

Habitat Management Plan for Swallow Bluffs Wildlife Management Area 2020 - 2029



Swallow Bluffs WMA along the St. Lawrence River.

Photo: Mike Morgan, NYSDEC

Division of Fish and Wildlife
Bureau of Wildlife

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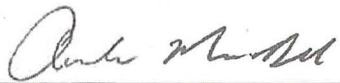
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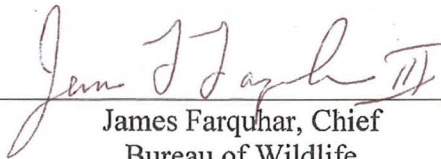
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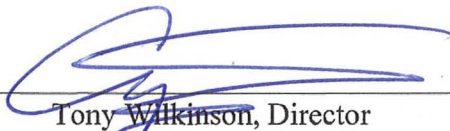
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SUMMARY

Swallow Bluffs Wildlife Management Area (WMA) overlooks the great St. Lawrence River, and was acquired in 2017 as a result of the settlement negotiations for the Robert-Moses hydropower license agreement. The New York Power Authority (NYPA) originally acquired the land during construction of the power project in the 1950s and transferred these unique parcels to DEC to preserve the bluffs for nesting Bank Swallows and to provide lasting protection of important muskellunge (“musky”) spawning habitat. Bank Swallows are not rare in New York; however, their nesting habitat is often vulnerable to disturbance during the nesting period. Excessive bank erosion is also a concern; however, the Bank Swallow relies on occasional or gradual erosion to provide freshly-faced bluffs to nest in. The slowly eroding banks of this WMA provide high quality nesting opportunities for the swallows. Muskellunge are a very important fishery in the St. Lawrence River, and quality spawning habitat is limited. One of the acquired parcels protects an important spawning area for musky.

Swallow Bluffs WMA will be managed for preserving the nesting habitat for Bank Swallows and musky spawning. Key habitat management goals include:

- Increasing grassland habitat to 77% of the WMA;
- Maintaining 7% of the WMA as shrubland habitat; and
- Decreasing forested habitat to 16% of the WMA.

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 Wildlife Management Areas (WMA) and other properties administered by DFW, Bureau of Wildlife, including select Multiple Use and Unique Areas. The goal of HMPs is to guide habitat management decision-making on those areas to benefit wildlife and facilitate wildlife-dependent recreation. HMPs guide management for a ten-year time period, after which the plans and progress on implementation will be assessed and HMPs will be modified as needed.

HMPs serve as the overarching guidance for habitat management on WMAs. These plans incorporate management recommendations from Unit Management Plans (UMPs), existing WMA habitat management guidelines, NY Natural Heritage Program’s WMA Biodiversity Inventory Reports, Bird Conservation Area guidelines, and other documents available for individual WMAs.

SCOPE AND INTENT

Primary purposes of this document:

- Provide the overall context of the habitat on the WMA and identify the target species for management;
- Identify habitat goals for WMA-specific target species, contemplating juxtaposition of all habitat types to guide the conservation and management of sensitive or unique species or ecological communities;
- Identify acreage-specific habitat goals for the WMA to guide management actions;
- Provide specific habitat management prescriptions that incorporate accepted best management practices;
- 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

Swallow Bluffs WMA consists of five parcels along the St. Lawrence River, located in DEC Region 6, towns of Lisbon and Waddington, St. Lawrence County (Figure 1).

TOTAL AREA

55 acres

HABITAT INVENTORY

A habitat inventory of the WMA was conducted in 2018 and is proposed to be updated every 10 to 15 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 Swallow Bluffs WMA.

Habitat Type	Current Conditions (as of 2018)			Desired Conditions	
	Acres	Percent of WMA	Miles	Acres	Percent of WMA
Forest ^a	10	18%		8.5	Decrease to 16%
Young forest	0	0%		0	No Change
Shrubland	4	7%		4	No Change
Grassland	41	75%		42.5	Increase to 77%
Agricultural land	0	0%		0	No Change
Wetland (natural)	0	0%		0	No Change
Wetland (impounded)	0	0%		0	No Change
Open water	0	0%		0	No Change
Other (easements)	0	0%		0	No Change
Roads	0	0%		0	No Change
Rivers and streams	0	0%		0	No Change
Total Acres:	55	100%		55	

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

ECOLOGICAL RESOURCES

Wildlife Overview:

Wildlife present on Swallow Bluffs WMA includes many species commonly found throughout northern New York and the St. Lawrence River Valley, such as:

- Bank Swallow, Great Blue Heron, Belted Kingfisher, Downy Woodpecker

- White-tailed deer, eastern cottontail rabbit
- Northern leopard frog, eastern American toad, spring peeper
- Muskellunge (musky)

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 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 Swallow Bluffs 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
	Bald Eagle		T	x
	Common Goldeneye			x
	Common Tern		T	x
	Osprey		SC	
	Northern Harrier			x
Mammals	Indiana myotis	E	E	HP
	Northern long-eared bat (northern myotis)	T	T	HP
	Little brown myotis (little brown bat)			HP
Amphibians and reptiles	Blue-spotted salamander			HP
	Common mudpuppy			x
Fish	Muskellunge			x
	Blackchin shiner			x
Invertebrates	none			
Plants	American dragonhead		E	
	Lindley's aster		E	

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

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

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

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

Significant Ecological Communities:

There are no significant natural communities located on Swallow Bluffs WMA as identified by the NY Natural Heritage Program at this writing (Figure 2); definitions are provided in Appendix A. However, the bluffs along the St. Lawrence River in this area are significant for the Bank Swallows and the musky spawning area is significant for the fisheries of the St. Lawrence River, even though there are no mapped communities. Future New York Natural Heritage Program mapping should review this area for consideration of a Significant Ecological Community.

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 Swallow Bluffs WMA include:

- There are no freshwater wetlands regulated by Article 24 of the Environmental Conservation Law. Several wetlands shown on the National Wetlands Inventory (NWI; Figure 3) do occur on the WMA. There may be forestry prescriptions associated with forested wetlands and adjacent areas, and each management prescription will be reviewed individually for determination of impacts.
- No streams (a watercourse entirely within the WMA) or segments of streams (a stream that meanders in and out of the WMA) are located on the WMA.
- The St. Lawrence River flows from west to east, abutting the northern boundary of the WMA, does not intersect the WMA, and provides the only access to the WMA.⁵

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*.⁶ Some habitat management activities may either be prohibited or restricted to protect these features. Any deviations from these guidelines will be addressed in the individual stand prescriptions.

Soils:

Swallow Bluffs WMA varies in soil structure. The WMA topography is generally flat throughout (0 to 8 percent slopes) except the actual bluffs facing the St. Lawrence River. Soils in the northeast parcels range from well drained Heuvelton and Udorthents (loamy and silty clay loam) to poorly drained Adjiduamo and Muskellunge (silty clay and loam). The soils of the central two parcels of the WMA are



⁵ Information about stream classification is available online at <http://www.dec.ny.gov/permits/6042.html>.

⁶ Available online at <http://www.dec.ny.gov/outdoor/104218.html>.

predominantly well drained Elmwood and Swanton fine sandy loam, with areas of poorly drained Muskellunge silty clay loam. The southwestern parcels of the WMA consist of moderately well drained Flackville fine sandy loam soils with areas of Muskellunge and Elmwood silty clay loam and Udorthents. Despite a few poorly drained areas, most of the soils across the WMA are good for growing trees, shrubs, forbs, and grasses.

LANDSCAPE CONTEXT

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

- Pasture/hay and grasslands (31%)
- Open Water (27%)
- Deciduous forest (16%)
- Wetlands (11% combining emergent and woody wetlands)
- Cultivated crops (5%)
- Development (5%)
- Early successional shrubland (3%)
- Evergreen forest (2%)
- Mixed forest (<1%)

It is important to realize that the above numbers represent approximately half of the actual landscape as the NLCD does not include the lands or water in Canada.

Nearby conservation lands include:

- Coles Creek State Park
- Galop Island State Park (undeveloped)
- Sodom State Forest
- Wilson Hill WMA*
- Whitehouse Point Grassland Bird Habitat Improvement Project and Ogden Island Grassland Bird Habitat Improvement Project are state-owned lands designated to be managed by DEC as wildlife habitat at least until 2053.

*Wilson Hill WMA (3,434 acres) is located to the northeast of Swallow Bluffs WMA. The habitat management plan for Wilson Hill WMA can be found at https://www.dec.ny.gov/docs/wildlife_pdf/yfiwilsonhmp.pdf.

II. MANAGEMENT STRATEGIES BY HABITAT TYPE

DEC will continue active management of wildlife habitats on Swallow Bluffs 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 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 Swallow Bluffs WMA focuses on protecting water quality within the associated wetland habitat on the St. Lawrence River. Management will also focus on woody stem management along the bluffs' edge to allow the slow erosion of the bank. This will create a freshened nesting area for the Bank Swallows.

MANAGEMENT OBJECTIVES

- Provide adequate buffers around the wetland area of the St. Lawrence river to protect the productive musky spawning area.
- Reduce forest on Stand A-2 from 4.7 acres to 3.2 acres by cutting trees within 80 ft. of the bluff edge while confirming the navigation structure located in the stand will remain protected.

DESCRIPTION OF EXISTING FOREST HABITAT AND TARGET SPECIES

Swallow Bluffs WMA contains few forested acres, which are found in two stands. Stand A-2, toward the southern portion of the WMA, is dominated by boxelder and thornapple, with occasional ash and basswood. Most of the basswood is found on the slope down to the wetland

on the southern edge of the stand. Stand A-8, in the northeastern portion of the WMA, is a blend of ash, basswood, oak, and maple with several large sawtimber-sized ash and oak trees. The understory has a mix of maple, oak, ash, and cherry regeneration along with invasive species. A drainage through the middle of the stand feeds into an important musky spawning area on the St. Lawrence River. Both stands face the forest regeneration challenges caused by encroaching invasive honeysuckle and buckthorn, which already dominate some parts of the understory.

Bank Swallow is the targeted species for this WMA. The swallows rely on forest, shrubland, and grassland areas for foraging and the bluffs below for nesting and cover.

- Bank Swallow
 - Nesting – within the banks or bluffs along the St. Lawrence River beginning in mid-April with peaks in mid-May⁷.
 - Brood rearing – Parental care only lasts about two weeks
 - Foraging – Grassland/open areas above the colony burrows with herbaceous vegetation that supports insects⁷.
 - Post-fledging – Fledglings will roost in the burrows until early August⁷.

MANAGEMENT HISTORY

- None

IMPLEMENTATION PLAN AND ANTICIPATED SCHEDULE

Clearing portions of Stands A-2 and A-4, along the edge of the bluff, is recommended to allow a slow sloughing of the bank. As of 2019, very few Bank Swallows are utilizing the bluffs of these stands relative to others where woody vegetation at the bluff crest is absent. There is a positive correlation between Bank Swallow occupancy and a surrounding, open grassland habitat⁷. Stand locations are shown in Figure 6. Specific forest stand descriptions and detailed management prescriptions will be prepared for each proposed forest management area prior to implementation and following an amendment (see template, Appendix C).

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 3).

Table 3. Best Management Practices for forest management on WMAs.

Resource	Guidance Document ⁸
Soils	<i>Rutting Guidelines for Timber Harvesting on Wildlife Management Areas</i>
Water quality	<i>NYS Forestry Best Management Practices for Water Quality</i>
Wildlife	<i>Retention Guidance on Wildlife Management Areas</i>
Plantations	<i>Plantation Management Guidance on Wildlife Management Areas</i>

⁷ Ontario Ministry of Natural Resources and Forestry. 2017. Best Management Practices for the Protection, Creation and Maintenance of Bank Swallow Habitat in Ontario. Queen's Printer for Ontario, 2017. 37 pp.

⁸ All guidance documents referenced here are available online at <http://www.dec.ny.gov/outdoor/104218.html>.

Wildlife Considerations:

An important musky spawning area is located near Stand A-8. Therefore, forested habitat will be maintained in this stand, and if any forest management is conducted BMPs will be implemented to protect soil and water quality. Bank Swallows nest within the bluffs of this WMA and mechanical equipment should not be utilized during the nesting season to avoid disturbances.

Forest Health Considerations:

The forest on Swallow Bluffs is in moderate health. Poorly drained soils and competition from invasive plants limit growth and regeneration in some parts of the WMA. Grape vines also add to the competition for growing space and may damage or smother trees. However, since grapes are beneficial for some wildlife species, little management is planned to reduce the number of grapes on the WMA at this time.

A significant insect pest to watch for is the emerald ash borer (EAB). While EAB has not been recorded on the WMA, it is gradually spreading throughout the state and has been documented in several areas along the St. Lawrence River. EAB is an invasive beetle that feeds on and kills all species of ash trees and significant ash mortality is expected when the beetle reaches the WMA. At that time, dead or dying ash may be removed from the WMA if deemed a hazard to infrastructure or adjacent private property.

Pre- and Post-treatment Considerations:

Mechanical or chemical methods may be used to treat and control invasive species and interfering brush in the managed stands, as directed by the YFI team, WMA land manager, or Regional Wildlife Manager. Chemical treatments can be considered as long as they will not adversely affect the Bank Swallows.

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

MANAGEMENT EVALUATION

- Potentially, perform pre- and post-cutting surveys at Stand A-2 for increased nesting activity by Bank Swallows.



View of nesting Bank Swallows at Swallow Bluffs WMA.

Photo: Mike Morgan, NYSDEC

SHRUBLAND

Shrublands are early successional habitats dominated by woody plants typically less than 10 feet tall with scattered open patches of grasses and forbs that provide floristic diversity. Typically characterized by > 50% canopy cover of shrubs and < 25% canopy cover of trees.

MANAGEMENT OBJECTIVES

- Maintain existing open patches within the shrublands.

DESCRIPTION OF EXISTING SHRUBLAND HABITAT AND TARGET SPECIES

There are four acres of shrublands on Swallow Bluffs WMA that consist of dogwood species, buckthorn, honeysuckle, sumac, grasses, forbs, and scattered ash, boxelder, and elm trees. Incorporating early successional shrublands contiguous to open areas will benefit a suite of wildlife including:

- Bank Swallow

MANAGEMENT HISTORY

There is physical evidence of some past maintenance of the shrubland habitat though it is unknown if this was part of a formal management plan.

IMPLEMENTATION PLAN AND ANTICIPATED SCHEDULE

- **Management planned for 2020-2029** (Figure 6, Table 4):
 - Maintain existing open patches within the shrublands and treat invasive plants as needed.

GRASSLAND

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

MANAGEMENT OBJECTIVES

- Monitor fields for invasive species and eradicate where feasible.
- Monitor the area for woody stems and remove by mowing through agreements until formal access is granted.
- Plant conservation wildflower mixes to attract pollinators to the area. Swallows are insectivorous.
- Increase grassland habitat within Stand A-2 from zero to 1.5 acres.

DESCRIPTION OF EXISTING GRASSLAND HABITAT AND TARGET SPECIES

There are 41 acres of grasslands within Swallow Bluffs WMA. Several hedgerows and small patches of trees are located within the grasslands; the hedgerows contain dense shrubs with a mix of boxelder, aspen, cottonwood, and ash. Along the northern edge of many of the grasslands, where they start to drop down toward the river, there is a forested edge of aspen, cottonwood,

sumac, and other shrub and tree species. Removing the forested edge of trees and shrubs will allow a natural slow sloughing of the area along the bluff, hence increasing the nesting quality for Bank Swallows. Grasslands provide suitable habitat for Bank Swallows and pollinators located on the WMA (Figure 6). Grassland management will prevent woody stems from invading the area and continue to provide habitat that will be used by migratory birds for nesting, roosting, forage, and cover. Grassland management will also improve habitat for pollinators (insects).

Species that benefit from grassland best management practices include:

- Bank Swallow
- Pollinators

MANAGEMENT HISTORY

NYPA had conducted periodic mowing of the area and it is believed that a neighboring landowner often utilized cattle to graze some areas. Prior practices with neighboring landowners should be reviewed and considered on a case by case basis as to their effects and appropriateness on the WMA. For example, Stand A-6 is being grazed by an adjacent landowner's livestock. This landowner's property surrounds this parcel and his family has used this area for grazing over the last couple of decades. The newness of the WMA has resulted in no other historical information being available.

IMPLEMENTATION PLAN AND ANTICIPATED SCHEDULE

- **Management planned for 2020-2029** (Figure 6, Table 4):
 - Maintain and enhance the existing 41 acres of grassland fields to provide quality grassland bird habitat for foraging Bank Swallows.
 - Thin existing hedgerows to open the area and allow the bluffs to continue to erode at a very slow rate. Thin narrow strips, less than five feet wide, along the bluffs.
 - Continue to enhance the quality of grassland fields by removing shrubs or dense vegetation from the fields.
 - Monitor fields for invasive species and eradicate where feasible.
 - Plant a conservation wildflower seed mix as needed.

BEST MANAGEMENT PRACTICES

For more detailed information and recommendations see *A Plan for Conserving Grassland Birds in New York*.⁹ In particular, refer to the plan for species-specific habitat requirements and detailed recommendations regarding grassland management and restoration techniques.

General Management Recommendations

- Northern harrier– Management of fields after mid-August to prevent impacts to nesting.
- Investigate the potential to use prescribed fire to better manage the grassland habitat to reduce soil compaction and heavy vibrations from mechanical management and to promote a more diverse forb component.

⁹ 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.

MANAGEMENT EVALUATION

Potentially, monitor the population of Bank Swallows and evaluate options through adaptive management for long-term protection and management.

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.

MANAGEMENT OBJECTIVES

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

WETLANDS (NATURAL AND IMPOUNDED)

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

MANAGEMENT OBJECTIVES

- There is no wetland habitat on the WMA or any plan to develop such habitat. However, the eastern most parcel of the WMA surrounds a wetland embayment of the St. Lawrence River and is to be managed for musky spawning habitat through upland protections.

OPEN WATER (WATERBODIES AND WATERCOURSES)

MANAGEMENT OBJECTIVES

- There is no open water habitat on the WMA or any plan to develop such habitat. However, the WMA is adjacent to the St. Lawrence River and does surround an important musky spawning area.

HABITAT MANAGEMENT SUMMARY

In summary, Table 4 lists the habitat management actions planned for Swallow Bluffs WMA over the next ten years. Any substantive changes will be appended to this HMP annually or as needed (Appendix D).

Table 4. Summary of habitat management actions recommended for Swallow Bluffs WMA, 2020-2029. (Also see Figure 6.)

Habitat	Management Action	Acres	Timeframe
Forest	Woody stem clearing along the bluff in Stand A-2	1.5	2020-2029
Shrubland	Maintain existing open patches within the shrublands	4	2020-2029, as needed
Grassland	Monitor fields for invasive species and eradicate where feasible	41	2020-2029, as needed
Grassland	Thin existing hedgerows (Stands A-5&6) and remove woody vegetation along nesting bluffs.	~1	2020-2029, as needed

III. FIGURES

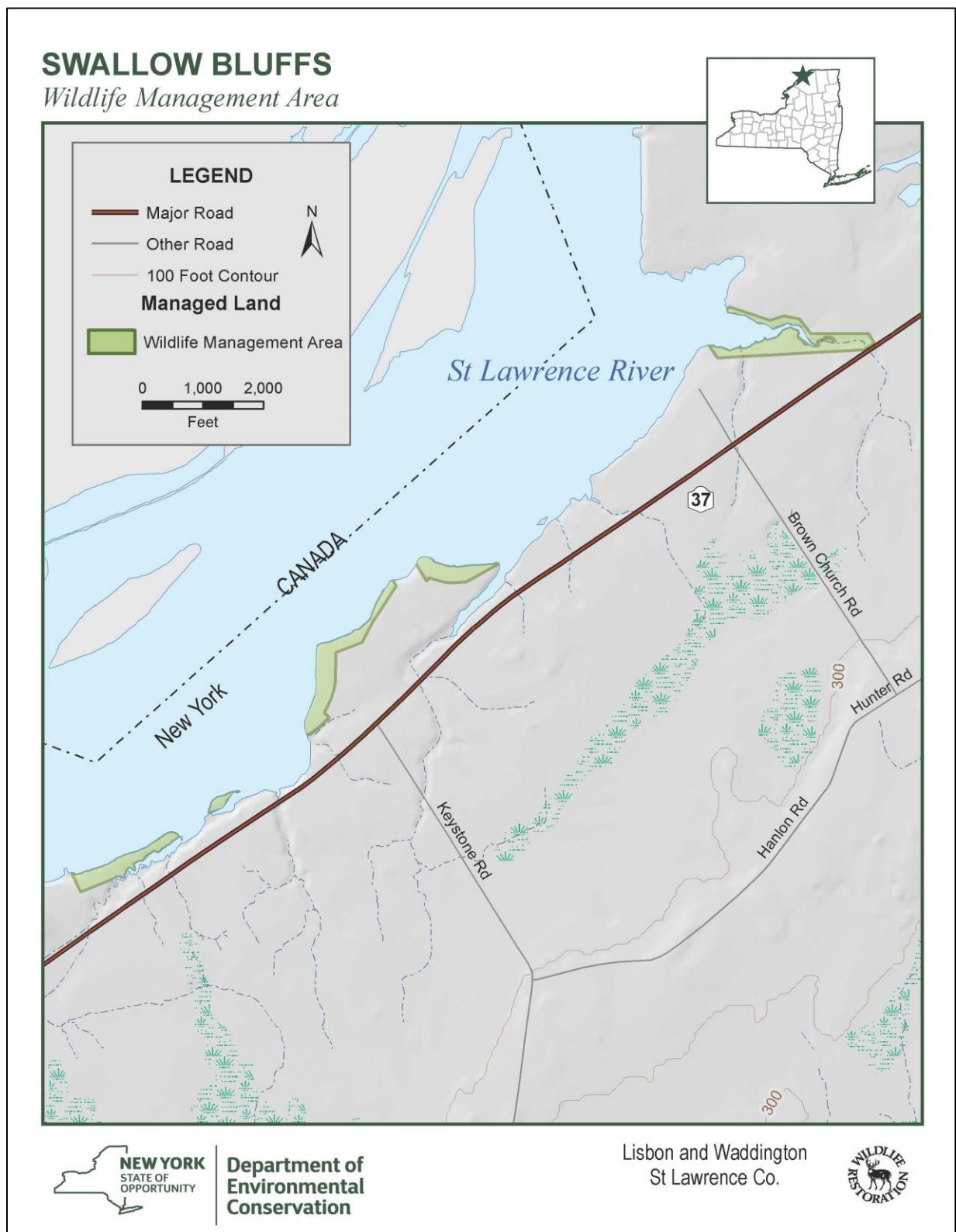


FIGURE 1. Location and access features at Swallow Bluffs WMA.

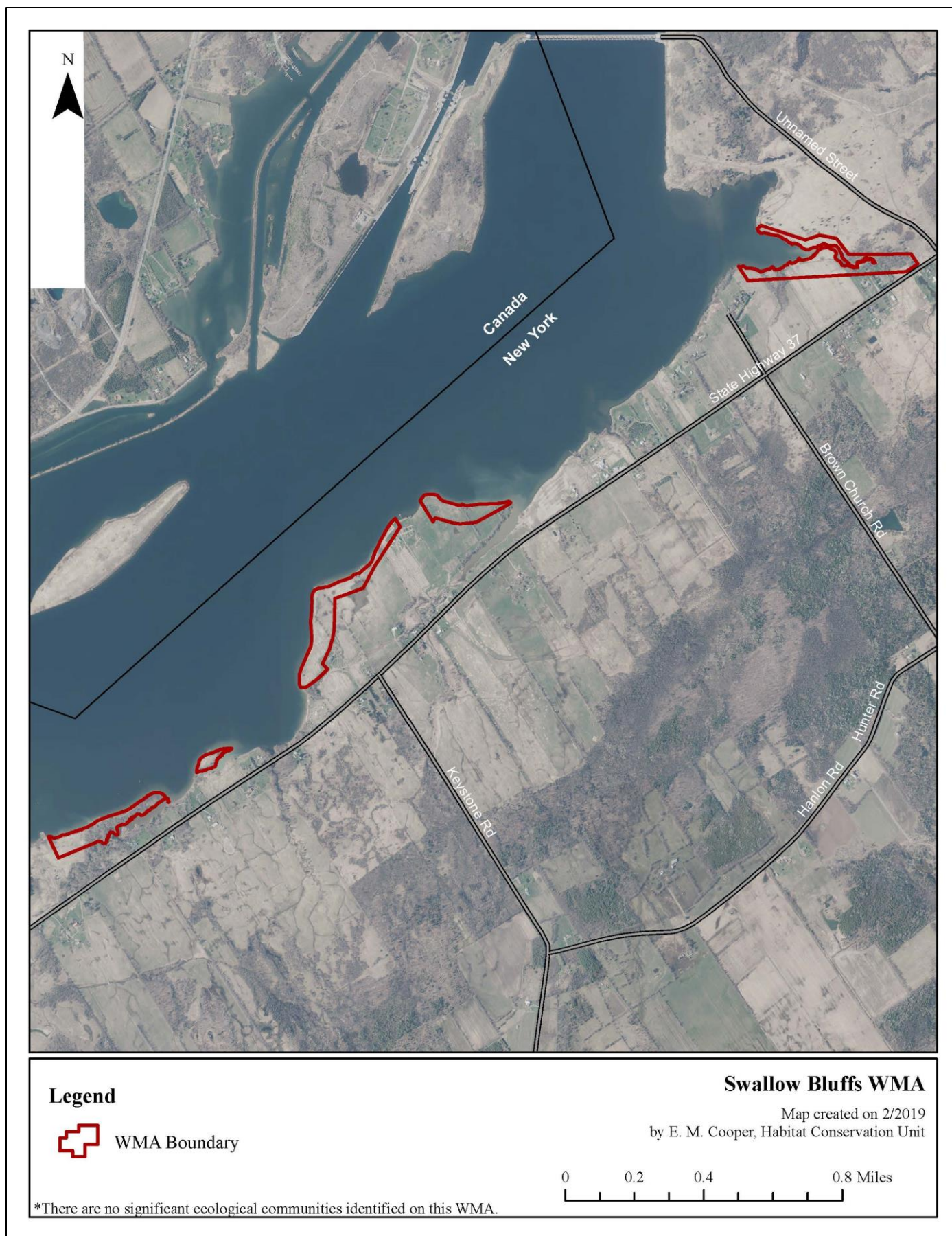


FIGURE 2. Significant ecological communities on Swallow Bluffs WMA. Data from the NY Natural Heritage Program.

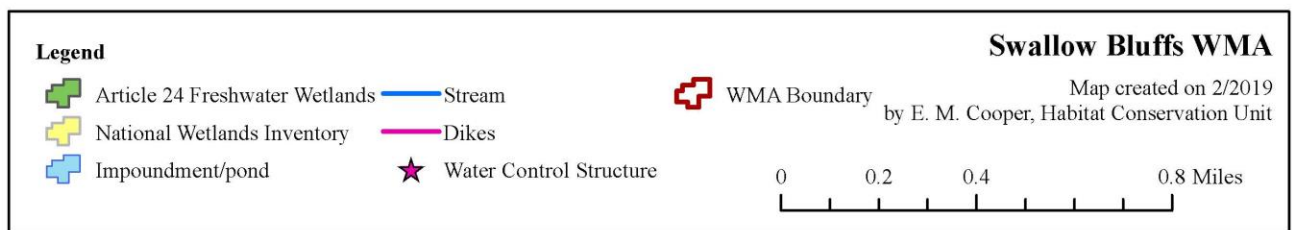
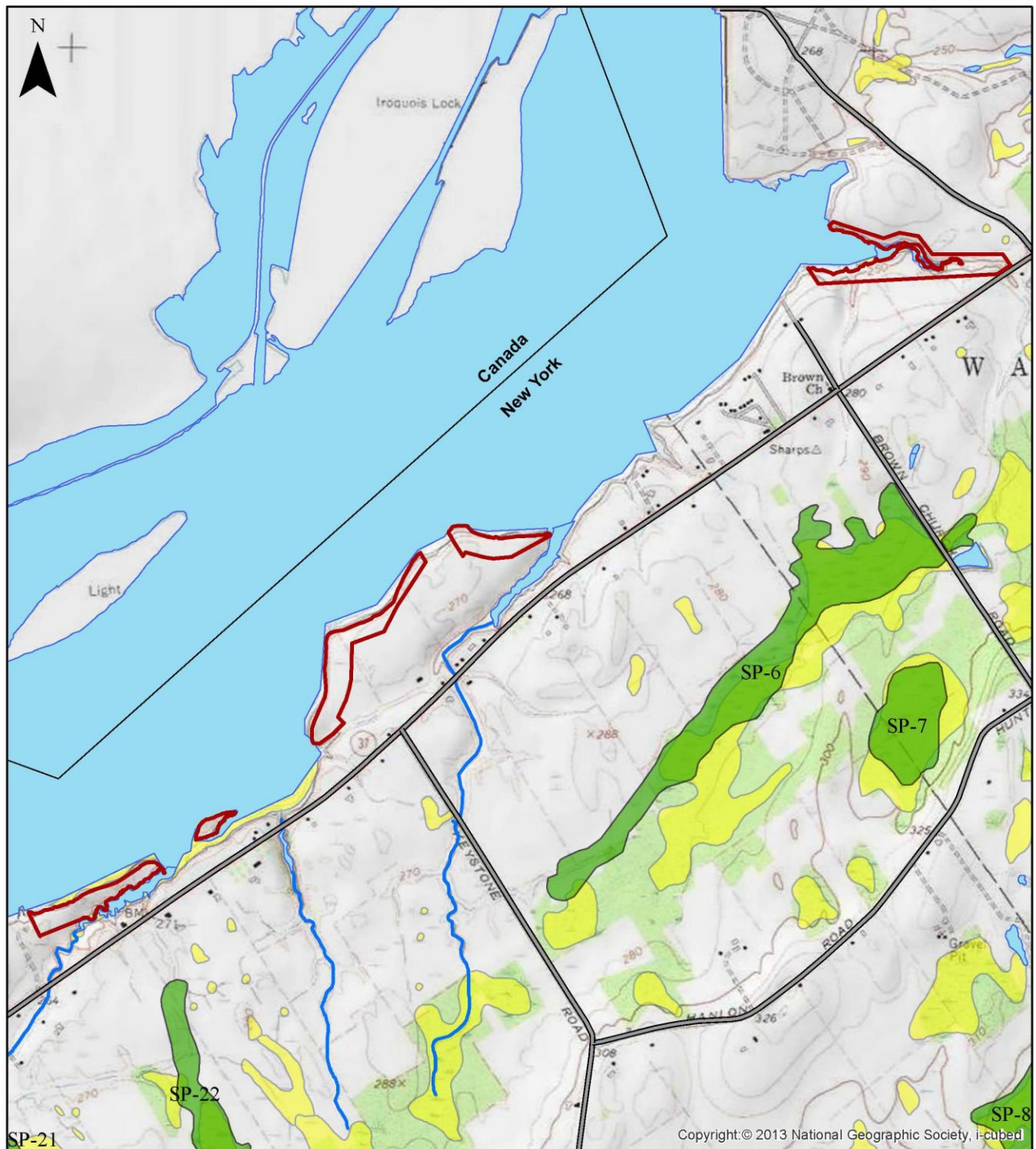


FIGURE 3. Wetlands, open water, and streams of Swallow Bluffs WMA.

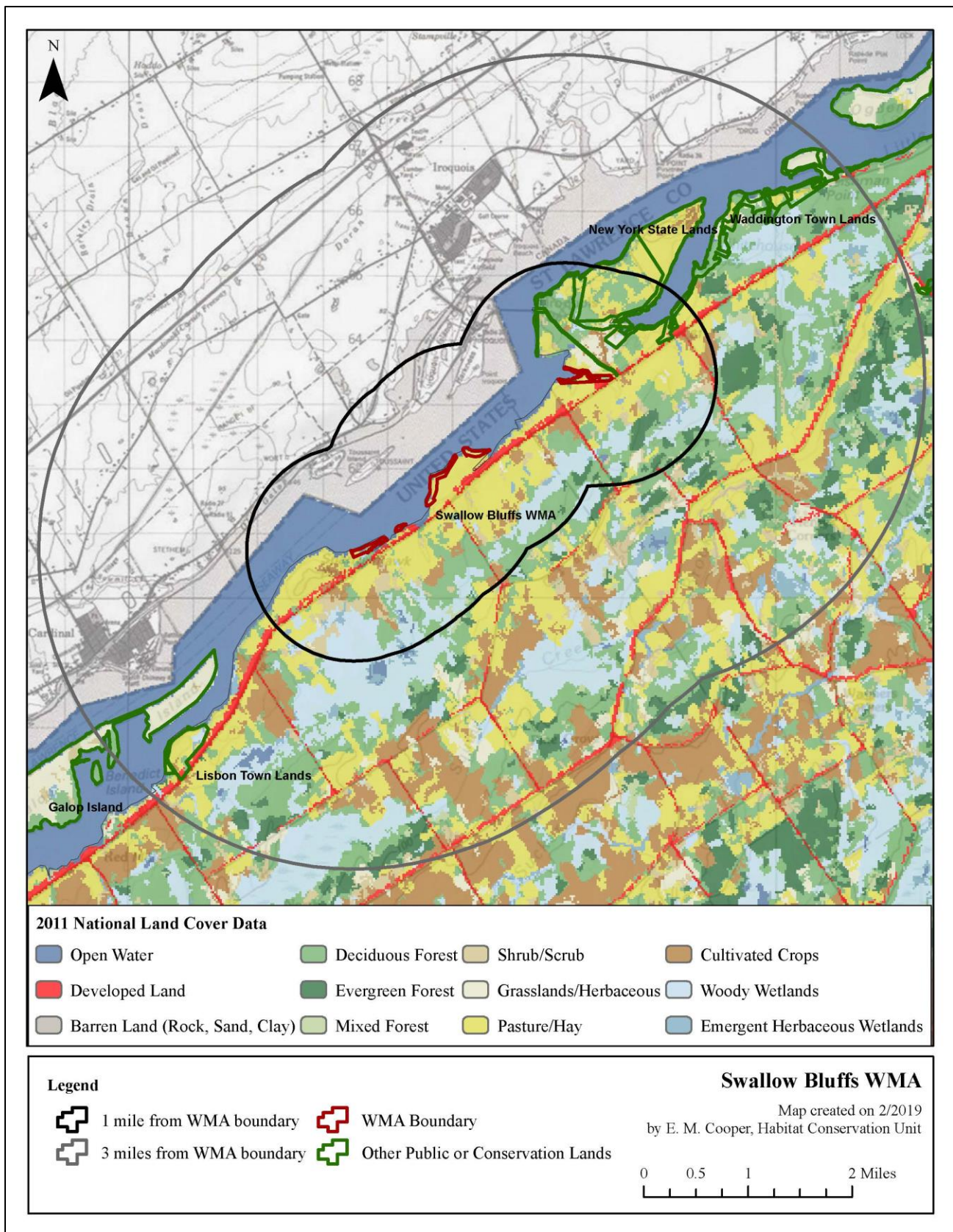


FIGURE 4. Land cover types and conservation lands in the landscape surrounding Swallow Bluffs WMA. Conservation lands are from the NY Protected Areas Database available online at <http://www.nypad.org/>. Land cover types are from the 2011 National Land Cover Data (NLCD) and differ from the habitat types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

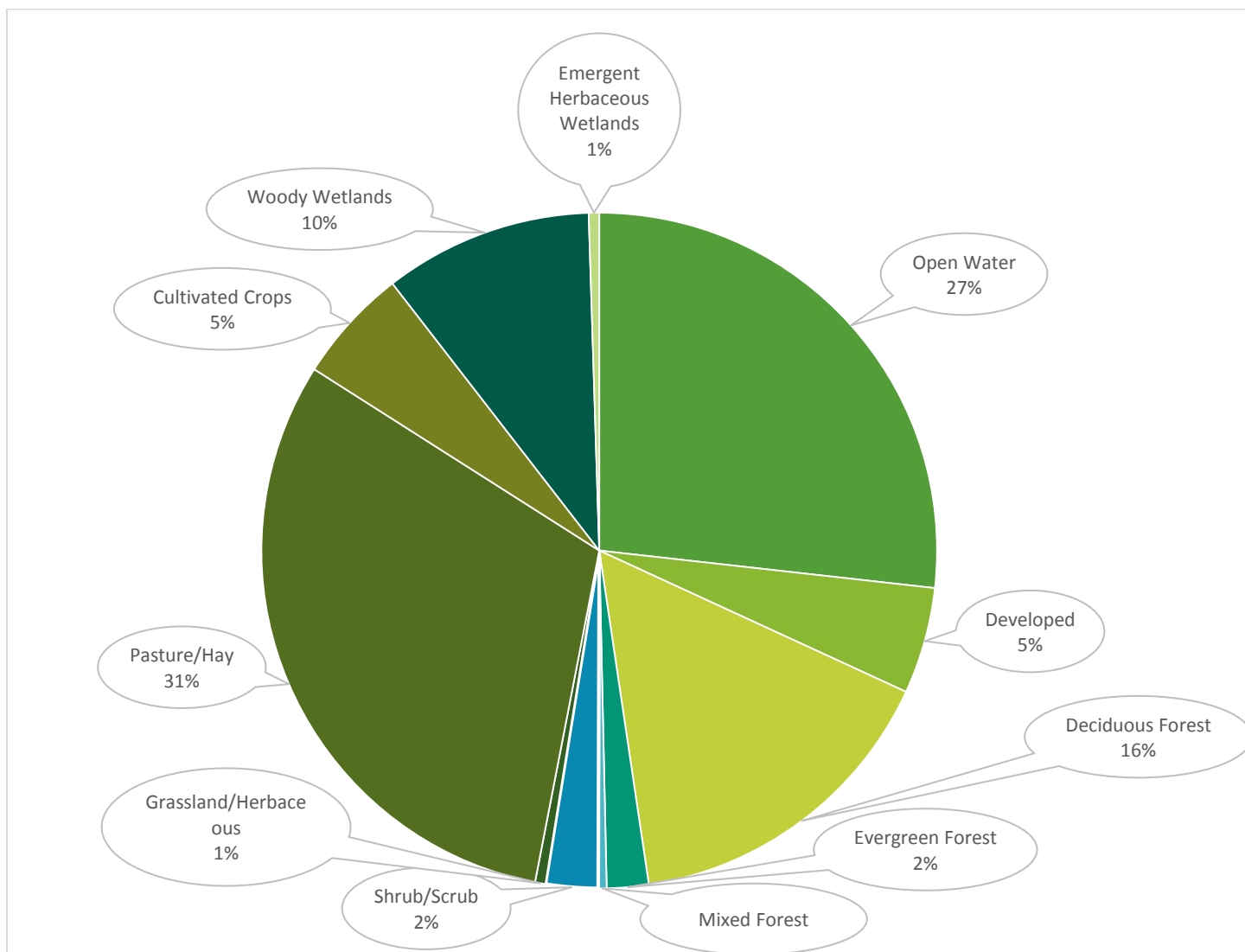


FIGURE 5. Percent cover of land cover types within three miles of Swallow Bluffs WMA.

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

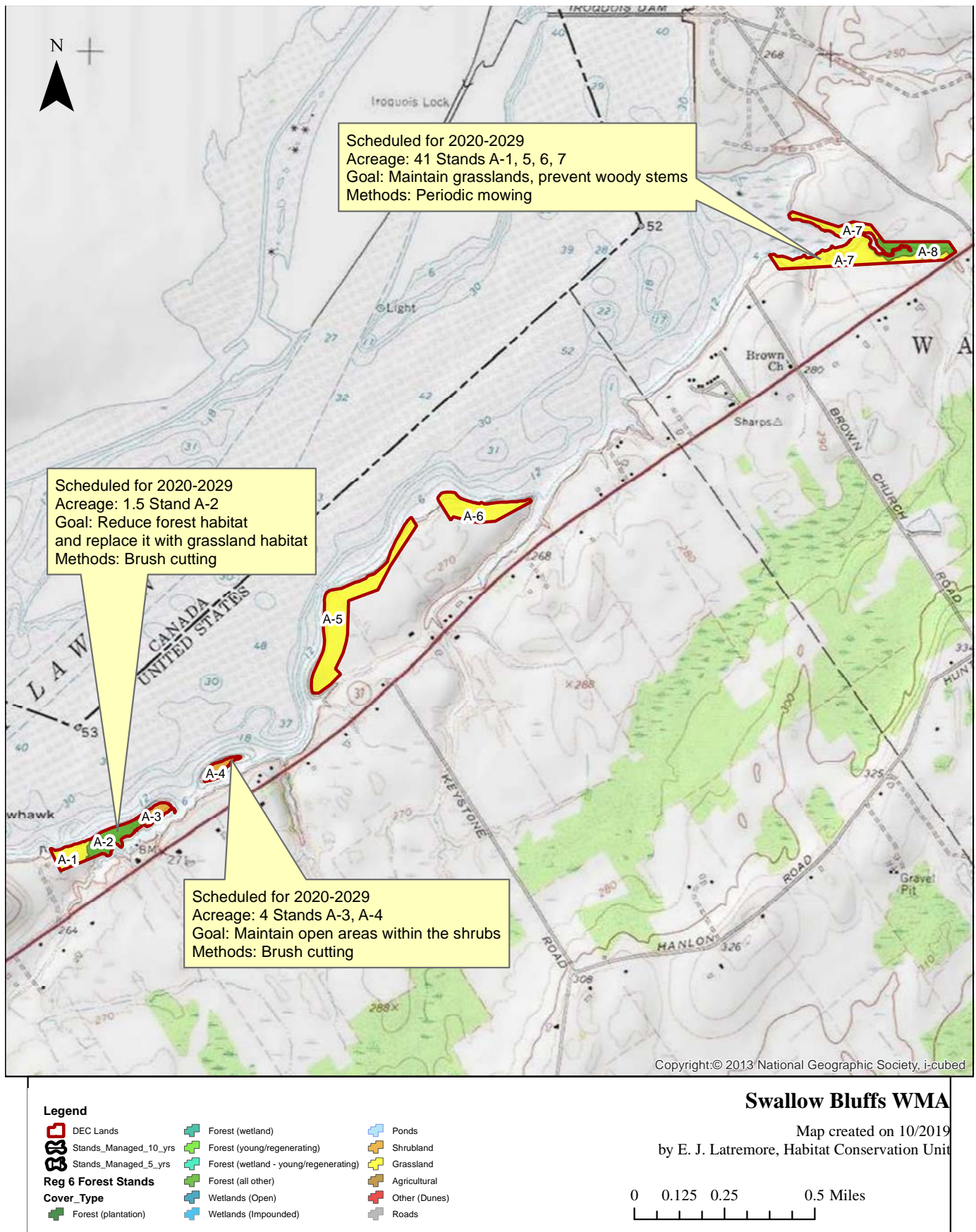


FIGURE 6. Habitat types and location(s) of proposed management on Swallow Bluffs WMA. Numbers indicate the stand number from habitat inventory.

IV. APPENDICES

APPENDIX A: DEFINITIONS

The following key words were used in the development of this Habitat Management Plan. Definitions are 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.

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 (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

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).¹⁰ 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).¹¹

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 upon completion of each HMP, consider comments gathered during 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.

¹⁰ Available online at <http://www.dec.ny.gov/regulations/28693.html>.

¹¹ 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 “Hershisier-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.