Habitat Management Plan
for
Plantation Island Wildlife Management Area
2018 - 2027

Entrance of Plantation Island WMA at Lock #18.

Photo: NYSDEC, Megan Cardon, Rachel Hillegas

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317 Washington Street, Watertown, New York 13601

November 1, 2017

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

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Financial support for development of this Habitat Management Plan was provided by the Federal Aid in Wildlife and Sport Fish Restoration Program and non-federal funds administered by the New York State Department of Environmental Conservation including Habitat & Access Stamp funds.

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SUMMARY

Plantation Island Wildlife Management Area (WMA) is situated in an area rich in New York State history. The island is bounded to the north by the Mohawk River and to the south by the 1913 Barge Canal, both of which contributed significantly to early state commerce. The island itself was created by the Barge Canal and harbors rare remnants of a canal and lock system built by the Western Inland Navigation & Lock Company around 1798, as well as segments of the later 1825 Erie Canal. The WMA is also close to the historically significant Fort Herkimer Church. The portion of the island owned by DEC was acquired in 1985 with funds from the 1972 Environmental Quality Bond Act. Due to the island's relative inaccessibility, the region's Revolutionary War era history, and its history as a former site of Iroquois Nation activity, care will be taken to limit disturbance to potentially significant archeological resources on the WMA while completing management activities. Access to the WMA is limited to crossing the Mohawk River or the barge canal by boat or by crossing the Barge Canal Lock 18 gate.

A habitat management and recreational use plan was written and adopted in 1988. The goals and objectives of this plan are somewhat outdated and would be difficult to administer today. But the general intent of the plan was to initiate various small scale habitat improvement projects, consider creating better access for sportsman, and be very sensitive to historical resources on the property. The plan also promoted cooperation between State agencies to manage the entire island as one wildlife management area for the benefit of the public.

There are few habitat management activities planned for Plantation Island WMA, similar to the 1988 Plan, due to the following:

- Access to the island is significantly hindered by the lack of a road network or dry ground alternatives. The only land access is via the Lock 18 gate.
- Invasive plant species have colonized large areas of the island and may hinder desirable seedling regeneration following habitat management.
- Historical resources are located across Plantation Island. Due to the sensitivity of these sites, management activities would need to be conducted in a way that limits impact to these historical features.

Habitat management goals for Plantation Island WMA include:

- Maintain 62% as intermediate and mature forest to support floodplain diversity for a variety of wildlife within the WMA;
- Maintain 31% as non-forested wetlands and open water to provide migratory stopover habitat and sustainable hunting and trapping opportunities; and
- Manage 7% as young forest (10% of the forested acres) in the form of apple tree releases/seed tree cuts to increase soft mast production and structural diversity for Ruffed Grouse and American Woodcock.

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

SCOPE AND INTENT

Primary purposes of this document:

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

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

Definitions are provided in Appendix A.

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

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

WMA Overview

Location

Plantation Island WMA is located in DEC Region 6, Town of German Flatts, Herkimer County (Figure 1). The island is just east of Herkimer between the Barge Canal and the Mohawk River.

Landscape view of Plantation Island WMA.

Photo: NYSDEC, Rachel Hillegas

Total Area

200 acres

Habitat Inventory

A new habitat inventory of the island was completed in 2015, which includes both the WMA and property owned by NYS Canals (Figure 6). This process documented the species composition and ecological characteristic of the area. Knowing what the ecosystem is comprised of establishes the first step in determining management objectives. Habitat inventory should be conducted every ten to fifteen years to document the existing acreage of each habitat type and to help determine the location and extent of future management actions. Table 1 summarizes the current acreage by habitat type and the desired acreage after management. Desired conditions were determined with consideration of habitat requirements of targeted wildlife, current conditions on the WMA, and conditions in the surrounding landscape (see Landscape Context section below).

Table 1. Summary of current and desired habitat acreage on Plantation Island WMA.

Habitat Type	Current Conditions (as of 2015)			Desired Conditions	
	Acres	Percent of WMA	Miles	Acres	Percent of WMA
Forest [a]	138	69%		124	Decrease to 62%
Young forest	0	0%		14	Increase to 7%
Shrubland	0	0%		0	No change
Grassland	0	0%		0	No change
Agricultural land	0	0%		0	No change
Wetland (natural) [b]	62	31%		62	No change
Wetland (impounded) [b]	0	0%		0	No change
Open water	0	0%		0	No change
Roads	0	0%	0	0	No change
Rivers and streams			0		No change
Total Acres:	200	100%		200	

[a] Forest acreage includes all mature and intermediate age classes of natural forest, plantations, and forested wetlands. Young forest is reported separately. Definitions are provided in the Forest section of this plan.
[b] Wetland acreage does not include forested wetlands, since they are included in the Forest category.

ECOLOGICAL RESOURCES

Wildlife Overview:

Wildlife species present on Plantation Island WMA are the typical species found throughout Northern New York and the Mohawk Valley area, such as:

- White-tailed deer, gray squirrel, red squirrel, muskrat, woodchuck, mink, short-tailed weasel, river otter, raccoon, red fox, coyote, meadow vole, eastern cottontail, beaver
- Osprey, Bald Eagle, American Woodcock
- Painted turtle, snapping turtle, eastern garter snake, northern water snake
- Green frog, bull frog, pickerel frog, spring peeper, American toad

Wildlife and Plant Species of Conservation Concern:

The following federal or 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).[1] SGCN listed below include species that have been documented on or within the vicinity of the WMA and are likely to occur in suitable habitat on the WMA. Other SGCN may also be present on the WMA. Data sources include: the NY Natural Heritage Program, NY Breeding Bird Atlases,[2] NY Reptile and Amphibian Atlas,[3] DEC wildlife surveys and monitoring, and eBird.[4]

[1] The 2015 New York State Wildlife Action Plan identifies 366 Species of Greatest Conservation Need (SGCN) including 167 High Priority SGCN. Available online at http://www.dec.ny.gov/animals/7179.html.
[2] Available online at http://www.dec.ny.gov/animals/7312.html.
[3] Available online at http://www.dec.ny.gov/animals/7140.html.
[4] Available online at http://ebird.org/content/ebird/about/. © Audubon and Cornell Lab of Ornithology.

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

Species Group	Species	Federal Status	NY Status	NY SGCN Status
Birds	American Black Duck			HP
	American Kestrel			x
	Bald Eagle		T	x
	Brown Thrasher			HP
	Common Goldeneye			x
	Common Loon		SC	x
	Common Nighthawk		SC	HP
	Common Tern		T	x
	Eastern Meadowlark			HP
	Golden Eagle		E	x
	Great Egret			x
	Greater Scaup			x
	Horned Grebe			x
	Lesser Scaup			x
	Long-tailed Duck			x
	Northern Harrier			x
	Northern Pintail			x
	Olive-sided Flycatcher			HP
	Peregrine Falcon		E	x
	Pied-billed Grebe		T	x
	Ruddy Duck			x
	Ruffed Grouse			x
	Rusty Blackbird			HP
	Scarlet Tanager			x
	Wood Thrush			x
Mammals	Eastern red bat			x
	Eastern pipistrelle			HP
	Hoary bat			x
	Indiana myotis	E	E	HP
	Little brown myotis			HP
	Northern myotis	T	T	HP
	Silver haired bat			x
	Small footed myotis		SC	x
Amphibians and reptiles	Blue-spotted salamander		SC	HP
	Eastern ratsnake			x
	Smooth greensnake			x
	Snapping turtle			x
	Wood turtle		SC	HP
Fish	None known			
Invertebrates	None known			
Plants	None known			

Significant Ecological Communities:

The majority of Plantation Island WMA is made up of a noteworthy natural community identified by the NY Natural Heritage Program (Figure 2). 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 noteworthy ecological community occurs on the WMA; the community description is from *Ecological Communities of New York State, Second Edition:*[5]

- **Floodplain Forest** (S2S3) - typically a hardwood forest that occurs on mineral soils on low terraces of river floodplains and river deltas. These sites are characterized by their flood regime; low areas are annually flooded in spring and high areas are flooded irregularly. Some sites may be quite dry by late summer whereas other sites may be flooded again in late summer or early autumn (these floods are caused by heavy precipitation associated with tropical storms). This is a broadly defined community; floodplain forests are quite variable and may be very diverse.

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

Soils:

The soil makeup of Plantation Island is mostly Teel Silt Loam with smaller portions of the island made up of Carlisle Muck, Cohoctah Mucky Very Fine Sandy Loam, Cut and Fill Land, Freshwater Marsh, Hamlin Silt Loam, and Wayland Soils Complex.[6] These Mohawk River Floodplain Soils are regularly overturned and refreshed/renewed by water movement, erosion, and soil deposition, which produces fertile soils for plant growth.

Special Management Zones:

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

- One wetland regulated by Article 24 of the Environmental Conservation Law (ECL) and several additional federally regulated wetlands shown on the National Wetlands Inventory (NWI; Figure 3). Each state-regulated wetland is protected by a buffer zone of 100 feet from the delineated wetland boundary, known as the adjacent area. There may be forestry prescriptions associated with forested wetlands and adjacent areas, and each management prescription will be reviewed individually for determination of impacts.

Guidelines for habitat management projects within these areas are outlined in the Division of Lands and Forests *Rules for Establishment of Special Management Zones on State Forests and Wildlife Management Areas.*[7] Some habitat management activities may either be prohibited or restricted in order to protect these features. Certain activities are permitted within the wetland

[5] Edinger, G. J., D. J. Evans, S. Gebauer, T. G. Howard, D. M. Hunt, and A. M. Olivero. 2014. Ecological Communities of New York State, Second Edition. New York Natural Heritage Program, NYS Department of Environmental Conservation, Albany, NY. Available online at http://www.dec.ny.gov/animals/97703.html.
[6] Soil classification information available from US Department of Agriculture, Natural Resources Conservation Service. Available online at http://www.nrcs.usda.gov/wps/portal/nrcs/surveylist/soils/survey/state/?stateId=NY.
[7] Available online at http://www.dec.ny.gov/outdoor/104218.html.

SMZs through the authorization of DEC General Permit GP-0-16-003. Any deviations from these guidelines will be addressed in the individual stand prescriptions.

Other special management concerns involve the 40 acres of NYS Canals land that has been managed by DFW in the past via a Memorandum of Understanding (MOU). DEC will not proceed with managing these lands unless the MOU is renewed. The east portion of the island as well as a smaller area on the west side near the old Erie Canal Locks has been used as a containment area for canal dredging or spoils via pumping the material in a slurry form by rigged pipeline. Dredge dumping on Plantation Island has not occurred in many years, but could potentially occur again in the future.

LANDSCAPE CONTEXT

The goals of this HMP have been developed with consideration of surrounding landscape features and the availability of habitats and other conservation lands adjacent to Plantation Island WMA (Figures 4 and 5). The surrounding landscape within a three-mile radius of the WMA is composed of the following land cover types:

- Evergreen forest (27%)
- Cultivated crops (24%)
- Wetlands (15% combining open water, emergent, and woody wetlands)
- Early successional shrubland (12%)
- Grassland (10%)
- Developed (7%)
- Pasture/hay (3%)
- Mixed forest (2%)

Currently, the forested landscape on the WMA includes no young forest habitat, less than the DFW's Young Forest Initiative (YFI) goal of managing at least 10% of the forested landscape on most WMAs as young forest.[8] Creating that extent of young forest habitat on Plantation Island WMA will be challenging due to limited access, significant historical features, and the potentially substantial cost of controlling invasive plants enough to establish desirable regeneration as young forest. While this plan may not reach the 10% young forest goal, it will supplement the early successional habitat on the surrounding landscape by increasing the young forest habitat on the WMA as much as practicable up to 10% of the forested acres.

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

II. Management Strategies by Habitat Type

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

- In treatment areas, maintain habitat characteristics that will benefit wildlife abundance and diversity within the WMA.
- Promote Best Management Practices for targeted wildlife and habitats.
- Provide opportunities for wildlife-dependent recreation such as trapping, hunting, fishing, and bird watching.
- Improve the production of mast-producing trees such as wild apple, thornapple, and hackberry through thinning and pruning.
- Improve structural diversity by encouraging hardwood regeneration or plantings.

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 hydrophytic forest or shrub vegetation accounts for greater than 50% of vegetative cover and the soil or substrate is periodically saturated or covered with water.
Young forest: young or regenerating forested acres, which are typically 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 options on the WMA are limited by habitat, soil, and water quality concerns, as well as historical features and limited access. The goal of the planned forest management is to increase soft mast production and to improve hunting opportunities.

Plantation Island WMA forest view over the barge canal.

Photo: NYSDEC, Rachel Hillegas

MANAGEMENT OBJECTIVES

- Retain most forested areas (124 acres mature forest and floodplain forest).
- Treat small patches of forest to release mast producing trees such as apple, thornapple, and hackberry and to promote regeneration of hardwoods (up to 14 acres).

DESCRIPTION OF EXISTING FOREST HABITAT AND TARGET SPECIES

Plantation Island WMA contains a moderate amount of forested habitat, ranging from regenerating seedling/sapling stands to larger saw timber-size trees. The natural forest stands are comprised mostly of black willow, boxelder, ash, and eastern cottonwood. Other trees on the WMA include red maple, American elm, and black locust, as well as patches of apple and thornapple trees which provide additional sources of food for wildlife. Dense shrubs in the understory (honeysuckle, multiflora rose, buckthorn, and various other invasive species) and a closed overstory limit regeneration in many of the forested stands.

As of the 2015 inventory, there are 138 forested acres on Plantation Island WMA, including 1 acre of forested wetlands (Figure 6). Table 3 provides a summary of the forested areas, including the most common species found in each.

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

Forest Type	Acres (as of 2015)	Desired Acres	Overstory species
Natural forest (mature/intermediate)	137	123	black willow, eastern cottonwood, boxelder
Plantation	0	0	
Forested wetland	1	1	American elm, ash
Young forest	0	14	
Young forest (forested wetland)	0	0	
Total Forested Acres:	138	138	

Target species for young forest include Ruffed Grouse and American Woodcock. These species rely on forest and young forest areas for foraging and cover, and will benefit from management that creates the following habitat requirements:

- Ruffed Grouse:
  - Drumming areas – Downed trees surrounded by small diameter woody cover.
  - Foraging – Open areas with dense overhead cover of young forest with good mast production.
  - Nesting – Young, open forest stands or second growth woodlands.
  - Brood rearing – Herbaceous ground cover with a high midstory stem density.[9]
- American Woodcock:
  - Foraging – Moist, rich soils with dense overhead cover of young alder, aspen, or birch.

[9] Dessecker, D. R., G. W. Norman, and S. J. Williamson. 2006. Ruffed Grouse Conservation Plan. Association of Fish & Wildlife Agencies: Resident Game Bird Working Group. 94 pp.

- Brood rearing – Similar to nesting except also including bare ground and dense ground cover.[10]

MANAGEMENT HISTORY

Present vegetative composition of this floodplain forest ecosystem is the result of human activities over the past 150 years. The entire island has been cleared of its timber at least once, if not several times in the past. The property has been used for cattle grazing and pasture as late as the 1980s which has modified some of the forest structure due to selective browsing and is likely one of the main reasons thornapple is common on the property. Due to the inaccessibility and poor forest quality, no forest management has occurred on the WMA since DEC acquired the property.

IMPLEMENTATION PLAN AND ANTICIPATED SCHEDULE

The following management is proposed for the next ten years to improve the current forested habitat:

- **Management planned for 2018-2022** (Table 4, Figure 6):
  - Create several ~½ acre patches to release desirable mast-producing trees and promote hardwood regeneration, up to 5 acres total.
- **Management planned for 2023-2027** (Table 5, Figure 6):
  - Create several ~½ acre patches to release desirable mast-producing trees and promote hardwood regeneration, up to 9 acres total.

Three years and five years following treatment, an assessment of response of invasive species and hardwood regeneration will be completed. If the response shows decreased densities of invasive species and increased hardwood regeneration (as determined by the YFI forester, land manager and Regional Wildlife Manager) then the management proposed for 2023-2027 will be pursued. We will also monitor the survival of soft mast producing trees in these treatment areas.

Table 4. Forest management schedule for the first five-year period of this HMP (2018-2022).

Stand	Acres	Size Class	Forest Type		Management Direction	Treatment Type
			Current	Future		
Island	5	-	Floodplain Forest	Seedling-Sapling Natural	Wildlife	Mast tree release and/or seed tree

Table 5. Forest management schedule for the second five-year period of this HMP (2023-2027).

Stand	Acres	Size Class	Forest Type		Management Direction	Treatment Type
			Current	Future		
Island	9	-	Floodplain Forest	Seedling-Sapling Natural	Wildlife	Mast tree release and/or seed tree

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

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

- Small openings will be created to release desirable mast-producing trees (apple, thornapple, hackberry, etc.). The purpose of the treatment is to increase existing soft mast production and extend the longevity of larger healthy trees currently being negatively impacted by the surrounding tree canopy, while encouraging desirable tree and shrub regeneration. Treatments may also include pruning of trees to remove dead limbs, remove competing vines, improve tree vigor, and planting of oaks. Healthy stands of soft and hard mast trees and shrubs provide foraging habitat for American Woodcock, Ruffed Grouse, and several other wildlife species. The proposed management will also improve hunting opportunities and provide areas for hunters to concentrate their efforts.

  In general, these patches will be ½ acre, more or less, and will focus on releasing trees that have the potential to become healthy, productive trees. Desirable regeneration includes non-invasive mast-producing species of trees and shrubs, like red maple, boxelder, black willow, apple and bur oak. Invasive species will be managed using cut stump herbicide treatments. Exact treatment locations will be based primarily on groups of thornapple or wild apple trees, but may also include locations where desirable hardwood species exist. Management will begin in Stand 5, but may be continued in other stands across the WMA as additional trees are located that could benefit from the treatment.

BEST MANAGEMENT PRACTICES

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

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

Resource	**Guidance Document** [11]
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:

Treatments will be designed to limit disturbance to the known active Bald Eagle nest adjacent to the WMA and to other species of concern within the immediate vicinity of the WMA. Date restrictions for management activities may be implemented to protect bats and nesting birds.

Forest Health Considerations:

The forests on Plantation Island WMA are in moderately poor health as boxelder is prone to disease and invasive species are abundant. The majority of trees on the island are boxelder and black willow, both of which are good species for erosion control and soil stabilization, making

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

these species important for erosion protection along the river and canal. Most of the forested stands have a dense understory of honeysuckle, buckthorn, multiflora rose, and other invasive shrubs wherever there is an opening in the canopy that allows sunlight to reach the forest floor. The thick brush often limits the regeneration of species that may be more beneficial for wildlife, herbicide treatment will be necessary where hardwood regeneration is desired. Invasive species will be controlled by utilizing cut stump treatments at the time of the mast tree releases.

The ash component of the WMA is at risk from the emerald ash borer (EAB), an invasive beetle that feeds on and kills all species of ash trees, which is steadily making its way into the area. Significant ash mortality is anticipated once EAB reaches the WMA.

Pre- and Post-treatment Considerations:

Monitoring regeneration is key to stop the spread of invasive or undesirable species within Plantation Island WMA. Herbicides will be considered when treating invasive plant species. Buffers will be left along the riparian zones of the Mohawk River and Canal. Pre- and post-treatment actions to promote the desired forest regeneration will be addressed in detail in the silvicultural prescriptions.

Other Considerations:

Treatments will be designed to minimize impacts to historically significant resources. Heavy equipment is not practical nor will it be used due to physical barriers such as the Barge Canal, significant wetlands, and historically significant features. The only land access is via the Lock 18 gate which prohibits use of tracked or wheeled vehicles. While large equipment could be ferried to the island using the Barge Canal, no projects have been conceptualized to warrant this level of effort and expense.

MANAGEMENT EVALUATION

In order to determine whether the desired forest regeneration and wildlife responses have been achieved by the management outlined above, pre- and post-management assessments will be conducted in accord with guidelines in the *Young Forest Initiative Monitoring Plan: 2016-2025*.[12] The Monitoring Plan establishes statewide standards for evaluating vegetation and target wildlife responses to forest management to determine if the outcome is as prescribed. Regeneration assessments will be conducted within one year of harvest completion, three, and five years after the harvest or until the forester determines adequate natural or artificial (i.e., planting) regeneration has been securely established.

SHRUBLAND

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

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

Description of Existing Shrubland Habitat and Target Species

There is no shrubland habitat on the WMA or any plan to develop such habitat.

Grassland and Other Open Space

Grasslands are open, grassy areas with a minimal amount of shrub and tree cover (<35%) that are maintained, or could be maintained, without significant brush cutting. Grasslands may include areas where hay is harvested by late season mowing once per year.

Description of Existing Grassland Habitat and Target Species

There is no grassland habitat on the WMA or any plan to develop such habitat.

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 agricultural habitat on the WMA or any plan to develop such habitat. In the past, Plantation Island has been used for grazing cattle; animals were brought to the island via a barge and allowed to use the property for the growing season. The last grazing occurred as late as the early 1980s. Since then there has been no livestock use of the island.

Wetlands (Natural and Impounded)

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

Management Objectives

There are no management objectives for wetlands on the WMA at this time.

Description of Existing Wetland Habitat and Target Species

There are 62 acres of wetlands on Plantation Island WMA, including open marshes, wet meadows, and shallow pools. The natural wetland vegetation is primarily cattails, sedges, and grasses, along with Phragmities and purple loosestrife, which limit the growth of more beneficial vegetation. The wetland habitat helps with floodwater storage and water absorption and provides habitat for migrating birds.

MANAGEMENT HISTORY

There is no management history for this habitat type.

OPEN WATER (WATERBODIES AND WATERCOURSES)

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

DESCRIPTION OF EXISTING OPEN WATER HABITAT AND TARGET SPECIES

There is no open water on the WMA proper or any plan to develop such habitat. Open water surrounds the WMA on the Barge Canal and the Mohawk River.

HABITAT MANAGEMENT SUMMARY

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

Table 7. Summary of habitat management actions recommended for Plantation Island WMA, 2018-2027. (Also see Figure 6.)

Habitat	Management Action	Acres	Timeframe
Forest	Mast tree release in parts of Stand A-5, and other stands as areas are identified for treatment. Possible oak or other hardwood plantings in harvest areas.	5	2018-2022
Forest	Mast tree release in parts of Stand A-5, and other stands as areas are identified for treatment. Possible oak or other hardwood plantings in harvest areas.	9	2023-2027

III. FIGURES

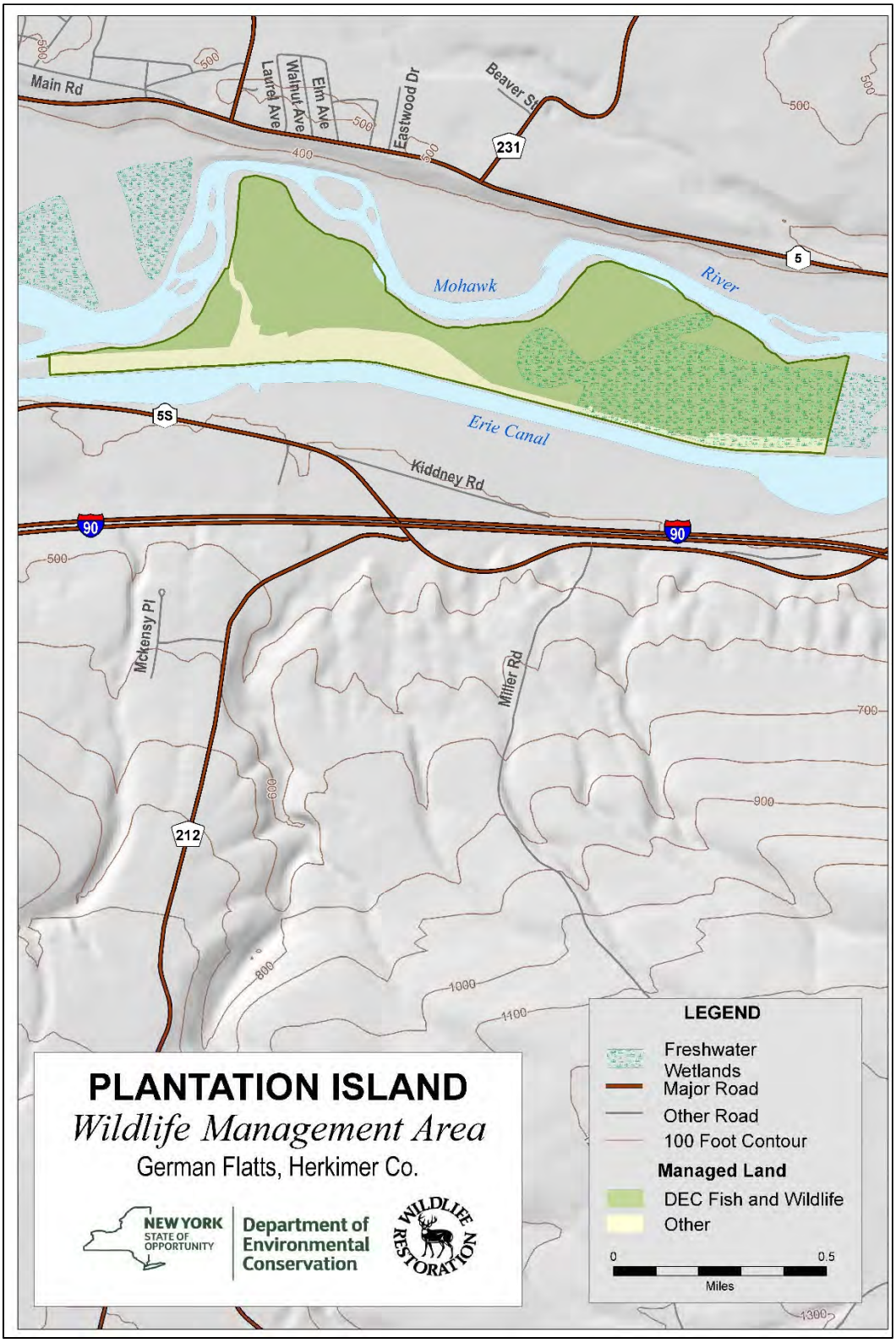

FIGURE 1. Location and access features at Plantation Island WMA.

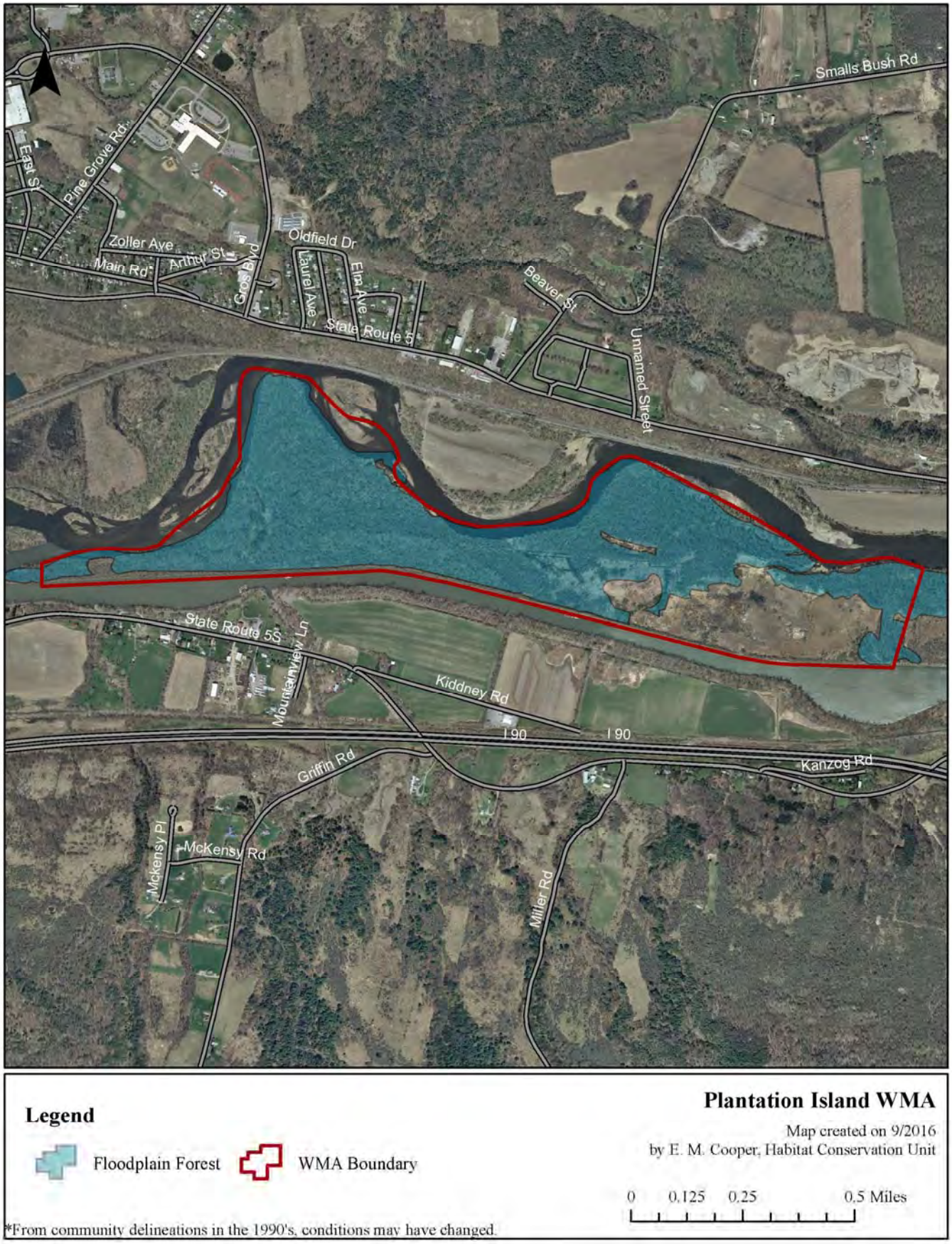

FIGURE 2. Significant ecological communities on Plantation Island WMA. Data from the NY Natural Heritage Program.

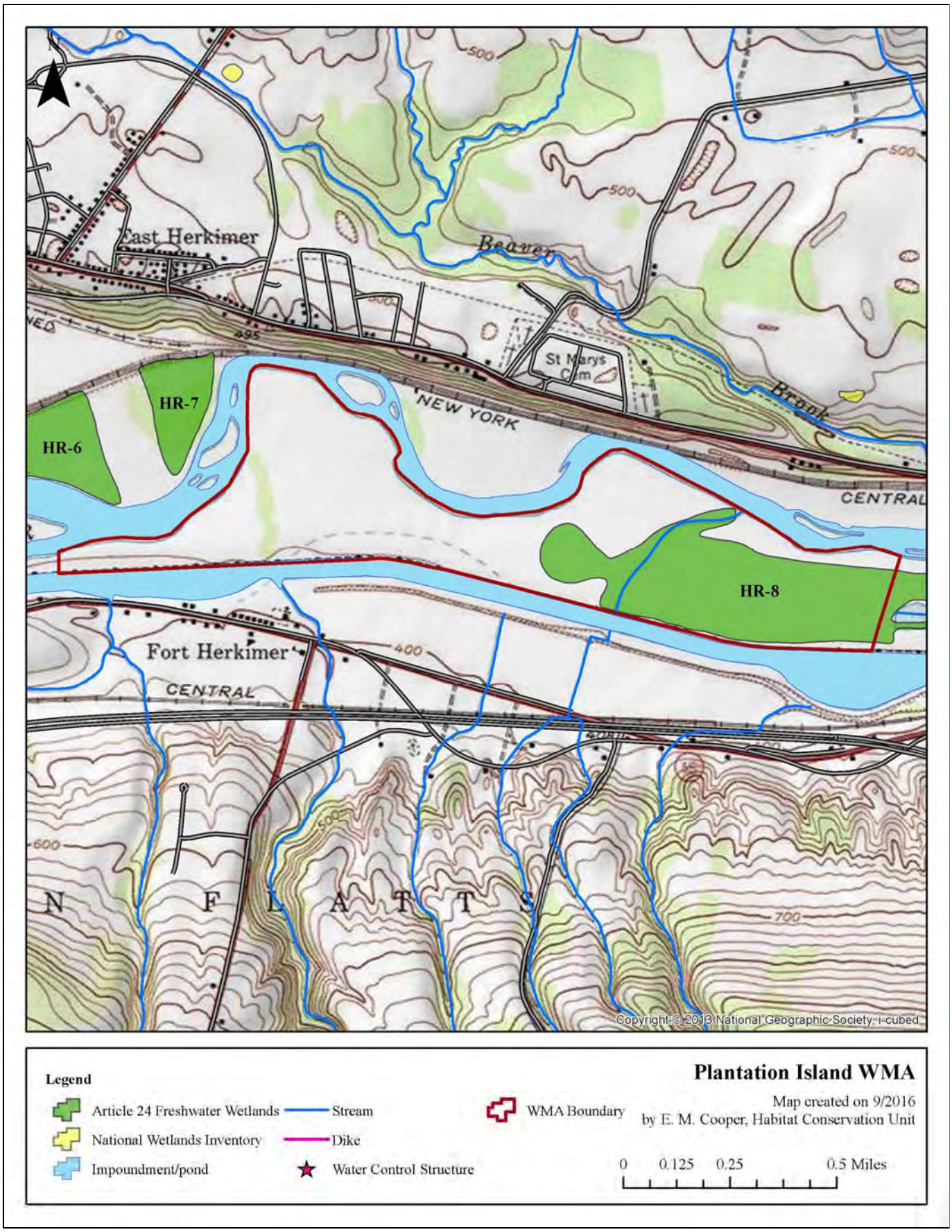

FIGURE 3. Wetlands, open water, and streams of Plantation Island WMA. Note: Wetland boundaries are not exact and may not be used for regulatory purposes without a current delineation.

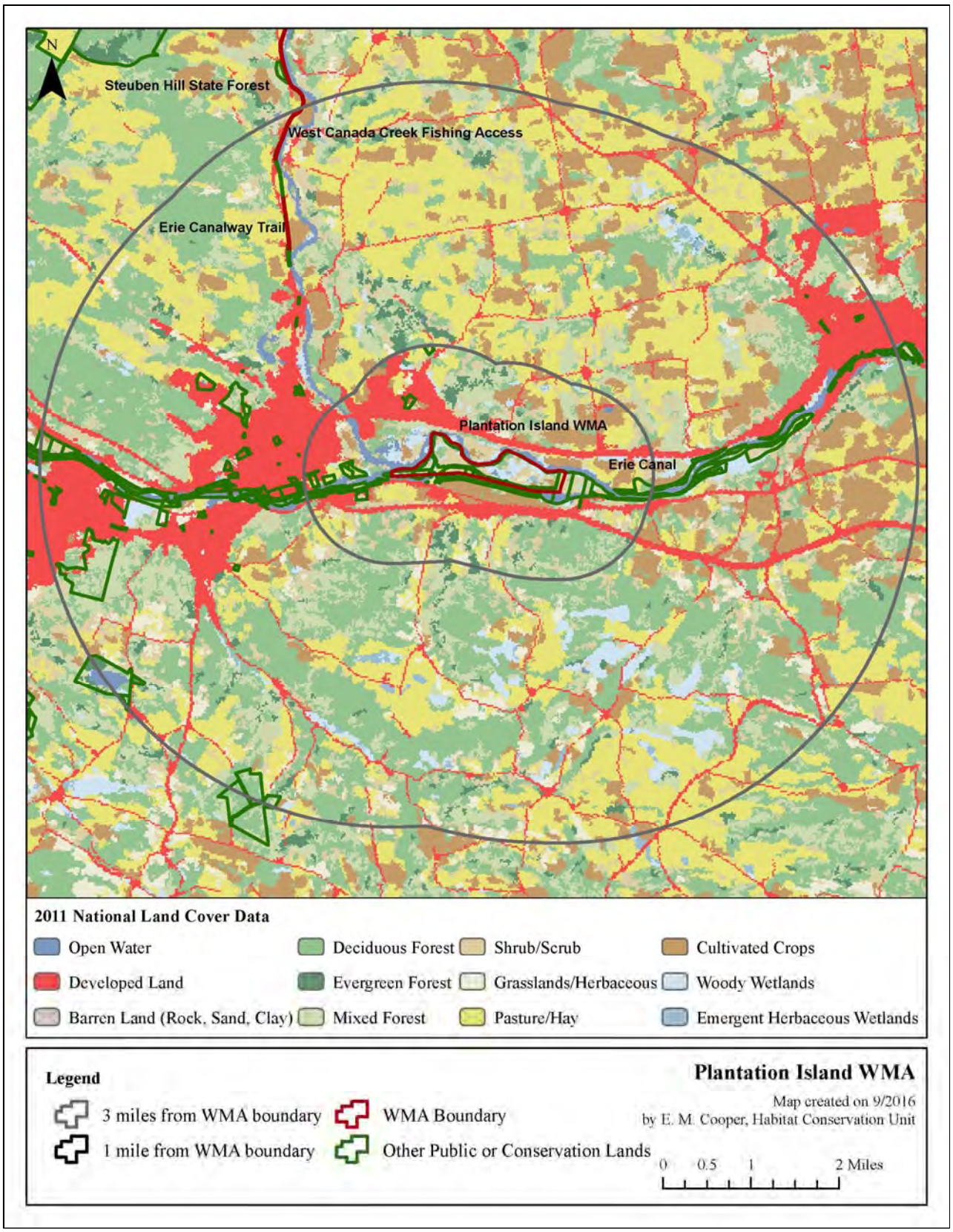

FIGURE 4. Land cover types and conservation lands in the landscape surrounding Plantation Island WMA. Conservation lands are from the NY Protected Areas Database available online at http://www.nypad.org/. Land cover types are from the 2011 National Land Cover Data (NLCD) and differ from the habitat types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

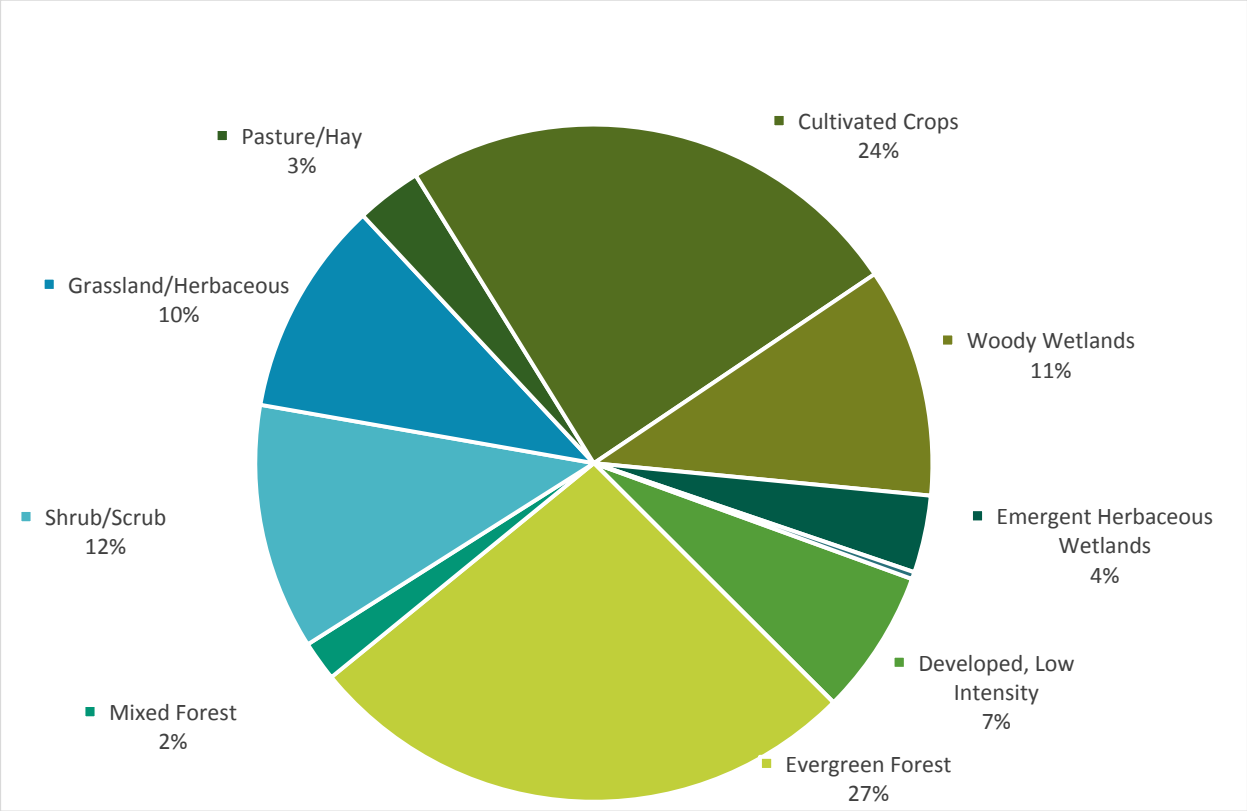

FIGURE 5. Percent cover of land cover types within three miles of Plantation Island WMA.

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 http://www.mrlc.gov/nlcd2011.php.

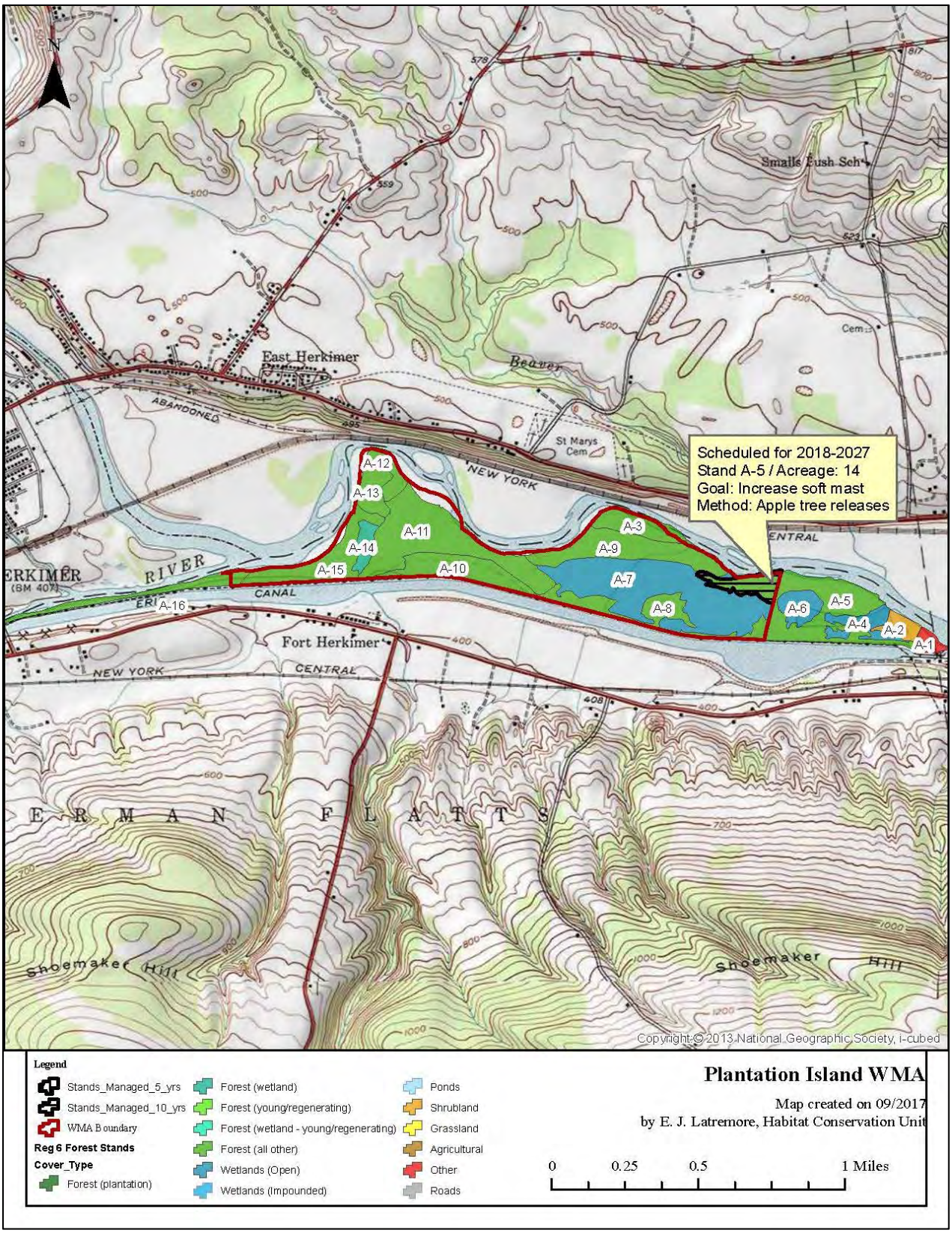

FIGURE 6. Habitat types and locations of proposed management on Plantation Island WMA. Numbers indicate the stand number from habitat inventory.

This map covers all of Plantation Island which includes both the WMA and property owned by NYS Canals. A MOU has been in place with the other state agency to allow DEC to manage these lands as one parcel.

IV. APPENDICES

APPENDIX A: DEFINITIONS

The following key words were used in the development of this Habitat Management Plan. Definitions are adapted 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 (including technological, economical, and institutional considerations) 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.

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

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

State Rank of Significant Ecological Communities:

S1 = Typically 5 or fewer occurrences, very few remaining individuals, acres, or miles of stream, or some factor of its biology making it especially vulnerable in New York State.
S2 = Typically 6 to 20 occurrences, few remaining individuals, acres, or miles of stream, or factors demonstrably making it very vulnerable in New York State.
S3 = Typically 21 to 100 occurrences, limited acreage, or miles of stream in New York State.
S4 = Apparently secure in New York State.
S5 = Demonstrably secure in New York State.
SH = Historically known from New York State, but not seen in the past 15 years.
SX = Apparently extirpated from New York State.
SE = Exotic, not native to New York State.
SR = State report only, no verified specimens known from New York State.
SU = Status unknown.
(Edinger et al. 2002. Ecological Communities of New York State, Appendix A)

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

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

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

Unique Area: Lands that were acquired by DEC for their special natural beauty, wilderness character, geological, ecological, or historical significance for inclusion in the state nature and historical preserve (ECL 51-0703.4). 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. STATEMENT OF CONFORMITY WITH SEQRA

Habitat Management Plans will be in compliance with the 1979 *Programmatic Environmental Impact Statement on Habitat Management Activities of the Department of Environmental Conservation; Division of Fish and Wildlife* by following the criteria for site specific assessments included in this Programmatic Environmental Impact Statement (EIS) and by discussing further in Appendix B, Statement of Conformity with the State Environmental Quality Review Act (SEQRA). Appendix B will be included in each plan, thereby satisfying overall compliance with 6 NYCRR Part 617, the State Environmental Quality Review. If any of these criteria are exceeded an additional site specific environmental review will be required.

Most activities recommended in this HMP are a continuation of habitat management that DEC routinely conducts under the Programmatic EIS. Beginning in 2015, DEC's Young Forest Initiative (YFI) will considerably increase forest management on Wildlife Management Areas (WMA); YFI's conformity with SEQRA is specifically addressed below. The overarching goal of the YFI is to restore and maintain young forest habitat on WMAs in order to address the declining amount of young forest habitat in the state and provide habitat for key species of conservation interest, including both at-risk and game species. The habitat management activities to be carried out under the YFI are in compliance with the above referenced document and these management activities:

- Will not adversely affect threatened or endangered plants or animals or their habitat.
    - Careful review of the NY Natural Heritage Program's "Natural Heritage Element Occurrence" database in conjunction with a field survey when necessary prior to management activities taking place allows field staff to assess the presence or absence of threatened and endangered species. Appropriate actions will be taken if a threatened or endangered plant or animal is encountered in the project area including, but not limited to: establishing adequate buffer zones around known occurrences, moving the project area, or aborting the project altogether.
- Will not induce or accelerate significant change in land use.
    - The forestland affected by the YFI will be regenerated and remain forested land, therefore no land use change will take place.
- Will not induce significant change in ambient air, soil, or water quality.
    - All projects carried out under the YFI will protect air, soil and water quality through careful project planning, use of appropriate NYS Best Management Practices for Water Quality, 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.
    - YFI projects will follow established plans or policies of other state and federal agencies. Additionally, all YFI projects will be in compliance with all relevant US Fish and Wildlife Service rules and regulations.
- Will not induce significant change in public attraction or use.
    - The WMA program 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. Projects carried out under the YFI 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 area.
    - Habitat management projects under the YFI will be carried out primarily through even-aged forest management. Even-aged silvicultural systems are designed to mimic natural disturbances, such as flooding, wildfire, insect and disease outbreaks and storm damage often found in nature.
- Will not result in areas of significantly different character or ecological processes.
    - The even-aged silvicultural techniques that will be employed for habitat management projects under the YFI intentionally result in areas of different character and ecological processes. However, they are not considered significant as they are ephemeral or transitional and will not permanently alter the landscape.
- Will not affect important known historical or archeological sites.
    - Each YFI project will be reviewed by DEC's State Historic Preservation Officer (SHPO) as well as the Office of Parks, Recreation and Historic Preservation (OPRHP) to determine whether

project sites may potentially affect any historical or archeological sites. In addition, thorough field review prior to management activities taking place allows field staff to assess the presence or absence of any apparent historical or archeological sites that may not be found during the review process. Should known important historical or archeological sites present themselves necessary actions will be taken to protect these resources under the direction of DEC's SHPO and the OPRHP Archaeology Unit staff.

- Will not involve the application of herbicides, pesticides or other such chemicals.
    - YFI projects may involve the judicious use of pesticides which may be necessary to control invasive species, to protect rare and endangered plants from competition, or to control vegetation interfering with forest regeneration. If projects do require the use of herbicides or pesticides an additional site-specific environmental review will be required.
- Will not stimulate significant public controversy.
    - It is not anticipated that YFI projects will stimulate significant public controversy. A significant amount of public outreach and notification will be conducted on an on-going basis as well as prior to projects being implemented on the ground including, but not limited to: public information sessions regarding the Habitat Management Plans for each WMA, signage installation at project sites informing the public of the scope and purpose of the project, establishment of one demonstration area in each region to showcase YFI management techniques to the public, periodic informational articles published in local media outlets and the development of a public YFI website. The YFI has one full time position dedicated to facilitating the program's public outreach and communication efforts.

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 plan 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.