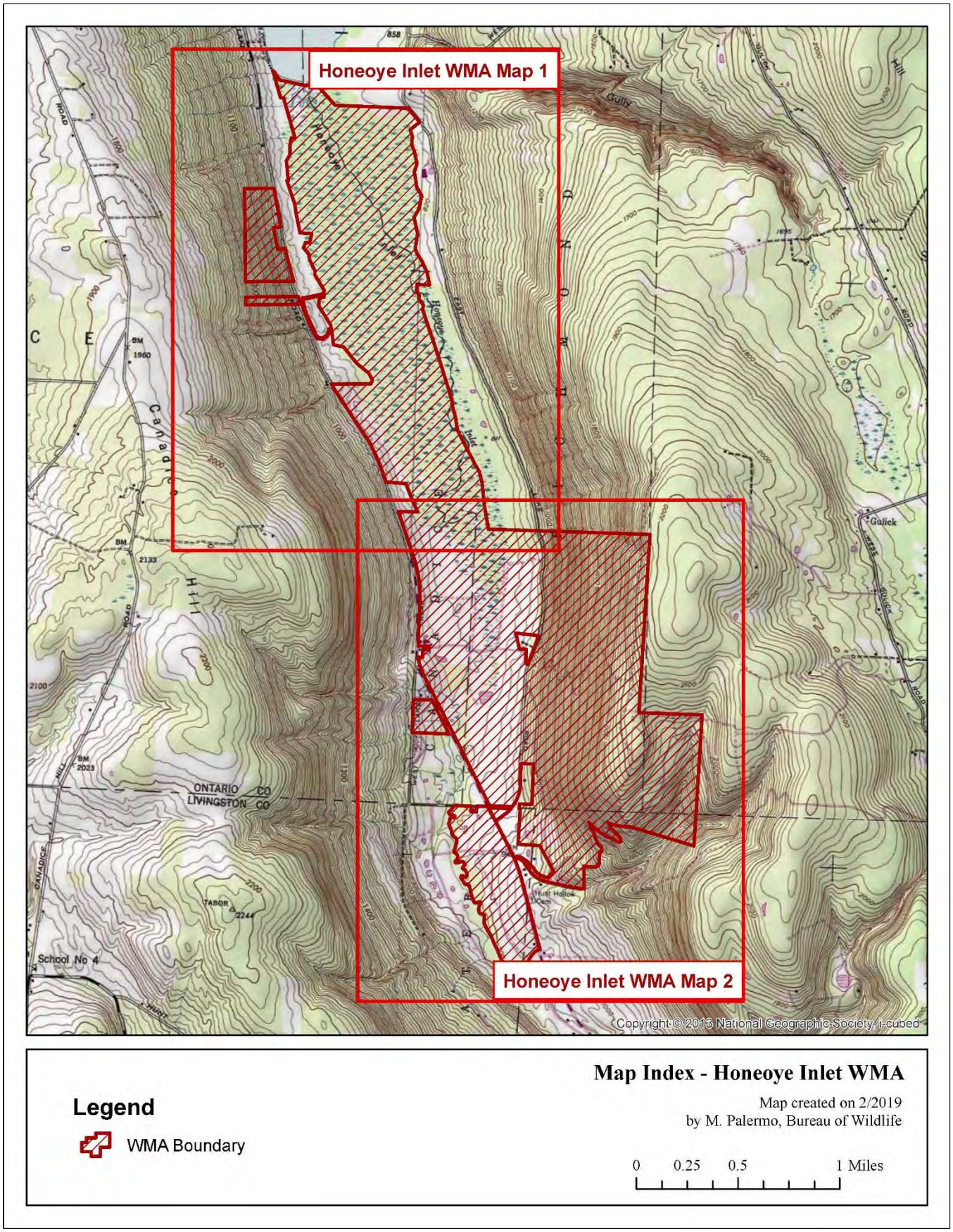

FIGURE 6. Map index for Figures 7 and 8.

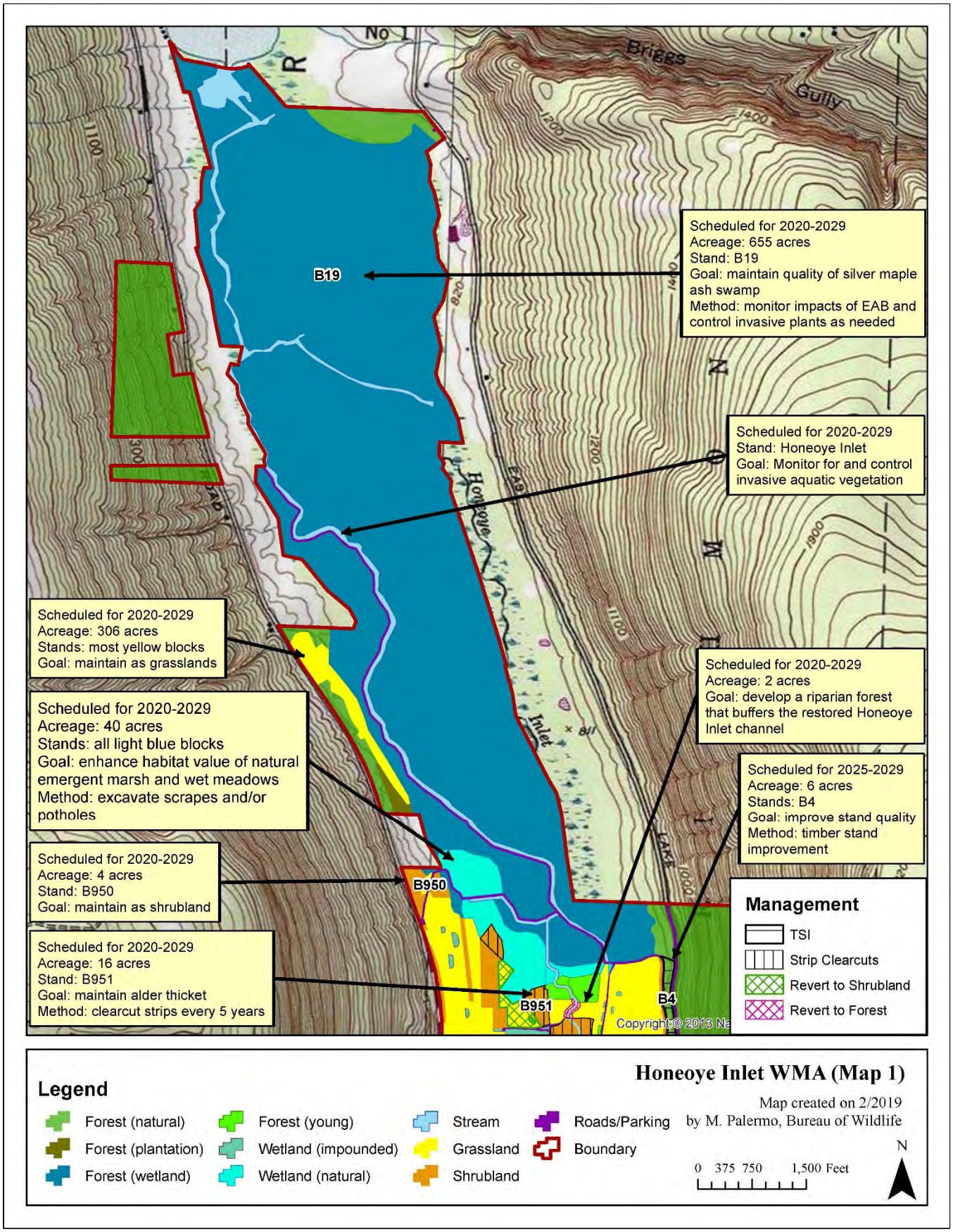

FIGURE 7. Habitat types and location(s) of proposed management on Honeoye Inlet WMA (Map 1). Numbers indicate stand and field numbers from habitat inventory.

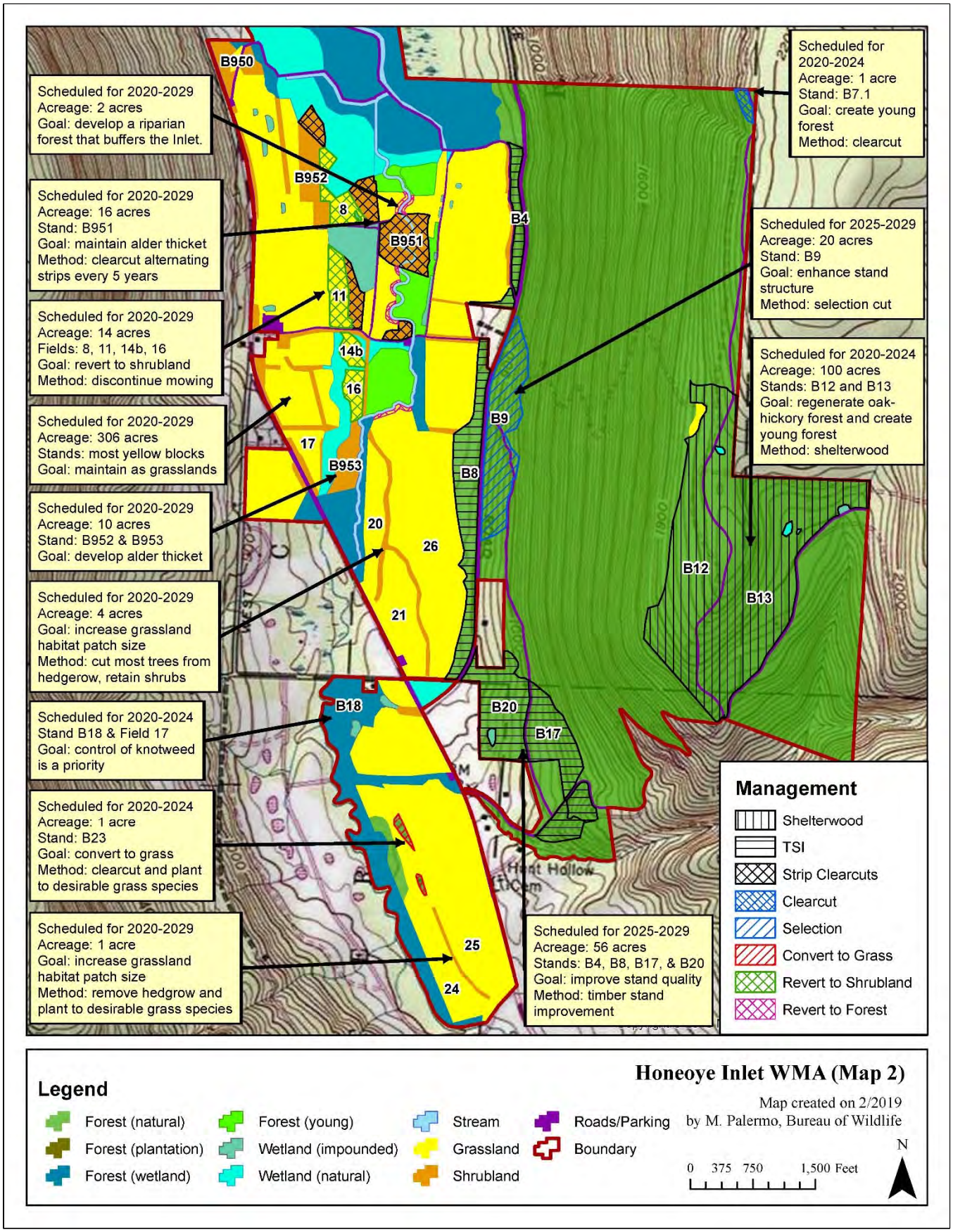

FIGURE 8. Habitat types and location(s) of proposed management on Honeoye Inlet WMA (Map 2). Numbers indicate stand and field numbers from habitat inventory.

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. For example, young forest target species at Honeoye Inlet WMA include: American woodcock and ruffed grouse.

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).[17] 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).[18]

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.

[17] Available online at http://www.dec.ny.gov/regulations/28693.html.
[18] 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.