Habitat Management Plan
for
Watts Flats Wildlife Management Area
2020 – 2029

Division of Fish and Wildlife
Bureau of Wildlife

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TABLE OF CONTENTS

LIST OF FIGURES

SUMMARY

Watts Flats Wildlife Management Area (WMA) is comprised of 1324 acres and is a mixture of grasslands, wetlands, shrubland and forest with wetland shrubland and wetland forest comprising a bulk of the acreage. The WMA is located in the southern portion of Chautauqua County in the Town of Harmony, approximately 5 miles south of Chautauqua Lake. Acquisition of the properties that make up Watts Flats began in 1979 and was made possible by the 1972 Environmental Quality Bond Act and federal funding from the Pittman-Robertson Act.

The WMA was acquired to protect the wetland habitats surrounding Brokenstraw and the Little Brokenstraw Creeks. This wetland complex (PA-8 containing 1676 acres) provides quality wetland habitat utilized by waterfowl, shorebirds and wading birds for breeding and/or resting during spring and fall migration. Roughly 85% of the WMA is mapped as NYS Regulated Freshwater Wetland. Saturated soils create conditions making habitat management planning and implementation very challenging. Management schedules will depend largely upon current year precipitation levels.

In 1994, an attempt to improve a portion of the wetland habitat was undertaken with the installation of a sheet pile weir and water control structure. Improvements to the structure were completed in 2001, however, water levels are currently being regulated by beaver activity.

Habitat management goals for Watts Flats WMA include:

- Increase young forest acreage to 30 acres (5.8% of the total forested acreage) to provide high stem density habitat for ruffed grouse and American woodcock;
- Manage 39.7% as shrubland habitat;
- Manage 36.6% as intermediate and mature forest, including forested wetland;
- Manage approximately 2.1% of the WMA as grassland to provide habitat for grassland dependent species and waterfowl nesting.
- Manage 6.4% as natural and impounded wetlands;
- Manage 11.8% as open water, maintaining water control structures and dikes on small marshes and ponds, providing aquatic habitat for waterfowl and resting habitat during spring and fall migration.

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/MUAs 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/MUAs. These plans incorporate management recommendations from Unit Management Plans (UMPs), existing WMA/MUA habitat management guidelines, NY Natural Heritage Program's WMA/MUA Biodiversity Inventory Reports, Bird Conservation Area guidelines, and other documents available for individual WMAs/MUAs.

SCOPE AND INTENT

Primary purposes of this document:

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

Within the next 5 years, this HMP will be integrated into a comprehensive WMA/MUA 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

Watts Flats Wildlife Management Area is located in DEC Region 9, Town of Harmony, Chautauqua County (Figure 1).

Total Area

1324.3 acres

Habitat Inventory

A habitat inventory of the WMA was conducted in 2018 and is proposed to be updated every ten to fifteen years to document the existing acreage of each habitat type and to help determine the location and extent of future management actions. Table 1 summarizes the current acreage by habitat type and the desired acreage after management. Desired conditions were determined with consideration of habitat requirements of targeted wildlife, current conditions on the WMA, and conditions in the surrounding landscape (see Landscape Context section below).

Table 1. Summary of current and desired habitat acreage on Watts Flats WMA.

Habitat Type	Current Conditions (as of 2019)			Desired Conditions	
	Acres	Percent of WMA	Miles	Acres	Percent of WMA
Forest [a]	518.4	39.1%		484.4	Decrease to 36.6%
Young forest	0.0	0.0%		30.0	Increase to 2.3%
Shrubland	522.1	39.4%		526.1	Increase to 39.7%
Grassland	27.9	2.1%		27.9	No change
Agricultural land	0.0	0.0%		0.0	No change
Wetland (natural)[b]	67.1	5.1%		67.1	No change
Wetland (impounded)[b]	17.1	1.3%		17.1	No change
Open water	155.8	11.8%		155.8	No change
Other (Parking lot)	1.4	0.1%		1.4	No change
Other (Utilities)	1.1	0.1%		1.1	No change
Roads	13.4	1.0%		13.4	No change
Rivers and streams			3.87		No change
Total Acres:	1324.3	100%		1324.3	

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

Ecological Resources

Wildlife Overview:

Wildlife present on Watts Flats WMA include species commonly found on the West Appalachian Plateau region of southwestern New York such as:

- White-tailed deer, red fox, eastern coyote, wild turkey
- Beaver, raccoon, striped skunk, fisher

- Ruffed grouse, American woodcock, American crow, common raven, blue jay
- Wood duck, mallard, Canada goose
- Eastern American toad, spring peeper, wood frog
- Snapping turtle, wood turtle, painted turtle, Eastern garter snake

Wildlife and Plant Species of Conservation Concern:

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

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

Species Group	Species	Federal Status	NY Status	NY SGCN Status
Birds				
	American kestrel			x
	American woodcock			x
	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
	Cooper's hawk		SC	
	Eastern meadowlark			HP
	Great egret			x
	Northern harrier		T	x
	Osprey		SC	
	Pied-billed grebe		T	x
	Red-headed woodpecker			HP
	Red-shouldered hawk		SC	x
	Ruffed grouse			x
	Rusty blackbird			HP
	Scarlet tanager			x
	Sharp-shinned hawk		SC	

[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 continued.

Species Group	Species Group	Species Group	Species Group	Species Group
	Wood thrush			x
Mammals	None known			
Amphibians and reptiles	Short-headed gartersnake			x
	Snapping turtle			x
Fish	Mountain brook lamprey		SC	x
Invertebrates	None known			
Plants	None known			

Significant Ecological Communities:

There are 14 ecological communities present on Watts Flats WMA, including two significant natural communities 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 communities occur on the WMA; community descriptions are from *Ecological Communities of New York State, Second Edition* [5] (Figure 2):

- **Rich hemlock-hardwood peat swamp (G3G4 S2S3):** a mixed swamp that occurs on organic soils (peat or muck) in central New York in depressions or concave slopes which receive groundwater discharge, typically in areas where the groundwater flows through calcareous gravels of glacial deposits. These swamps usually have a fairly open canopy (50 to 70% cover), scattered shrubs, and a diverse groundlayer with sedges, mosses, and forbs.
  The characteristic canopy trees are eastern hemlock (*Tsuga canadensis*), which usually has at least 20% cover, red maple (*Acer rubrum*), yellow birch (*Betula alleghaniensis*), black ash (*Fraxinus nigra*), tamarack (*Larix laricina*), white pine (*Pinus strobus*), smooth serviceberry (*Amelanchier laevis*), balsam fir (*Abies balsamea*), and northern white cedar (*Thuja occidentalis*). In any one swamp there may be very few (if any) stems of *Abies* or *Thuja*. If these trees are dominant, then see spruce-fir swamp or northern white cedar swamp descriptions for comparison. Less mineral-rich examples on more acidic muck or mineral soil are classified as hemlock-hardwood swamp.

- **Dwarf shrub bog (G4 S3):** an ombrotrophic or weakly minerotrophic peatland dominated by low-growing, evergreen, ericaceous shrubs and peat mosses (*Sphagnum* spp.). The surface of the peatland is typically a mosaic of hummock/hollow

[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/29384.html.

microtopography. The hummocks tend to have a higher abundance of shrubs than the hollows; these bogs have more than 50% cover of low-growing shrubs. Water is usually nutrient-poor and acidic.
The dominant shrub is often leatherleaf (*Chamaedaphne calyculata*), which may have more than 50% cover. Shrubs are typically taller than the herb layer which is usually graminoid, and generally the shrub heights are 1 m or less. Other prominent shrubs and herbs are sheep laurel (*Kalmia angustifolia*), bog laurel (*K. polifolia*), Labrador tea (*Rhododendron groenlandicum*), cranberries (*Vaccinium oxycoccos, V. macrocarpon*), the sedge *Carex trisperma,* and tawny cottongrass (*Eriophorum virginicum*). A dwarf shrub bog may form a floating mat around a bog lake or along the banks of an acidic stream; it may also occur as a large or small mat completely filling a basin. A dwarf shrub bog may grade into a highbush blueberry bog thicket, inland poor fen, or a black spruce-tamarack bog.

Additional information about significant ecological communities is available in the Watts Flats WMA Biodiversity Inventory Final Report (1995) prepared by the NY Natural Heritage Program.

Soils:

Watts Flats WMA primarily consists of a Niagara-Lamson-Canandaigua soil series group. These soils series are typically very deep and somewhat to very poorly drained that span over level lowland lake plains. The group is made up of fine silts, coarse loam, and water saturated inceptisols. The property also has a smaller amount of a Wayland-Palmyra-Howard-Chenango soil series group. These soils are very similar to the first group but usually possess slightly better drainage. These soils are capable of supporting vegetation all the way up to a forested level.

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 Watts Flats WMA include:

- One large wetland complex regulated by Article 24 of the Environmental Conservation Law and several additional smaller emergent and forested/shrub wetlands shown on the National Wetlands Inventory (NWI; Figure 3). The NWI maps show additional acreage around each of the state regulated wetlands due to a difference in mapping criteria. Each state-regulated wetland is protected by a buffer zone of 100 feet from the delineated wetland boundary, known as the 100-foot 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.
- 15 streams (a watercourse entirely within the WMA) or segments of streams (a stream that meanders in and out of the WMA). Both Little Brokenstraw Creek and the East Branch Little Brokenstraw Creek have a C Classification with a C(T) standard.[6] Classification C is for waters supporting fisheries and suitable for non - contact activities. A Standard of (T) indicates the creek may support a trout population

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

- Vernal pools exist on the WMA. Management activities will follow SMZ rules established for WMAs.

Guidelines for habitat management projects within these areas are outlined in the Division of Lands and Forests *Rules for Establishment of Special Management Zones on State Forests and Wildlife Management Areas.*[7] Some habitat management activities may either be prohibited or restricted in order to protect these features. Any deviations from these guidelines will be addressed in the individual stand prescriptions.

LANDSCAPE CONTEXT

The goals of this HMP have been developed with consideration of surrounding landscape features, the availability of habitats, and other conservation lands adjacent to Watts Flats WMA (Figures 4 and 5). The landscape within a three mile radius of the WMA is primarily privately-owned land including:

- Deciduous forest (49.1%)
- Pasture/Hay (18.9%)
- Cultivated crops (10.7%)
- Wetlands (7.6%)
- Shrub/Scrub (4.1%)
- Evergreen forest (4.0%)
- Developed (3.2%)
- Grasslands (1.5%)
- Mixed forest (0.8%)
- Barren land (0.1%)
- Open water (0.1%)

Several properties managed by the DEC's Division of Lands and Forest are located within three miles of Watts Flats WMA and include:

- Hill Higher State Forest – 1156 acres
- Brokenstraw State Forest – 951 acres
- Panama State Forest – 1224 acres
- Wellman State Forest – 447 acres

The hardwood and softwood stand of these state forests are managed through a series of thinnings, selective cuts, and other management techniques which remove the lower quality trees and give more growing space to the best quality trees. The conifer stands of pine and spruce were planted in old farm fields by the Civilian Conservation Corp to prevent soil erosion on abandoned farm land. They are usually managed by a series of partial harvest thinnings, which provide openings for sunlight to encourage natural regeneration of native hardwoods. The

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

removal of the conifer overstory in the final harvest allows the hardwood seedlings to grow to maturity.

Hardwood stands are also thinned via selective cuts providing more growing space for residual trees, improving forest health and creating openings for seed germination and seedling growth. When regeneration is determined to be adequate the remaining overstory trees are then harvested. Removal of the overstory allows ample sunlight to reach the forest floor stimulating seedling growth.

The remaining property surrounding Watts Flats WMA is in private ownership. Private landowners generally follow a diameter-limit management or uneven aged management strategy that is primarily income driven. This achieves an immediate economic gain with the harvest but does not create young forest as described in DEC's *Young Forest Initiative Strategic Plan*.[8] The goal at Watts Flats is to create young forest habitat on the WMA using even-aged management (e.g. clearcuts) as the primary management technique to benefit the target species of the WMA. Due to the absence of young forest habitat in the surrounding landscape, a minimum of 5.8% of the forested acreage on the WMA will be maintained in a young forest stage.

II. MANAGEMENT STRATEGIES BY HABITAT TYPE

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

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

FOREST

Forested acreage includes the following forest types:

Natural forest: naturally forested acres, including hardwoods and softwoods. Includes any upland forested acreage that is not young forest, i.e., pole stands, other intermediate forest age classes, mature forest, and old growth forest.
Plantation: planted forested acres, generally planted in rows dominated by one or two species.
Forested wetland: wetland acres where forest or shrub vegetation accounts for greater than 50% of hydrophytic vegetative cover and the soil or substrate is periodically saturated or covered with water.

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

Forest management on Watts Flats 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 WMA/MUAs to benefit wildlife that require this transitional, disturbance-dependent habitat. [8]

MANAGEMENT OBJECTIVES

- Increase young forest acreage from an existing 0 acres to approximately 30 acres for habitat improvement of young forest target species, ruffed grouse and American woodcock.

DESCRIPTION OF EXISTING FOREST HABITAT AND TARGET SPECIES

There are 518.4 forested acres on Watts Flats WMA (Figure 6). The most predominant forest type on the WMA is natural forest, primarily characterized by pioneer and northern hardwood species. Most forested stands are in an intermediate size class. Nearly all forested stands are within regulated wetlands so proposed management will adhere to NYS guidelines. Due to hydrology and layout of the property, access is a major obstacle to management.

Photo 1: Natural forest stand at Watts Flats WMA.

Photo: NYS DEC

Watts Flats WMA consists of two compartments, essentially divided by the railway that bisects the property. Table 3 provides a summary of the current and desired forest types for Watts Flats WMA.

[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.

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

Forest Type	Acres (as of 2019)	Desired Acres	Overstory species
Natural forest (mature/intermediate)	153.2	129.2	Black cherry, aspen, red maple
Plantation	2.1	2.1	Red pine
Forested wetland	363.1	353.1	Eastern hemlock, red maple
Young forest	0	22	
Young forest (forested wetland)	0	8	
Total Forested Acres:	518.4	514.4[a]	

[a] Change in total forested acres is due to the conversion of forest cover to shrubland (4 acres).

Target species for young forest habitat management include ruffed grouse and American woodcock. These species rely on areas of young forest adjacent to mature forest for nesting, foraging, and cover and will benefit from management that creates the following:

- **Ruffed Grouse Habitat Requirements:**
  - 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 Habitat Requirements:**
  - Singing/Peenting Ground – Open areas from 1 acre to over 100 acres usually in an abandoned field.
  - Daytime areas – Moist, rich soils w/ dense overhead cover of young alders, aspen, or birch.
  - Nesting – Young open, second growth woodlands.
  - Brood rearing – Similar to nesting except there needs to be bare ground and dense ground cover.
  - Roosting – Open fields (min. of 5 acres) or blueberry fields and reverting farm fields.[10]

MANAGEMENT HISTORY

No appreciable forest management has occurred on Watts Flats WMA and no specific young forest habitat has been established. Occasional road side firewood sales have occurred on the WMA starting in the late 1980s.

[9] Jones, B. C. et al. Habitat Management for Pennsylvania Ruffed Grouse, Pennsylvania Game Commission. 10 pp.
[10] Sepik, G. F. et al. 1981. A Landowner's Guide to Woodcock Management in the Northeast, Moosehorn National Wildlife Refuge, USFWS. 25 pp.

IMPLEMENTATION PLAN AND ANTICIPATED SCHEDULE

The following management will result in roughly 30 acres of young forest habitat or approximately 5.8% young forest cover of the total forested acres, within ten years:

- **Management planned for 2020-2024** (Table 4, Figure 6):
  - Clearcut an irregular dumbbell shaped opening in Compartment A Stand 16 (5 acres).
  - Clearcut an amoeba shaped patch within Compartment A Stand 10 (5 acres).
  - Strip clearcut and conversion of natural forest to shrubland habitat within Compartment A Stand 10 (2 acres).
  - Clearcut natural forest in Compartment A Stand 19 (7 acres).
  - Clearcut a quarter of forested wetland in Compartment A Stand 18 (2.5 acres).

- **Management planned for 2025-2029** (Table 5, Figure 6):
  - Clearcut aspen clone pocket within forested wetland in Compartment B Stand 5 (3 acres).
  - Strip clearcut and conversion of forested wetland to shrubland habitat within Compartment B Stand 4 (2 acres).
  - Clearcut another irregular dumbbell shaped opening in Compartment A Stand 16 (5 acres).
  - Clearcut another quarter of forested wetland in Compartment A Stand 18 (2.5 acres).

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

Stand	Acres	Size Class	Forest Type		Management Direction	Treatment Type
			Current	Future		
A-16	5	Small Sawtimber	Northern Hardwood	Young Forest	Wildlife	Patch Clearcut
A-10	5	Small Sawtimber	Northern Hardwood	Young Forest	Wildlife	Patch Clearcut
A-10	2	Small Sawtimber	Northern Hardwood	Shrubland	Wildlife	Strip Clearcut
A-19	7	Small Sawtimber	Northern Hardwood	Young Forest	Wildlife	Clearcut
A-18	2.5	Poletimber	Forested Wetland	Young Forest (wetland)	Wildlife	Patch Clearcut

Table 5. Forest management schedule for the second five-year period of this HMP (2025-2029).

Stand	Acres	Size Class	Forest Type		Management Direction	Treatment Type
			Current	Future		
B-5	3	Poletimber	Forested Wetland	Young Forest (wetland)	Wildlife	Patch Clearcut
B-4	2	Small Sawtimber	Forested Wetland	Shrubland	Wildlife	Strip Clearcut
A-16	5	Small Sawtimber	Northern Hardwood	Young Forest	Wildlife	Patch Clearcut
A-18	2.5	Poletimber	Forested Wetland	Young Forest	Wildlife	Patch Clearcut

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

Management for 2020-2024 (19.5 acres):

Natural Forest (17 acres)

- **Compartment A Stand 16**

  This is a 26.5-acre northern hardwood stand with a high aspen component. The stand is located next to a grassland as well as a large wetland complex. In the first five years of the plan, a 5-acre dumbbell shaped patch (two 2.5-acre openings connected via a corridor strip) will be clearcut to establish young forest habitat within the stand.

- **Compartment A Stand 10**

  This is a 29.9-acre northern hardwood stand that encircles two separate grasslands, Field 941 and 942. An amoeba shaped clearcut, totaling 5-acres, will be established on the western side of Field 941. The field edges contain pockets of aspen that should readily sprout, expanding into the newly cleared area. This will create an ideal juxtaposition of young forest and grassland habitat. The shrubland conversion treatment will be detailed below in shrubland management.

- **Compartment A Stand 19**

  The eastern half of this 13.8-acre stand will be clearcut to create approximately 7-acres of young forest habitat. The stand consists of mostly hardwoods, like red maple and black cherry, but also has a high amount of Eastern hemlock inclusions dispersed throughout. The hemlock should be

retained throughout scheduled treatments. The stand is located next to a wetland and the new habitat cover should provide foraging opportunity for woodcock.

Forested Wetland (2.5 acres)

- **Compartment A Stand 18**

This is a 10.5- acre forested wetland, with a powerline right of way dividing the stand. The outlined management calls for the stand to be quartered and put on a 20-year rotation, with one 2.5-acre quadrant cut every 5-years. There is a mix of pioneer and northern hardwood species that should respond well. Due to the stand's poor drainage the timing of treatment should be restricted to frozen ground conditions. This will also maximize the treatment efficiency given the high aspen content.

Management for 2025-2029 (10.5 acres):

Natural Forest (5 acres)

- **Compartment A Stand 16**

Proposed management is to re-enter this stand and create a second 5-acre dumbbell patch cut (as described above). This will increase the age class diversity within the stand with the aim to improve young forest habitat. As before, aspen pockets will be targeted for regeneration and the two cleared patches will be connected via a corridor.

Forested Wetland (5.5 acres)

- **Compartment B Stand 4**

This shrubland conversion treatment will be detailed below in the shrubland management section.

- **Compartment B Stand 5**

This is a 13.5-acre forested wetland consisting of mostly aspen with other hardwoods such as red maple and black cherry also present. This stand surrounds a grassland field and borders a wetland. The prescribed treatment will clearcut a 3-acre patch of aspen directly east of the field. This should establish different types of early successional habitat in proximity to each other.

- **Compartment A Stand 18**

  This will be the second 2.5-acre cut of the rotation previously detailed above. The treatment is aimed at creating a young forest age mosaic within the stand. Weather and soil saturation will be major factors for management.

BEST MANAGEMENT PRACTICES

Forest management on all WMA/MUAs 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 WMA/MUAs.

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:

General wildlife surveys of project locations will be conducted prior to any forest management. Management activities will be limited to ensure impacts to sensitive species will be avoided or kept to a minimum. Projects will consider seasonal weather conditions, along with the breeding and nesting period of wildlife species found on the WMA.

A Northern long-eared bat survey has not yet been conducted following the U. S. Fish and Wildlife Service (USFWS) approved survey protocol. Forest management will not occur outside of Northern long-eared bat hibernation season, until a survey has been conducted and concludes probable absence.

Forest Health Considerations:

Forest management using sound silviculture helps encourage tree, stand, and forest resilience. This can lead to improved wildlife habitat for the target species and a healthier ecosystem. A more resilient forest is less likely to succumb to the adverse effects of injurious agents and limit the spread of harmful pests that may already be present on the WMA. A loss of function and diversity can occur when forest health declines from pests or other damaging agents. This could lead to fewer wildlife species inhabiting an area successfully, further compounding the decline of health and diversity.

Undesirable vegetation is any vegetation deemed to inhibit the successful establishment and growth of more desirable vegetation, either based on wildlife or timber values. It can possess traits that allow it to readily outcompete desirable regeneration. Pre- and/or post-treatments are often needed to ensure the successful development of desirable species. Observed interfering or invasive vegetation includes blue beech, American beech, hawthorn, ironwood, honeysuckle, multiflora rose, poison ivy, various weeds, ferns, and grasses.

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

White-tailed deer herbivory varies across Watts Flats WMA and has been observed at high intensities in some of the forested stands. In areas where deer browse could pose a threat to desirable regeneration, deer enclosures (natural or artificial) may be constructed to protect regeneration.

Common forest pests, such as emerald ash borer (EAB), hemlock woolly adelgid (HWA), Asian longhorned beetle (ALB), spotted lantern fly (SLF) or gypsy moth have not been observed on the WMA. Watts Flats WMA is, however, located within an emerald ash borer quarantine zone, therefore additional regulations are currently applicable to all ash wood products.

Pre- and Post-Treatment Considerations:

Pre- and post-treatments occur at the stand level and aim to promote the regeneration of desired species. The establishment of desired regeneration is primarily achieved by reducing competing vegetation, exposing mineral soil, and improving the seedbed.[12] Additionally, deer browse also greatly impacts the success of desired regeneration. Treatment actions are typically carried out through mechanical and/or chemical means. It should be noted that certain ecological situations are best treated through a prescribed burning regimen.

Mechanical treatments will most commonly include the use of brush saws or chainsaws to cut out invasive or undesired species from the understory. Chemical treatments will involve the use of herbicides to reduce vegetative competition. Pre- and post-treatment actions will be addressed further in 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 in the Young Forest Initiative Monitoring Plan. The Monitoring Plan establishes statewide standards for evaluating vegetation and target wildlife responses to forest management to determine if the outcome is as prescribed. Regeneration assessments will be conducted within one year of harvest completion, three, and five years after the harvest or until the forester determines adequate natural or artificial (i.e., planting) regeneration has been securely established. YFI wildlife target species selected for Watts Flats WMA, which may be assessed to determine response to management, include:

- American woodcock
- Ruffed grouse

There will be two types of vegetative response surveys conducted following young forest management, ocular regeneration assessment and photo point records.

[12] Nyland, R.D. 2007. Silviculture: Concepts and Applications 2nd ed. Waveland Press.

SHRUBLAND

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

Photo 2: Shrubland management using a forestry mower.

Photo: Greg Ecker, NYSDEC

MANAGEMENT OBJECTIVES

- Manage approximately 526.1 acres as shrubland habitat (39.7% of the WMA), providing habitat for a variety of shrubland dependent species.
- Convert 4 acres of natural forest to shrubland.
- Brush piles will be constructed from larger trees removed from the shrub stand for cottontail rabbit habitat.
- Maintain alder thickets when environmental conditions permit the use of a forestry mower, generating the most beneficial habitat for target species. This will provide valuable foraging opportunity for American woodcock.
- Maintain selected shrubland stands/partial stands via a forestry mower every 3-5 years or as necessary.
- Invasive species monitoring will be conducted annually. Treatment of invasive species will occur as deemed necessary and as funding becomes available.
- Plantings of soft-mast shrubs will be considered.

DESCRIPTION OF EXISTING SHRUBLAND HABITAT AND TARGET SPECIES

Currently 522.1 acres of shrubland exist on Watts Flats WMA composed largely of wetland shrubland species such as alder, red osier dogwood, silky dogwood, elderberry and winterberry.

Photo 3: Winterberry—an important soft mast wildlife shrub found throughout Watts Flats WMA.

Photo: Greg Ecker, NYSDEC

Species present in drier soil conditions include: crab apple, wild apple, honeysuckle, grey-stemmed dogwood, multi-flora rose and sumac. These densely-stemmed habitats provide foraging and

escape cover for both young of year and adults of numerous wildlife species including the YFI target species:

- American woodcock
- Ruffed grouse

Other species benefitting from this habitat type include: brown thrasher, black-billed cuckoo, and cottontail rabbits.

MANAGEMENT HISTORY

Shrubland management on Watts Flats WMA has been very limited due to wet soil conditions and high maintenance costs. Shrubland management was attempted in several stands with a forestry mower after soils were presumed to be frozen or semi frozen. However, success was very limited. In most winters, early snow cover limits ground freezing and stabilization. Fortunately, continuing efforts to maintain this valuable cover type is included in this HMP and will be attempted when the environmental conditions are most favorable. Shrub management projects planned for the limited upland areas should not encounter any environmental obstacles.

Photo 4: Hawthorne—a valuable upland soft mast shrub species that retains fruit late into the winter season.

Photo: Greg Ecker, NYSDEC

IMPLEMENTATION PLAN AND ANTICIPATED SCHEDULE

- **Management planned for 2020-2024** (Figure 6):
  - **Compartment A Stand 10:** A forestry mower will be used to convert approximately 2 acres of natural forest to shrubland connecting Stands 941 and 942. Once established the shrubland will be maintained every 3-5 years with a forestry mower. Removed trees will be cut and stacked to form brush piles.

Habitat management will include the following:

- **Compartment A Stand 10:** Currently, open natural forest exists between Stands 941 and 942 providing little protection for wildlife foraging and movement. The regenerating thick stem, shrub corridor between these stands will provide wildlife with escape cover while traveling between the grassy foraging areas. Woodcock will take advantage of this connection while foraging for insects and earthworms. Future plantings of softmast shrubs will be considered. Plantings of conifer thermal cover will occur as existing conifer cover matures and loses its wildlife value. Additional wildlife habitat in the form of brush piles will be constructed from trees that are removed along the shrub corridor.

- **Management planned for 2025-2029** (Figure 6):
    - **Compartment B Stand 4:** Approximately 2 acres of shrubland will be created following an existing access lane linking two grassy stands 943 and 944. Natural forest adjacent to the existing lane will be cut, expanding the opening out to approximately 50 feet and making it irregular in nature. The access lane will be maintained yearly, while the expansion area will be allowed to regenerate to shrub/sapling. Once established the shrubland will be maintained every 3-5 years with a forestry mower. Removed trees will be cut and stacked to form brush piles.

Habitat management will include the following:

- **Compartment B Stand 4:** The perimeters of the expanded corridor will be irregular, providing additional edge habitat, foraging areas and a shrub corridor between grassy open stands 943 and 944. Future plantings of softmast shrubs and conifer thermal cover will be considered. Additional wildlife habitat in the form of brush piles will be constructed from trees that are removed along the shrub corridor.

BEST MANAGEMENT PRACTICES

Timing of the management activities will be limited to ensure impacts to the habitat and wildlife are kept to a minimum. Projects will consider seasonal weather conditions, along with the breeding and nesting period of wildlife species found on the WMA.

MANAGEMENT EVALUATION

These stands will be included in the American woodcock singing ground survey and the ruffed grouse drumming survey routes established on the WMA. Point counts of bird species pre- and post- management may occur to document presence or probable absence of young forest species and species response to the proposed management. Details of the methodology and data collection can be found in the Young Forest Initiative Monitoring Plan. Periodic inspections will be conducted to ensure tree species do not recolonize the project areas. Winter track surveys will monitor wildlife activity in and surrounding these shrublands.

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.

MANAGEMENT OBJECTIVES

- Maintain 27.9 acres of grassland and open areas (2.1 % of the WMA) to provide nesting and brooding habitat for a variety of wildlife species including bobolinks, wild turkey and Eastern meadowlarks.
- Maintain grasslands and smaller fields annually to suppress encroachment of woody vegetation.
- Periodically lime and fertilize the grasslands to enhance annual growth.

- Reseed grasslands/fields to reestablish desirable species.
- Construct brush piles periodically along the perimeter of the grassy openings.

DESCRIPTION OF EXISTING GRASSLAND HABITAT AND TARGET SPECIES

Currently there are 27.9 acres of grasslands and smaller grassy fields in nine different stands. Again, due to wet/very wet soil conditions encountered on the WMA, establishment of desired grass species through planting have proved to be difficult. Sedges and rushes are prevalent in the wetter pockets within the grassy openings. Several switchgrass/conservation mix plantings have failed to establish switchgrass as the dominant species. The vegetative species present do not provide valuable escape cover and are inferior to switchgrass as a food source. These species become matted during snow events and do not provide tunnels utilized by wildlife as travel lanes and escape cover, unlike switchgrass that remains sturdy, bending rather than matting down from a snow load. Planting of preferred grass species will be attempted in areas with the driest growing conditions when favorable environmental exist. These plantings will be limited in size and will result in pockets of preferred species within the grassy openings.

Species that benefit from grassland best management practices include:

- Eastern meadowlark
- Bobolink

MANAGEMENT HISTORY

Attempts were made to establish switchgrass in several fields along the administrative road (Stand 940) and Swede Road (Stand 945) to enhance nesting opportunities for waterfowl. The soils, however, proved to be too wet for switchgrass establishment. Further management of these stands includes annual mowing to prevent encroachment by woody vegetation. The small fields along Green Flats Road (Stands 941 and 942) were limed as part of a mitigation project with Chautauqua County in 1993.

Switchgrass, combined with a conservation seed mix, was planted in Stand 948 along the railroad property on the southern end of the WMA. This stand is adjacent to an impoundment and the riparian corridor of Little Brokenstraw Creek. A seasonally high-water table influences growing conditions within this grassy opening. Annual mowing in late May is used to suppress the growth of cool season weed species and prevent encroachment by woody vegetation. The stand remains a mix of species despite management efforts to favor switchgrass establishment. One of the disadvantages of mowing is the buildup of litter in the stand which may lead to smothering of root systems. Prescribed burning of switchgrass would be more beneficial to managing this valuable cover type. Future habitat planning will involve pursuing this management practice on the WMA.

IMPLEMENTATION PLAN AND ANTICIPATED SCHEDULE

- **Management planned for 2020-2029** (Figure 6):
    - Continue field maintenance following an annual mowing schedule.
    - Grassland fields determined to contain undesirable species will be reseeded to warm or cool season grasses.
    - Fields will be periodically limed and fertilized.

- Continue annual spring mowing of switchgrass to suppress competition from cool season vegetation.
- Construct brush piles periodically along the perimeter of the grassy openings.

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*.[13] In particular, refer to the plan for species-specific habitat requirements and detailed 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 (glossy buckthorn, pale and black swallowwort, Canada thistle, Phragmites, 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, 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.

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).

[13] 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.

    - The fields are assessed or surveyed and there is no active nesting by E/T/SC grassland birds.
    - 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:
    - Field can be managed/mowed within the period April 23 and August 15 if necessary, to accomplish other goals and priorities that benefit other species that use the habitat. 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).

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 working 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

These stands will be included in the American woodcock singing ground survey and the ruffed grouse drumming survey routes established on the WMA. Point counts of bird species pre- and post-management may occur to document presence or absence of young forest and grassland species and species response to the proposed management. Periodic winter track surveys will monitor wildlife activity in and surrounding these grassy openings.

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

Watts Flats WMA does not contain any stands that are managed as agricultural land. Future management plans do not include adding agricultural fields to the existing habitat.

WETLANDS (NATURAL AND IMPOUNDED)

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

MANAGEMENT OBJECTIVES

- Maintain 67.1 acres of natural wetland as it currently exists.
- Maintain 17.1 acres of impounded wetlands.
- Maintain natural hydrology and water quality on the WMA.
- Maintain water control structures and dikes on small ponds and impounded wetlands occurring on the WMA.
- Manage beaver and muskrat occupancy at levels that will not jeopardize the integrity of dikes and water control structures.
- Repair dikes, emergency spillways and water control structures as needed.

DESCRIPTION OF EXISTING WETLAND HABITAT AND TARGET SPECIES

There are 67.1 acres of natural wetlands and 17.1 acres of impounded wetlands (totaling 84.2 acres) on Watts Flats WMA (Figure 6). The wetland acreage is a combination of small, shallow water areas, emergent aquatic vegetation and scrub-shrub species.

The wetlands provide habitat for species such as:

- American woodcock
- Beaver, muskrat, mink, otter
- Migratory waterfowl, shorebirds
- Wood frog, spring peepers, Bull frogs
- Snapping turtle, painted turtle, northern water snake

MANAGEMENT HISTORY

Several pond rehab projects are being planned and will be completed as funding becomes available. Mowing of the pond dikes is completed annually by the Division of Operations following the WMA work plan.

IMPLEMENTATION PLAN AND ANTICIPATED SCHEDULE

- **Management planned for 2020-2029** (Figure 6):
    - Continue annual routine maintenance of dikes and water control structures and emergency spillways.
    - Continue routine inspection of dikes for muskrat and beaver damage.
    - Reconstruct dikes and replace water control devices as necessary.

BEST MANAGEMENT PRACTICES

Timing of the management activities will be limited to ensure impacts to the habitat and wildlife are kept to a minimum. Projects will take into account seasonal weather conditions, along with the breeding and nesting period of wildlife species found on the WMA. Date restrictions for water level management or equipment in wetlands will be followed to protect hibernating amphibians and reptiles (October 1st– March 31st).

MANAGEMENT EVALUATION

None.

OPEN WATER (WATERBODIES AND WATERCOURSES)

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

MANAGEMENT OBJECTIVES

- Maintain dikes, water control structures and emergency spillways on small ponds occurring on the WMA.
- Manage beaver and muskrat occupancy at levels that will not jeopardize the integrity of dikes and water control structures.
- Protect water quality on all streams and segments of stream as management activities are conducted.

DESCRIPTION OF EXISTING OPEN WATER HABITAT AND TARGET SPECIES

Several small ponds have been constructed on the management area that have no water control structures. Potholes for waterfowl habitat were dug with tracked excavators and are interspersed throughout the WMA. The larger ponds consist of a dike, water control structure, and emergency spillway. These areas provide aquatic habitat utilized by a variety of migratory waterfowl, reptile, and amphibian species.

MANAGEMENT HISTORY

A project to install a sheet pile weir was completed with the collaboration of NYSDEC, Ducks Unlimited and Chautauqua County to allow for water depth regulation in the large pool to the east of the Administration Road. Seasonal drawdowns to encourage aquatic vegetation establishment was the goal. Unfortunately, this habitat is also prime beaver habitat, which has - taken over water level management despite valiant efforts by the Wildlife Unit staff. A project to address this obstacle is in the design phase and will be initiated upon approval of this HMP.

Photo 5: Cooperative Wetland enhancement habitat project.

Photo: Emilio Rende, DEC

IMPLEMENTATION PLAN AND ANTICIPATED SCHEDULE

- **Management planned for** 2020-2029 (Figure 6):
    - Redesign and improvement of the sheet pile weir.
    - Routine maintenance on all dikes and water control structures including yearly inspections, annual mowing of the dikes, and monitoring of beaver and muskrat activity.
    - Initiate several dike rehab projects as funding becomes available.

BEST MANAGEMENT PRACTICES

Timing of the management activities will be limited to ensure impacts to the habitat and wildlife are kept to a minimum. Projects will consider seasonal weather conditions, along with the breeding and nesting period of wildlife species found on the WMA.

MANAGEMENT EVALUATION

None.

HABITAT MANAGEMENT SUMMARY

In summary, Table 7 lists the habitat management actions planned for Watts Flats 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 Watts Flats WMA, 2020-2029. (Also see Figures 3 and 6.)

Habitat	Management Action	Acres	Timeframe
Forest	Clearcut dumbbell shaped patch of northern hardwood cover in Compartment A Stand 16.	5	2020-2024
Forest	Clearcut irregular shaped patch of northern hardwoods in Compartment A Stand 10.	5	2020-2024
Forest	Clearcut two strips of northern hardwoods and maintain as shrubland in Compartment A Stand 10.	2	2020-2024
Forest	Clearcut eastern half of northern hardwoods in Compartment A Stand 19.	7	2020-2024
Forest	Patch clearcut of forested wetland in Compartment A Stand 18.	2.5	2020-2024
Forest	Clearcut irregular shaped patch of forested wetland in Compartment B Stand 5.	3	2025-2029
Forest	Clearcut strip of forested wetland and maintain as shrubland wetland in Compartment B Stand 4.	2	2025-2029
Forest	Clearcut a second dumbbell shaped patch of northern hardwood in Compartment A Stand 16.	5	2025-2029
Forest	Patch clearcut of forested wetland in Compartment A Stand 18	2.5	2025-2029
Shrubland	Stand maintenance every 3-5 years or as deemed necessary.	-	2020-2029
Grassland	Annual field maintenance.	-	2020-2029

III. FIGURES

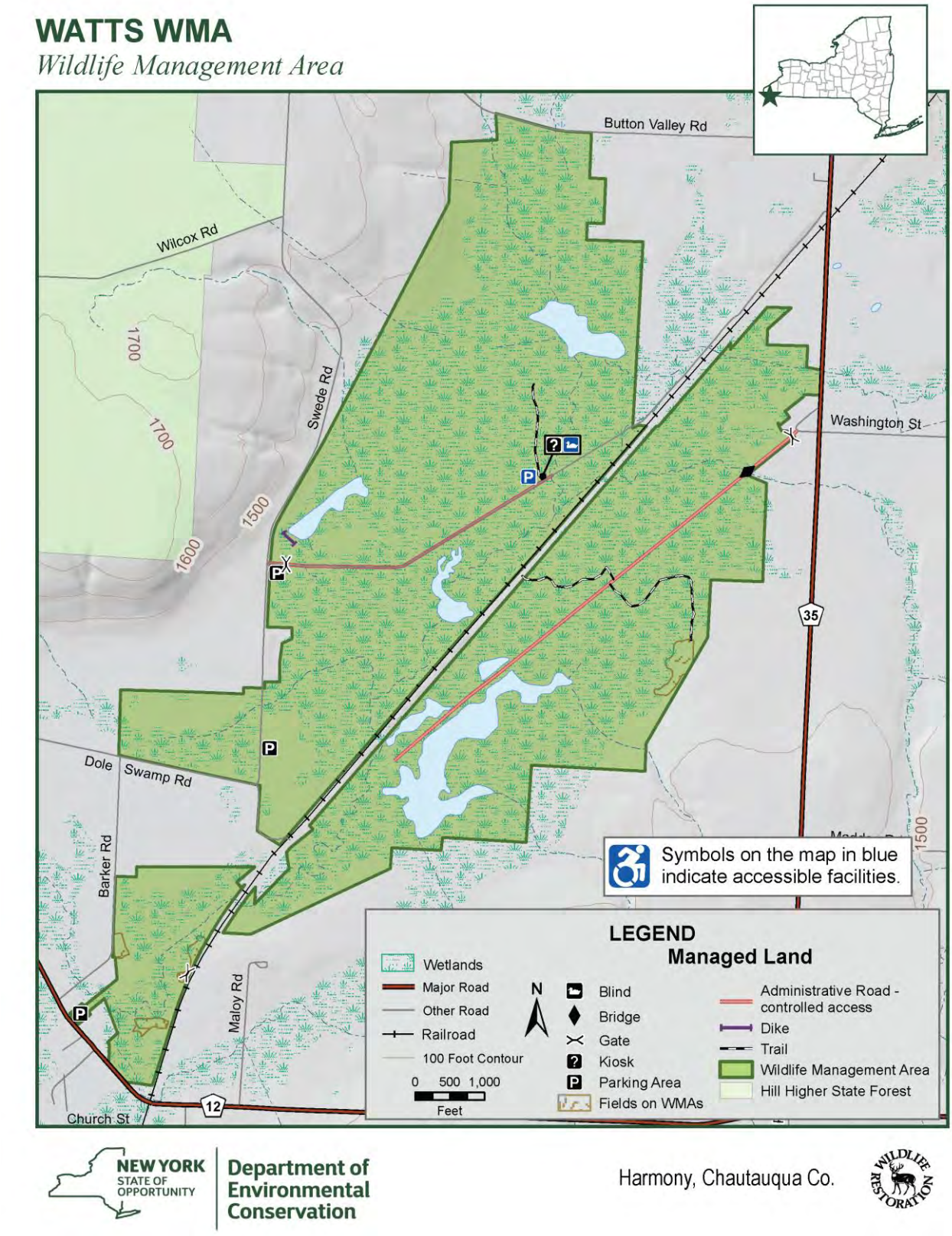

FIGURE 1. Location and access features at Watts Flats WMA.

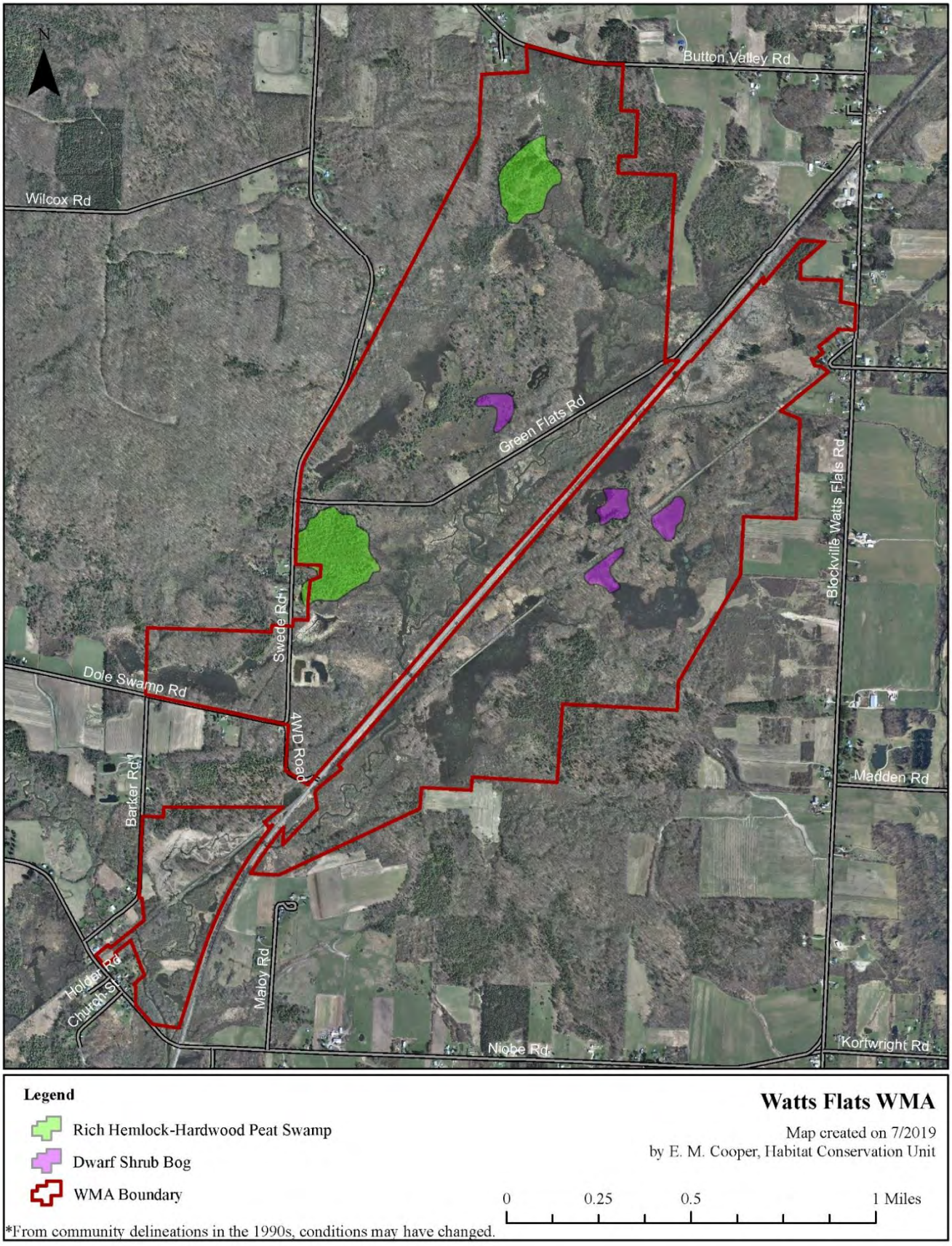

FIGURE 2. Significant ecological communities on Watts Flats WMA. Data from the NY Natural Heritage Program.

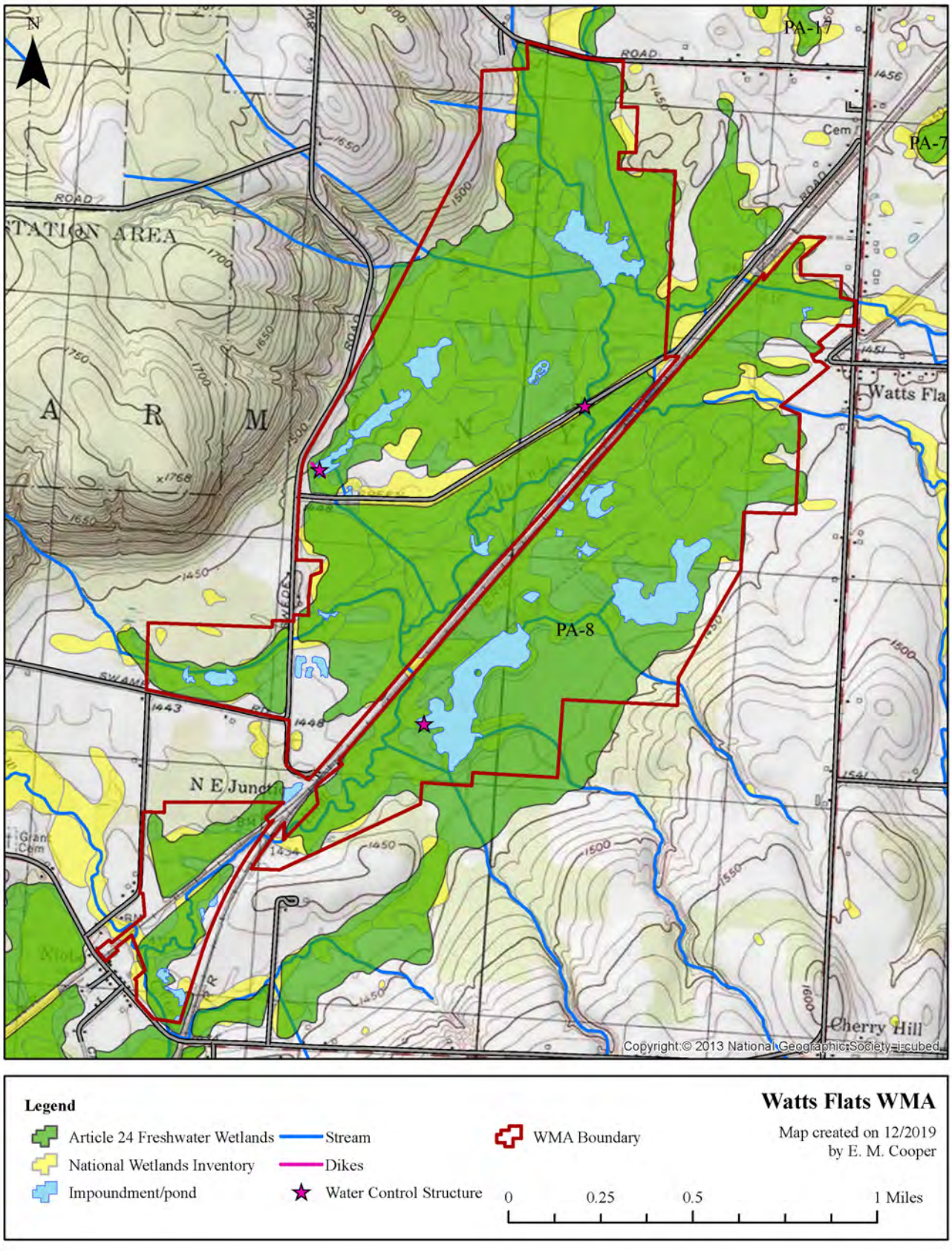

FIGURE 3. Wetlands, open water, and streams of Watts Flats WMA. Note: Wetland boundaries are not exact and may not be used for regulatory purposes without a current delineation.

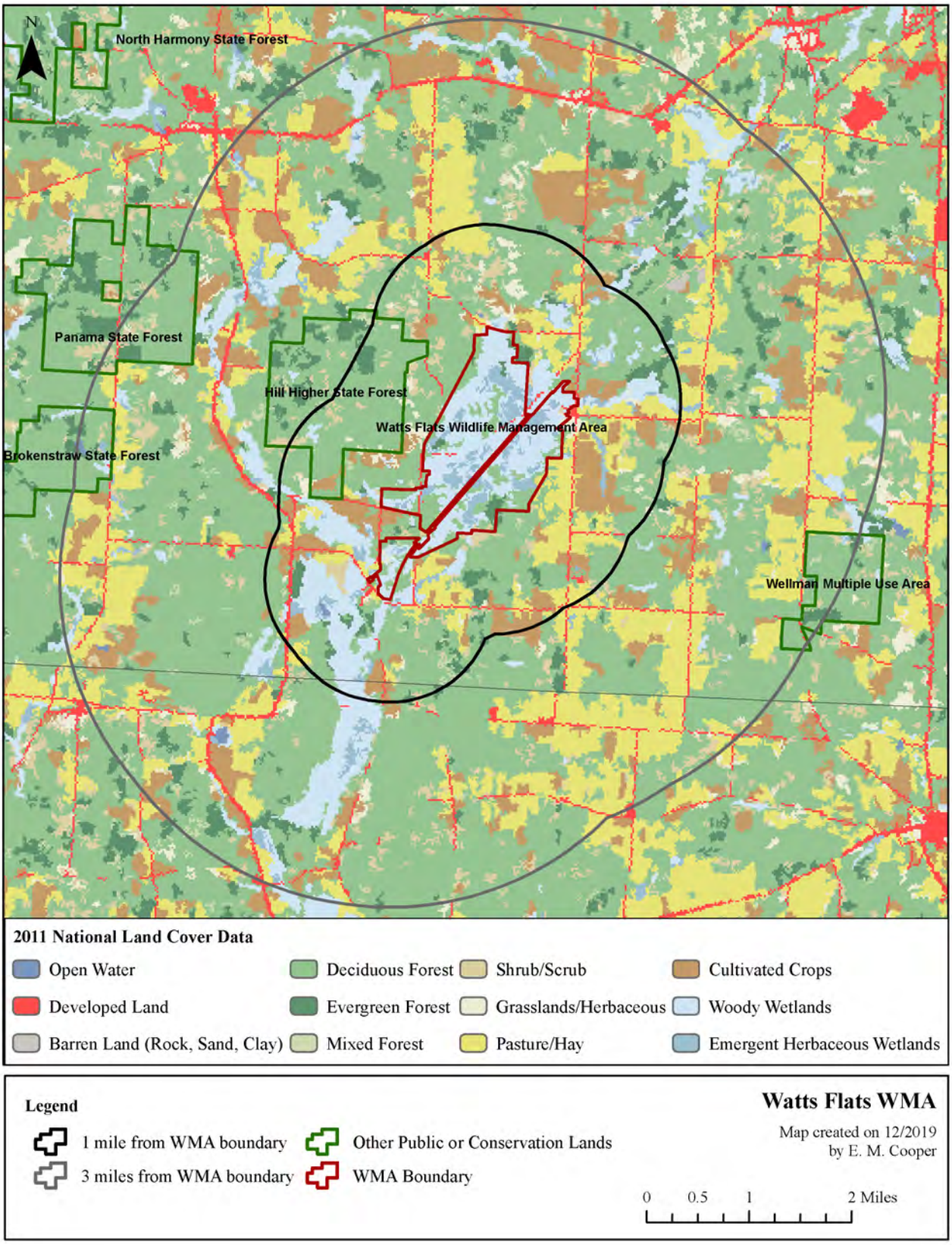

FIGURE 4. Land cover types and conservation lands in the landscape surrounding Watts Flats WMA.

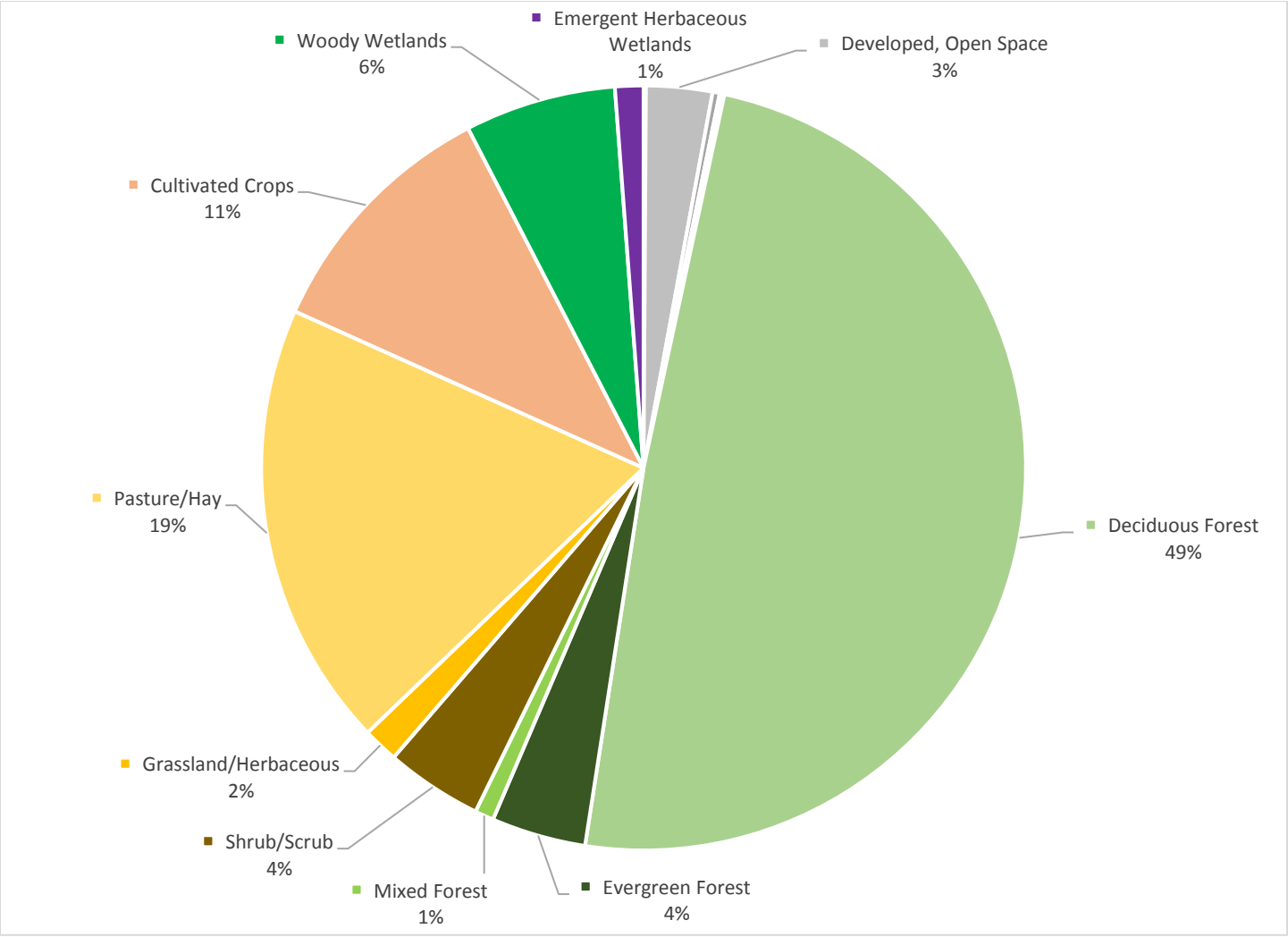

FIGURE 5. Percent cover of land cover types within three miles of Watts Flats WMA.

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

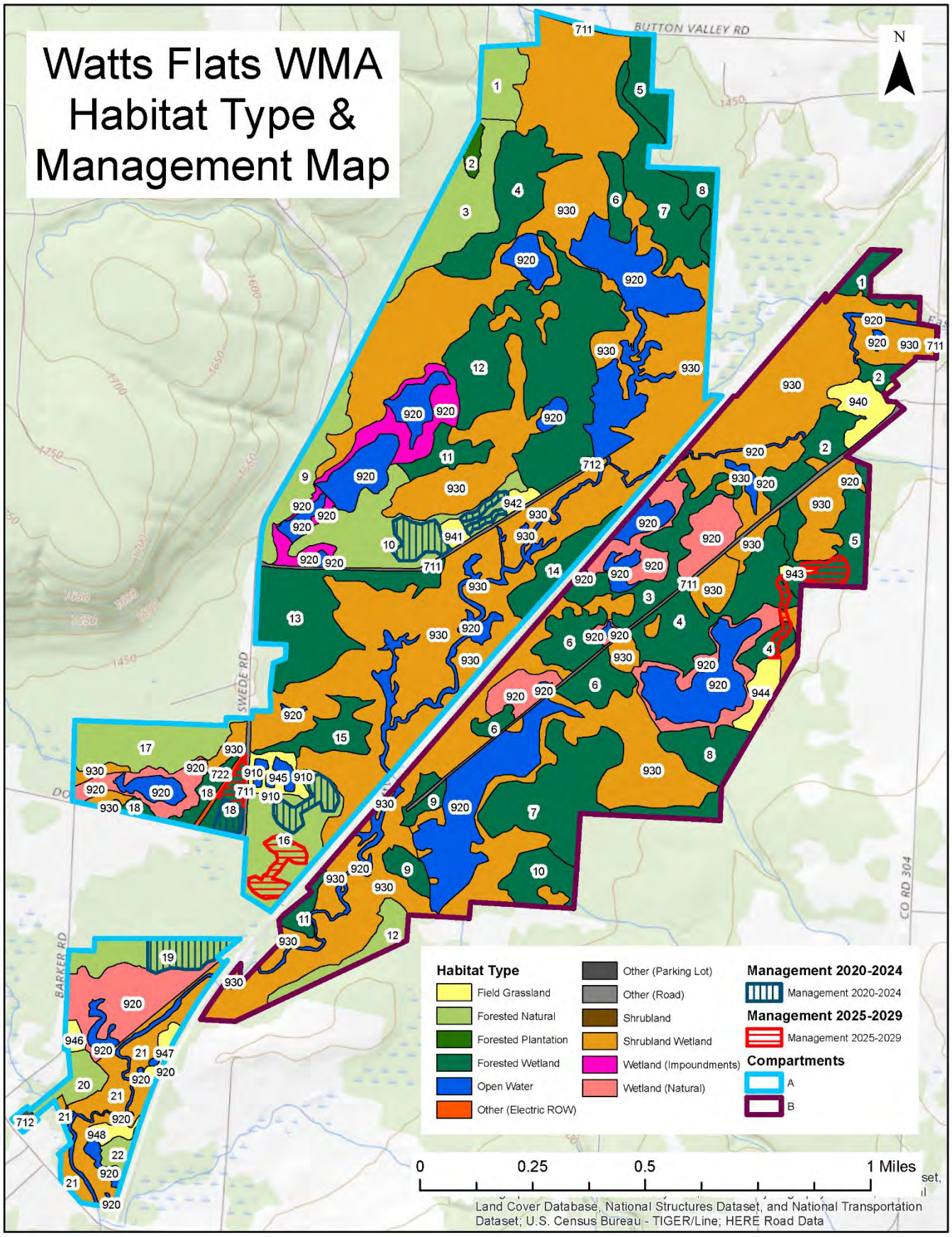

FIGURE 6. Habitat types and location(s) of proposed management on Watts Flats WMA. Numbers indicate the stand number from habitat inventory.

IV. APPENDICES

APPENDIX A: DEFINITIONS

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

State Rank of Significant Ecological Communities:

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

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

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

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

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

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

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

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

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

(Refer to NYS Environmental Conservation Law, Article 24 § 24-0107 for full definition.)

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

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

APPENDIX B: COMPLIANCE WITH STATE ENVIRONMENTAL QUALITY REVIEW

This plan identifies habitat management activities to be conducted on the Wildlife Management Area. These activities were analyzed in the 1979 *Programmatic Environmental Impact Statement on Habitat Management Activities of the Department of Environmental Conservation; Division of Fish and Wildlife* (PEIS), as updated and amended in 2017 by the *Supplemental Final Environmental Impact Statement* (SFEIS).[14] 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).[15]

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.

[14] Available online at http://www.dec.ny.gov/regulations/28693.html.
[15] 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.