Habitat Management Plan
for
Three Mile Bay Wildlife Management Area
2020-2029

Division of Fish and Wildlife
Bureau of Wildlife

1285 Fisher Avenue
Cortland, NY 13045

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NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

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SUMMARY

The first parcels of land that eventually became Three Mile Bay Wildlife Management Area (WMA) were acquired by the State in the 1950s using Pittman-Robertson Funds. The lands were identified as important to waterfowl species for both their nesting and seasonal migrations. Later after the 1962 Recreational Bond Act, more lands were added to the property. Parts of the area in the 1920s were cleared and drained for muck farming, but with those operations abandoned in the 1930s and the eventual succession of the habitats, signs of those old operations are long gone now. Additional parcels were added to the property in the 1980s with the purpose of further protecting wetlands and water quality through funds available via the Environmental Quality Bond Act of 1986.

The area is largely wetland, with the muck-peat soils influencing what plant life is viable on the WMA. Much of the WMA acreage is swamp hardwood forests of various ages with red and silver maple dominating the tree species. In the select areas of upland, more typical northern hardwood trees like oaks, hickories, ashes and softwood species like white pine and cedar can be found. Some areas of open space and larger fields have been maintained through routine mowing and interspersed with those areas of wetland and transitional areas of shrublands with species like dogwood, cranberry, and spirea being found.

Three Mile Bay WMA, also known as Big Bay or Toad Harbor Swamp, has been identified as both an Important Bird Area (IBA)[1] and a Bird Conservation Area (BCA).[2] largely for its expansive wetland forests and its proximity to nearby Oneida Lake.

Habitat management goals for Three Mile Bay WMA include:

- Maintain the WMA's intermediate and mature forested acreage at approximately 76% to continue to provide habitat and diversity for forest species.
- Manage approximately 3% of the WMA as young forest (4% of the total forested area) within the next 10 years to improve habitat for American woodcock, ruffed grouse, wild turkey, and golden-winged warbler.
- Maintain grassland and wetland at current levels to continue to provide a diversity of habitat.

[1] 2005. Burger, M.F. and J.M. Liner. 2005. Important Bird Areas of New York. Audubon New York. Albany, NY.
[2] Information about the Bird Conservation Area available online at: http://www.dec.ny.gov/animals/25341.html.

I. BACKGROUND AND INTRODUCTION

PURPOSE OF HABITAT MANAGEMENT PLANS

BACKGROUND

Active management of habitats to benefit wildlife populations is a fundamental concept of wildlife biology and has been an important component of wildlife management in New York for decades. Beginning in 2015, NYS Department of Environmental Conservation (DEC) Division of Fish and Wildlife (DFW) initiated a holistic planning process for wildlife habitat management projects. Habitat Management Plans (HMPs) are being developed for WMAs and other properties administered by DFW Bureau of Wildlife, including select Multiple Use and Unique Areas. The goal of HMPs is to guide habitat management decision-making on those areas to benefit wildlife and facilitate wildlife-dependent recreation. HMPs guide management for a ten-year time period, after which the plans and progress on implementation will be assessed and HMPs will be modified as needed.

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

SCOPE AND INTENT

Primary purposes of this document:

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

Within the next 5 years, this HMP will be integrated into a comprehensive WMA Management Plan that will include management provisions for facilitating compatible wildlife-dependent recreation, access, and facility development and maintenance.

Definitions are provided in Appendix A.

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

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

WMA Overview

Location

Three Mile Bay WMA is located in DEC Region 7, Towns of Constantia and West Monroe, Oswego county (Figure 1).

Total Area

3,908 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 Three Mile Bay WMA.

Habitat Type	Current Conditions (as of 2018)			Desired Conditions	
	Acres	Percent of WMA	Miles	Acres	Percent of WMA
Forest [a]	3,104	79%		2,982	[b] Decrease to 76%
Young forest	2	<1%		124	Increase to 3%
Shrubland	15	<1%		15	No change
Grassland	146	4%		146	No change
Agricultural land	0	0%		0	No change
Wetland (natural) [c]	447	11%		447	No change
Wetland (impounded) [c]	0	0%		0	No change
Open water	143	4%		143	No change
Other (parking lot, utility ROW, developed facilities)	41	1%		41	No change
Roads	10	0%		10	No change
Rivers and streams					
Total Acres:	3,908	100%		3,908	

[a] Forest acreage includes all mature and intermediate age classes of natural forest, plantations, and forested wetlands. Young forest is reported separately. Definitions are provided in the Forest section of this plan.
[b] The forest management proposed in this plan aims to replace poor quality forest, promote regeneration of native species, and establish a healthy mature forest for the future. See Landscape Context and Forest sections.
[c] Wetland acreage does not include forested wetlands, since they are included in the Forest category.

ECOLOGICAL RESOURCES

Wildlife Overview:

Three Mile Bay WMA contains extensive forested and emergent wetland areas, with intermixed grasslands, patches of upland forest and shrubland. Wildlife present on the WMA are typical of these Central New York cover types and include:

- Beaver, mink, muskrat, fisher
- Red-shouldered hawk, pied-billed grebe, cerulean warbler
- White-tailed deer, cottontail rabbit, coyote
- American woodcock, ruffed grouse, wild turkey
- Jefferson salamander, blue-spotted salamander, snapping turtle

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).[3] 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

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

include: the NY Natural Heritage Program, NY Breeding Bird Atlases,[4] NY Reptile and Amphibian Atlas,[5] DEC wildlife surveys and monitoring, and eBird.[6]

Table 2. Species of conservation concern that may be present on Three Mile Bay 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
Birds	American bittern		SC	X
	American black duck			HP
	American kestrel			X
	American woodcock			X
	Bald eagle		T	
	Bay-breasted warbler			HP
	Black tern		E	HP
	Black-billed cuckoo			X
	Black-throated blue warbler			X
	Blue-winged teal			X
	Bobolink			HP
	Brown thrasher			HP
	Canada warbler			HP
	Cape May warbler			HP
	Cattle egret			HP
	Cerulean warbler		SC	X
	Common nighthawk		SC	HP
	Common tern		T	
	Cooper's hawk		SC	
	Eastern meadowlark			HP
	Golden-winged warbler		SC	HP
	Grasshopper sparrow		SC	HP
	Great egret			X
	Greater yellowlegs			X
	Henslow's sparrow		T	HP
	Least Bittern		T	X
	Northern goshawk		SC	X
	Northern harrier		T	X
	Olive-sided flycatcher			HP
	Osprey		SC	
	Peregrine falcon		E	X
	Pied-billed grebe		T	X
	Prothonotary warbler			HP
	Red-shouldered hawk		SC	X
	Ruffed grouse			X
	Rusty blackbird			HP
	Scarlet tanager			X

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

Table 2. continued				
	Sedge wren		T	HP
	Sharp-shinned hawk		SC	
	Snowy egret			X
	Vesper sparrow		SC	HP
	Wood thrush			X
Mammals	Eastern red bat			X
	Hoary bat			X
	Indiana bat (myotis)	E	E	HP
	Little brown bat (myotis)			HP
	Northern long-eared bat (myotis)	T	T	HP
	Silver-haired bat			X
	Small-footed bat (myotis)			X
	Tri-colored bat (Eastern pipistrelle)			HP
Amphibians and reptiles	Blue-spotted salamander		SC	HP
	Common mudpuppy			X
	Common (Eastern) ribbonsnake			X
	Eastern musk turtle			HP
	Eastern spiny softshell		SC	HP
	Jefferson salamander		SC	
	Smooth greensnake			X
	Snapping turtle			X
	Wood turtle		SC	HP
Fish	None known			
Invertebrates	None known			
Plants	Lake cress		T	
	Slender pondweed		E	

Significant Ecological Communities:

There are several rare and significant natural communities located on Three Mile Bay WMA as identified by the NY Natural Heritage Program. The state rank reflects the rarity within NY, ranging from S1, considered the rarest, to S5, considered stable; definitions are provided in Appendix A. The following significant ecological communities occur on the WMA; community descriptions are from *Ecological Communities of New York State, Second Edition* [7] (Figure 2):

- **Red maple-hardwood swamp (S4) -** a hardwood swamp that occurs in poorly drained depressions, usually on inorganic soils.
- **Silver maple-ash swamp (S2)** - a hardwood swamp that occurs on poorly drained soils along rivers, lakeshores, and in poorly drained depressions.
- **Northern white cedar swamp (S2)** - a conifer or mixed swamp that occurs on organic

[7] Edinger, G. J., D. J. Evans, S. Gebauer, T. G. Howard, D. M. Hunt, and A. M. Olivero. 2014. Ecological Communities of New York State, Second Edition. New York Natural Heritage Program, NYS Department of Environmental Conservation, Albany, NY. Available online at http://www.dec.ny.gov/animals/29384.html.

soils in cool, poorly drained depressions in central and northern New York, and along lakes and stream in the northern half of the state.

Additional information about significant ecological communities is available in the Three Mile Bay WMA Biodiversity Inventory Final Report (1996) prepared by the NY Natural Heritage Program.

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 Three Mile Bay WMA include:

- 1 wetland regulated by Article 24 of the Environmental Conservation Law and several additional wetlands shown on the National Wetlands Inventory (NWI; Figure 3). Each state-regulated wetland is protected by a buffer zone of 100 feet from the delineated wetland boundary, known as the adjacent area. There may be forestry prescriptions associated with forested wetlands and adjacent areas, and each management prescription will be reviewed individually for determination of impacts.
- 6 streams (a watercourse entirely within the WMA) or segments of streams (a stream that meanders in and out of the WMA). The highest stream classification is B

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*.[8] 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 Three Mile Bay WMA (Figures 4 and 5). The landscape within a three-mile radius of the WMA is primarily privately-owned land including:

- Forest (22%)
- Agriculture (14% combining cultivated crops and hay)
- Early successional (9% combining grasslands and shrublands)
- Wetlands (46% combining open water, emergent and woody wetlands)
- Developed areas (9%)

The surrounding area is a mix of forest, agriculture, wetlands, and developed areas with only a minor component of early successional cover. Although some of the early successional habitat surrounding the WMA and on nearby public lands may be considered young forest, it is likely

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

not managed and maintained as such. As part of DFW's Young Forest Initiative (YFI) on WMAs, future habitat management for Three Mile Bay WMA will enhance young forest habitat on the WMA. The YFI goal of creating and maintaining at least 4% of the forested area as young forest will provide managed and maintained young forest habitat that is currently lacking both within the WMA and the surrounding landscape.

Three Mile Bay WMA accounts for a significant amount of the shoreland and intact wetlands associated with Oneida Lake. There are countless wetlands in the surrounding areas, but none as large as the WMA. Maintaining that large tract of wetland in a healthy, functional role will help to ensure that species dependent on large tracts of forested or emergent wetland will have a suitable location to thrive. The wetlands of Three Mile Bay WMA also serve to improve water quality and retention for Oneida Lake. Within the vicinity of Three Mile Bay WMA there are several town and county lands. Those areas consist of water protection holdings and parks managed for public recreation. Such areas are managed for uses other than perpetual wildlife habitat and as such do not contribute significantly to a landscape-level habitat management for young forest. Similarly, the nearby Oneida Lake Fish Hatchery owned by NYSDEC is not managed for wildlife. Creating and maintaining healthy and diverse habitats for wildlife, specifically young forest, on Three Mile Bay WMA will serve to offer an important yet lacking habitat within the area adjacent to Oneida Lake and the wildlife species that live there or migrate through annually.

II. Management Strategies by Habitat Type

DEC will continue active management of wildlife habitats on Three Mile Bay 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 non-native and localized invasive species.

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 Three Mile Bay WMA incorporates an approach to create and/or maintain the diversity of forest age classes that are required to support a diversity of wildlife. In 2015, DEC launched the Young Forest Initiative (YFI) to increase the amount of young forest on WMAs to benefit wildlife that require this transitional, disturbance-dependent habitat. [9]

Forested wetland at Three Mile Bay WMA.
Photo: Bonnie Parton, NYSDEC

MANAGEMENT OBJECTIVES

- Maintain the WMA's intermediate and mature forested acreage at approximately 76% (2,982 acres) to continue to provide habitat diversity for forest species.
- Increase young forest cover from 2 acres (<1% of the total forested area) to 124 acres (4% of the total forested area; 3% of the WMA) over the next ten years to improve habitat for young forest-dependent species.

DESCRIPTION OF EXISTING FOREST HABITAT AND TARGET SPECIES

The long-term management direction for Three Mile Bay WMA is to increase the early successional habitats on the property to improve habitat for American woodcock, ruffed grouse, and other young forest-dependent species. The proposed new young forest will be created through the conversion of intermediate and mature hardwood forest through cutting and harvesting those areas. Young forest species such as aspen in dense stands provide much needed habitat for early successional species, particularly ruffed grouse. Combined with retained and healthy intermediate and mature forest stands, some grasslands, and shrublands distributed through the property, many species of songbirds, upland game birds, large and small mammals, reptiles, and amphibians will all be able to utilize the WMA to a greater extent. The WMA's limited road access points and extensive perpetual wetlands have a significant effect on the areas proposed for forest management by limiting access by equipment and laborers.

[9] 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 Three Mile Bay WMA.

Forest Type	Acres (as of 2018)	Desired Acres	Overstory species
Natural forest (mature/intermediate)	550	433	Red maple, red oak, white ash
Plantation	10	5	Red pine, white pine, Scotch pine
Forested wetland	2,544	2,544	Red maple, ash, northern white cedar
Young forest	2	124	
Young forest (forested wetland)	0	0	
Total Forested Acres:	3,106	3,106	

The majority of Three Mile Bay WMA soils are in either the Palms-Edwards-Carlisle or Rhinebeck-Niagra+Hudson-Dunkirk-Collamer series. These soils are mostly deep and from somewhat poorly to very poorly drained with heavy organic matter. There are limited areas within the WMA where soils in the Arkport series dominate, and those soils which are very deep yet well drained have allowed better grassland and upland forests to develop. [10]

Target species for young forest include American woodcock, ruffed grouse and wild turkey. These species rely on a mixture of mature and young forest habitats and by providing such variety through timber management, we can create a landscape that meets the following requirements:

- American woodcock:
  - Singing/peenting ground – Open areas from 1 to >100 acres, usually in an abandoned field.
  - Daytime areas – Moist, rich soils with dense overhead cover of young alders, aspen or birch.
  - Nesting – Young, open, second growth woodlands.
  - Brood rearing – Similar to nesting except also including bare ground and dense ground cover.
  - Roosting – Open fields (minimum of 5 acres) and reverting farm fields.[11]
- Ruffed grouse:
  - Drumming areas – Downed trees surrounded by small diameter woody cover.

American woodcock

Photo: Bonnie Parton, DEC

[10] Soil classification information available from: US Department of Agriculture, Natural Resources Conservation Service. Available online at http://www.nrcs.usda.gov/wps/portal/nrcs/surveylist/soils/survey/state/?stateId=NY.

[11] US Department of Agriculture, Natural Resources Conservation Service. 2010. American Woodcock: Habitat Best Management Practices for the Northeast by Scot J. Williamson. Wildlife Insight. Washington, DC.

    - Foraging areas – 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 high midstory stem density.[12, 13]
- Wild turkey:
    - Foraging areas – Mast producing hardwood stands and open areas.
    - Nesting – Hardwood or mixed-forest, brushy areas, old fields, downed trees.
    - Roosting – Large stands of open-crowned, mature timber.
    - Brood rearing – Open riparian areas, forest openings, herbaceous cover.[14]
- Golden-winged warbler:
    - Singing ground – Open patches from 5 to 25 acres, usually in a patch with maple, oak, or hickory trees to perch on in the opening.
    - Nesting – Fields or patches from 5 to 25 acres that are heavily vegetated with herbaceous cover with a moderate density of shrubs near a mature forest edge.
    - Brood rearing – Similar to nesting except also including clumps of younger trees.
    - Foraging – Open areas with herbaceous vegetation that support insects and spiders.[15] Males use mature forest during the breeding season.[16]
    - Post-fledging – Mature forest.[17]

MANAGEMENT HISTORY

There have also been multiple small local sales, referred to as homeowner firewood sales, that provide an opportunity at the WMA for small scale timber management (removing trees competing with apple trees for space and sunlight). In addition to these small sales, there have been tap sales, where individuals were allowed to tap maple trees on the WMA in order to collect tree sap used for making maple syrup.

In 2008 two sites totaling three acres in size were clear cut using chainsaws and a rotary

Brushcat mowing for American woodcock habitat, January 2008.

Photo: Region 7 Bureau of Wildlife

[12] Dessecker, D.R, G.W. Norman, and S.J. Williamson. 2006. Ruffed Grouse Conservation Plan. Association of Fish & Wildlife Agencies: Resident Game Bird Working Group. 94 pp.
[13] Jones, B.C. et al. Habitat Management of Pennsylvania Ruffed Grouse. Pennsylvania Game Commission. 10 pp.
[14] US Department of Agriculture, Natural Resources Conservation Service. 1999. Wild Turkey. Wildlife Habitat Management Institute. 12 pp.
[15] Golden-winged Warbler Working Group. 2013. Best Management Practices for Golden-winged Warbler Habitats in the Great Lakes Region. Available online at https://www.allaboutbirds.org/.../GWWA-GLRegionalGuide_130808_lo-res. pdf.
[16] Streby, H. M., J. P. Loegering, and D. E. Andersen. 2012. Spot mapping underestimates territory size and use of mature forest by breeding male Golden-winged Warblers. Wildlife Society Bulletin 36:40–46.
[17] Streby, H. M., S. M. Peterson, G. R. Kramer, and D. E. Andersen. 2015. Post-independence fledgling ecology in a migratory songbird: implications for breeding-grounds conservation. Animal Conservation. 18:228-235

brush mower. The management direction for these two areas was to increase foraging areas for American woodcock.

Prescribed fire has previously been used on this WMA to increase grass densities, rejuvenate sumac, and to remove pioneering maple tree species from grassland areas.

IMPLEMENTATION PLAN AND ANTICIPATED SCHEDULE

The following management is proposed to reach the goal of 124 acres of young forest in ten years, and to maintain the WMA's intermediate and mature forested acreage at approximately 2,982 acres. In addition to the cutting to create young forest, approximately 143 acres have been selected for intermediate treatments such as thinnings and release cuts. Achieving this level of proposed management is subject to changing timber markets, concerns over rare, threatened or endangered species, cultural/historical features of the property, wet ground conditions, or changes in level of staff and funding support.

- **Management planned for 2020-2024** (Table 4, Figure 6):
    - **Stand B1:** This is a pioneer hardwood stand with a mix of red maple, aspen and white pine. A portion of this stand will be patch clearcut to create young forest and encourage the regeneration of aspen (15 acres).
    - **Stand B4:** This is a pioneer hardwood stand with a mix of red maple, aspen and white ash. A portion of this stand will be patch clearcut to create young forest and encourage the regeneration of aspen (25 acres). In the remainder of the stand apple trees will be released by removing trees and brush adjacent to each apple tree to provide them with more sunlight and more room to grow. This will encourage apple production to provide forage for wildlife (31 acres).
    - **Stand B5:** This is a northern hardwood – white pine stand with a mix of red maple, white pine and aspen. A portion of this stand will be patch clearcut to create young forest (20 acres). In the remainder of the stand apple trees will be released by removing trees and brush adjacent to each apple tree to provide them with more sunlight and more room to grow. This will encourage apple production to provide forage for wildlife (20 acres).
    - **Stand B12:** This is a red pine plantation, with some red maple. This stand will be clearcut to create young forest (1 acre).
    - **Stand B13:** This is a pioneer hardwood stand with a mix of red maple, white ash and aspen. A portion of this stand will be patch clearcut to create young forest and encourage the regeneration of aspen (15 acres).
    - **Stand B17:** This is a pioneer hardwood stand with a mix of red maple, aspen and white ash. A portion of this stand will be patch clearcut to create young forest and encourage the regeneration of aspen (4 acres).
    - **Stand B25:** This is a bucket mix plantation with Scotch pine, white pine and some red maple. This stand will be clearcut to create young forest (4 acres).
    - **Stand B26:** This is a transition hardwood stand with a mix of aspen, hickory and apple. This stand will be clearcut to release apple trees, create young forest, and encourage the regeneration of aspen (5 acres).

- **Management planned for 2025-2029** (Table 5, Figure 6):

    - **Stand B3:** This is a transition hardwood stand with a mix of red maple, red oak, and sugar maple. This stand will be thinned to remove low-quality trees to provide the higher quality trees more room to grow (21 acres).
    - **Stand B6:** This is a white pine-hemlock stand with a mix of eastern hemlock, red maple, and white pine. A portion of this stand will be patch clearcut to create young forest (20 acres).
    - **Stand B8:** This is a transition hardwood stand with a mix of sugar maple, red oak, and red maple. This stand will be seed tree cut to create young forest and promote the regeneration of red oak (13 acres).
    - **Stand B11:** This is a transition hardwood stand with a mix of red oak, red maple, and black cherry. This stand will be thinned to remove low-quality trees to provide the higher quality trees more room to grow (29 acres).
    - **Stand B14:** This is a transition hardwood stand with a mix of sugar maple, black cherry, shagbark hickory, and some red oak and white oak. This stand will be thinned to remove low-quality trees to provide the higher quality trees more room to grow (29 acres).
    - **Stand B20**: This is a white pine plantation that will be shelterwood cut to encourage regeneration of white pine. The overstory trees will eventually be removed in the future when desirable regeneration has become established. The future result will be young forest habitat (5 acres).
    - **Stand B22:** This is a northern hardwood-hemlock stand that will be shelterwood cut to encourage regeneration of hemlock. The overstory trees will eventually be removed in the future when desirable regeneration has become established. The future result will be young forest habitat (9 acres).
    - **Stand B23:** This is a northern hardwood-hemlock stand that will be shelterwood cut to encourage regeneration of hemlock. The overstory trees will eventually be removed in the future when desirable regeneration has become established. The future result will be young forest habitat (13 acres).
    - **Stand B24:** This is a northern hardwood-white pine stand that will be shelterwood cut to encourage regeneration of white pine. The overstory trees will eventually be removed in the future when desirable regeneration has become established. The future result will be young forest habitat (12 acres).
    - **Stand B27:** This is a transition hardwood stand with a mix of red maple, red oak, and white pine. This stand will be thinned to remove low-quality trees to provide the higher quality trees more room to grow (34 acres).

In Tables 4 and 5 the total acres of each stand are listed in the ‘Acres’ column. In this plan the entire area of each stand is planned to be treated unless otherwise noted under ‘Treatment Type’ column. For example, stand B1 has a total size of 30 acres but we only plan to treat 15 acres during this plan period.

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		
B1	30	Pole Timber 6”-11” DBH	Natural Forest: Pioneer Hardwood	Natural Forest: Pioneer Hardwood and Natural Forest: Seedling/Sapling	Even Aged	Patch Clearcut (15 acres)
B4	56	Pole Timber 6”-11” DBH	Natural Forest: Pioneer Hardwood	Natural Forest: Pioneer Hardwood	Even Aged	Patch Clearcut (25 acres) and Apple Release (31 acres)
B5	40	Pole Timber 6”-11” DBH	Natural Forest: Northern Hardwood–White Pine	Natural Forest: Northern Hardwood-White Pine and Natural Forest: Seedling/Sapling	Even Aged	Patch Clearcut (20 Acres) and Apple Release (20 acres)
B12	1	Pole Timber 6”-11” DBH	Plantation: Red Pine	Natural Forest: Seedling/Sapling	Even Aged	Clearcut
B13	31	Pole Timber 6”-11” DBH	Natural Forest: Pioneer Hardwood	Natural Forest: Pioneer Hardwood and Natural Forest: Seedling/Sapling	Even Aged	Patch Clearcut (15 acres)
B17	8	Pole Timber 6”-11” DBH	Natural Forest: Pioneer Hardwood	Natural Forest: Pioneer Hardwood and Natural Forest: Seedling/Sapling	Even Aged	Patch Clearcut (4 acres)
B25	4	Small Sawtimber 12”-18” DBH	Plantation: Bucket Mixes	Natural Forest: Seedling/Sapling	Even Aged	Clearcut
B26	5	Pole Timber 6”-11” DBH	Natural Forest: Pioneer Hardwood	Natural Forest: Seedling/Sapling	Even Aged	Clearcut/Apple Release

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		
B3	21	Small Sawtimber 12”-18” DBH	Natural Forest: Transition Hardwood	Natural Forest: Transition Hardwood	Uneven Aged	Thinning
B6	40	Small Sawtimber 12”-18” DBH	Natural Forest: White Pine-Hemlock	Natural Forest: White Pine-Hemlock and Natural Forest: Seedling/Sapling	Even Aged	Patch Clearcut (20 acres)
B8	13	Small Sawtimber 12”-18” DBH	Natural Forest: Transition Hardwood	Natural Forest: Seedling/Sapling	Uneven Aged	Seed Tree
B11	29	Small Sawtimber 12”-18” DBH	Natural Forest: Transition Hardwood	Natural Forest: Transition Hardwood	Uneven Aged	Thinning
B14	8	Small Sawtimber 12”-18” DBH	Natural Forest: Transition Hardwood	Natural Forest: Transition Hardwood	Uneven Aged	Thinning
B20	5	Small Sawtimber 12”-18” DBH	Plantation: White Pine	Natural Forest: Seedling/Sapling	Even Aged	Shelterwood
B22	9	Small Sawtimber 12”-18” DBH	Natural Forest: Northern Hardwood–Hemlock	Natural Forest: Seedling/Sapling	Even Aged	Shelterwood
B23	13	Small Sawtimber 12”-18” DBH	Natural Forest: Northern Hardwood–Hemlock	Natural Forest: Seedling/Sapling	Even Aged	Shelterwood
B24	12	Small Sawtimber 12”-18” DBH	Natural Forest: Northern Hardwood–White Pine	Natural Forest: Seedling/Sapling	Even Aged	Shelterwood
B27	34	Small Sawtimber 12”-18” DBH	Natural Forest: Oak Hemlock	Natural Forest: Oak Hemlock	Uneven Aged	Thinning

Stand locations and planned management actions are also summarized in Figures 6 and 7. Specific forest stand descriptions and detailed management prescriptions will be prepared for each proposed forest management area prior to implementation (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 6).

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

Resource	**Guidance Document** [18]
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:

Drake Mallard resting on a rock outcrop.

Photo: Region 7 Wildlife

The large forested wetland areas of the WMA provide breeding habitat for waterfowl species such as wood duck and crucial feeding and loafing areas for other resident and migratory waterfowl species. These forested wetlands are also attractive to species such as red-shouldered hawk and cerulean warbler. For those and other mature forest species, the large tracts of wetland forest that are virtually unmanageable will serve to sustain those species. Despite their main use of the mature forests, the same species benefit from forest diversity of age, structure and tree species where work can be done. Newly regenerating patches of forest can attract insects and plant growth that can serve as critical food sources for nesting adults and their broods. Prothonotary warblers are also a potential breeder on the WMA in areas with large, mature trees with cavities for nesting. These trees tend to be common in areas frequently flooded, which causes the trees to die and offer more cavity nest opportunities. Areas that are flooded, even seasonally, are beyond practical reach for management and hence will be left to benefit Prothonotary warblers.

The WMA's emergent marshes are also known to attract use by several rare species such as pied billed grebe, American bittern and least bittern. Those areas will not be impacted by forest management and can be sustained through wetland management. That includes the well-established great blue heron rookery located on the WMA. The grasslands also have been known to attract important species of grassland nesters, many of which are migratory species and their current population on the WMA is unclear. Those grassland habitats should see no impact from forest management and with ground condition concerns, much of the forest work may be limited to times of year where those grassland-obligate species have migrated south.

Forest Health Considerations:

In stands where native and non-native vegetation has been identified as interfering with desirable regeneration, additional treatments of that interfering vegetation may be required to promote desired regeneration. This could include both mechanical or chemical treatments.

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

Currently, major insect pests such as Asian Longhorn Beetle (ALB) or Emerald Ash Borer (EAB) are not known to occur on Three Mile Bay WMA. However, EAB is well established in the state and its population continues to expand. It is likely that EAB will eventually become established on Three Mile Bay WMA. When that occurs, the plan will be amended to reflect that new development and any additional amendments (such as changing the implementation plan and anticipated schedule) will depend on the scope and severity of the infestation. Currently, managers do take into consideration the likelihood of EAB infestation when preparing timber sales and generally tend to mark cutting most, if not all of the ash trees in a sale area when possible and focus on leaving some healthy mature legacy trees.

Larvae holes of a wood boring beetle in an ash stump.

Photo: Region 7 Wildlife

Pre- and Post-treatment Considerations:

Where invasive and other undesirable plant species are significantly abundant, pre-treatment mechanical cutting or herbicide application may be necessary. If it is determined that deer browse is intense enough to prevent regeneration of desired tree species, fencing of treatment areas may be necessary. Also, if it is concluded that post-treatment regeneration is inadequate, or that undesirable species are dominating the area and suppressing regeneration, the stand may have to be treated again. This may include mechanical and/or chemical control of undesirable species, removal of additional trees to increase available sunlight, scarification of the forest floor to stimulate seedling establishment, and/or direct seeding/planting of desired species. Pre- and post-treatment actions to promote the desired forest regeneration will be addressed in detail in the silvicultural prescriptions.

MANAGEMENT EVALUATION

In order to determine whether the desired forest regeneration and wildlife response(s) have been achieved by the management outlined above, pre- and post-management assessments will be conducted in accord with guidelines that will be established in a Young Forest Initiative Monitoring Plan. The Monitoring Plan establishes statewide standards for evaluating vegetation and target wildlife responses to forest management to determine if the outcome is as prescribed. Regeneration assessments will be conducted within one year of harvest completion, three, and five years after the harvest or until the forester determines adequate natural or artificial (i.e., planting) regeneration has been securely established. YFI wildlife target species selected for Three Mile Bay WMA, which may be assessed to determine response to management, include:

- American woodcock
- Golden-winged warbler

Seasonal songbird monitoring via point counts will also be used on select sites to better evaluate and understand the songbird response to forest management. Acoustic bat surveys may be used to determine any presence of at-risk bats and then management actions can be tailored to mitigate any potential disturbance to those species. Non-YFI target species of forest and young forest habitats and of interest on Three Mile Bay WMA may include:

- Prothonotary warbler
- Breeding songbirds
- Forest-dwelling bats

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.

MANAGEMENT OBJECTIVES

- Maintain a "soft-edge effect" around fields through young forest management.
- Monitor for invasive species and treat as necessary with mechanical or, when appropriate, chemical means.
- Establish native, food-producing shrubland species areas around wetlands and fields.

DESCRIPTION OF EXISTING SHRUBLAND HABITAT AND TARGET SPECIES

Currently, there are 15 acres of managed shrubland stands on Three Mile Bay WMA, split between 4 stands ranging from 1 to 7 acres in size. Shrubland habitat also exists on the property in wetlands and these shrublands have been included in the Wetland (natural) cover type in this plan. Soft-edge habitat along field margins will provide shrubland structure, and this soft-edge habitat will be created and maintained through young forest management as described in the Forest section.

Non-native species such as buckthorn, honeysuckle, and multiflora rose have become established in some of these shrublands and soft-edge habitat. Due to the invasive biology of these species, they can quickly establish in an unmaintained field and become dominant. Native shrubs are also present including species of hawthorn, dogwood, viburnum, and willow. These native shrubs provide a valuable soft mast resource for wildlife and maintaining such species is important. Shrublands contain unique food and cover options that differ from young forest and can often persist longer as a habitat type since dense shrubs can exclude the growth of trees. Shrublands provide habitat for many wildlife species including several that also use young forests. Although young forest and shrubland provide habitat for similar species, both are needed to provide for the full range of disturbance-dependent wildlife species.

The creation and maintenance of soft-edge habitat will benefit species such as:

- Ruffed grouse, American woodcock, wild turkey
- Golden-winged warbler
- Cottontail rabbit
- Numerous songbird species

MANAGEMENT HISTORY

In 2017, 15 acres of shrubland habitat were created by ceasing to mow some of the fields. This decision was made based on their small size, narrow shape, and isolated locations.

IMPLEMENTATION PLAN AND ANTICIPATED SCHEDULE

- **Management planned for** 2020-2029 (Figures 6 and 7):
    - **Stands 950, 951, 952, 953**: These are existing shrublands that will be maintained as needed through various treatments including but not limited to brush mowing, forestry mowing, tree cutting, invasive species control, and shrub planting (15 acres). Create and maintain a "soft-edge" effect around fields through young forest management as described in the Forest section.
    - Monitor for invasive species.

BEST MANAGEMENT PRACTICES

Before any cutting of trees or brush with greater than three-inch DBH, between April 1st and September 30th, pre-treatment acoustic surveys for forest dwelling bats, specifically northern long-eared bats, will be conducted. If it is determined there are sensitive bat species present on a site, management will be restricted to October 1st –March 31st to prevent negative impacts. Targeted surveys for golden-winged warbler may be used periodically to track use, if any, of areas being treated and maintained. Should this species be recorded, projects can be adjusted to improve their use.

Cool Season Grasslands, Stand B941 on Figures 7 and 8.

Photo: Region 7 Bureau of Wildlife

MANAGEMENT EVALUATION

Shrubland can be assessed through routine inspection to prevent colonization by mature forest species. Evaluation will be based on success of newly established shrub species and the wildlife response to those areas. Surveys for American woodcock, ruffed grouse, wild turkey, and breeding songbirds will be used to monitor continued use and response from wildlife to shrublands and other habitats on the WMA.

GRASSLAND AND OTHER OPEN SPACE (OPTIONAL)

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 and improve the existing 146 acres (4% of WMA) of grassland habitat through rotational mowing, prescribed fire, and other grassland improvement projects.
- Monitor for invasive plant species.

DESCRIPTION OF EXISTING GRASSLAND HABITAT AND TARGET SPECIES

There are currently 146 acres of grassland habitat split between 5 different stands distributed along the outer edges of Compartment 2. Within these stands there are 16 grassland fields that range in size from 2 acres to 18 acres.

Species that benefit from grassland best management practices include:

- Bobolink, Eastern meadowlark, sedge wren, Henslow's sparrow
- White-tailed deer, cottontail rabbit
- American woodcock, wild turkey

MANAGEMENT HISTORY

Grasslands on Three Mile Bay WMA have been managed through routine mowing to prevent woody plant colonization. At times in the past, lime, fertilizer and seed has been used to perpetuate the grasslands and increase their utility by grassland wildlife. Pale swallow-wort has been treated with herbicide since 2016 through a partnership with the St. Lawrence-Eastern Lake Ontario Partnership for Regional Invasive Species Management (SLELO PRISM). A total of 0.5 acre has been treated annually within multiple patches that occur in stands B3 and B941. This treatment is expected to continue until the swallow-wort has been eradicated. Any other significant patches of invasive plants that are found on the property will be treated as they are found.

Two small stands of Japanese knotweed, each less than half an acre, located along Toad Harbor Road and within B940, have been mechanically and chemically treated since 2016. The stand along Toad Harbor Road has been reduced to a couple of stems while the stand in B940 is closer to a quarter of an acre.

IMPLEMENTATION PLAN AND ANTICIPATED SCHEDULE

- **Management planned for 2020-2029** (Figures 6 and 7):
    - **Stands B940, 941, 942, 943, 944:** These are existing grasslands that will be maintained as needed through rotational mowing, prescribed fire, and other grassland improvement projects (146 acres).
    - Monitor and treat invasive vegetation.

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*.[19] In particular, refer to the plan for species-specific habitat requirements and detailed recommendations regarding grassland management and restoration techniques.

[19] 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.

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).
        - 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 mowing from one side of the field to the other side or start in the center and mow outwards to avoid concentrating animals in the area yet to be mowed.
- In general, mow grass to a residual height of 6-12 inches.

MANAGEMENT EVALUATION

Routine mowing and monitoring of the grasslands will monitor growth and attempt to detect and control invasive species should they become a problem. Surveys, particularly bird surveys conducted on habitats adjacent to the grasslands and potentially within them, will help to evaluate wildlife response to 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 currently no acreage on Three Mile Bay WMA that is managed as agricultural land and there are no plans to create such habitat at this time.

WETLANDS (NATURAL)

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.

Forested Wetland.

Photo: Region 7 Bureau of Wildlife

MANAGEMENT OBJECTIVES

- Maintain the current acreage and quality of wetlands (447 acres).
- Monitor and control invasive plants as needed.

DESCRIPTION OF EXISTING WETLAND HABITAT AND TARGET SPECIES

Presently, there are 447 acres of natural wetlands. These wetlands are part of Wetland MA-1 and are regulated by Article 24 of the Environmental Conservation Law. These wetlands are also shown on the National Wetlands Inventory. Wetlands classified as freshwater ponds, lacustrine

and riverine are considered open water habitat types in this plan and are further discussed in that section.

Forested Wetland.

Photo: Region 7 Bureau of Wildlife

Four significant ecological wetland communities have been identified by the New York Natural Heritage Program including Silver Maple Ash Swamp, Deep Emergent Marsh, Red Maple-Hardwood Swamp, and Northern White Cedar Swamp (Figure 2). The Silver Maple Ash Swamp is located along the shore of Oneida Lake, northwest of Shaw Road. This community is only possible in poorly drained soils and/or depressions and is dominated by silver maple and green ash. The Deep Emergent Marsh is located east of County Road 37 and to the north of the Silver Maple Ash Swamp It is only partially within the WMA. This community consists of non-woody plants growing out of water, is typically dominated by cattail, and is flooded year-round. The Red Maple-hardwood swamp is located north of McCloud Road and part of it borders Oneida Lake. This community occurs in poorly drained depressions with red maple being either dominant or codominant in the canopy. The Northern White Cedar Swamp is located to the north of the Red Maple-Hardwood Swamp. This community type is conifer or mixed swamp that occurs on inorganic soils in cool, poorly drained depressions. Northern white cedar makes up more than 30% of the canopy cover.

The wetlands provide habitat for species such as:

- Pied-billed grebe, American bittern, least bittern
- Rusty blackbird, American woodcock, Canada goose
- Snapping turtles, Jefferson's salamander

MANAGEMENT HISTORY

Prior to state acquisition in this area, the portion of property located to the north of Toad Harbor and McCloud Road was comprised of a large wetland that was drained and farmed for truck crops. Following state acquisition of this area, beavers eventually built dams on the main drainage channel resulting in periodic flooding. The state developed plans for the creation of two marshes. One of these marshes, referred to as the main pond basin, was to be created by installing a dike along the western edge of the WMA paralleling a portion of Toad Harbor Road. this would have resulted in the flooding of approximately 1,000 acres. The second and smaller marsh, less than 100 acres in size, was to be constructed to the southeast of Depot Road. Ultimately, neither of these marshes were created and no explanations were provided.

Implementation Plan and Anticipated Schedule

- **Management planned for 2020 - 2029** (Figures 6 and 7):
  - Maintain the current acreage and quality of wetlands.
  - Monitor and control invasive plants as needed.

Best Management Practices

- Protect wetlands from runoff and sedimentation.
- To the extent possible, avoid use of pesticides in surrounding areas.
- Maintain upland habitat buffer for non-breeding habitat.
- Avoid human disturbance during watered periods.[20]

Management Evaluation

DEC staff will conduct routine monitoring to ensure habitats are stable and infrastructure sound.

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 the current acreage and quality of open water (143 acres).
- Monitor and control invasive plants as needed.

Phillips Point on Oneida Lake

Photo: Region 7 Bureau of Wildlife

Description of Existing Open Water Habitat and Target Species

Portions of Little Bay Creek, Big Bay Creek, and Threemile Creek pass through Three Mile Bay WMA. Additionally, 143 acres of Oneida Lake shoreline and adjacent lake bottom are within the WMA boundary. Open water provides habitat for species such as:

- Wood duck, hooded merganser
- Green frog, bullfrog, snapping turtle
- Beaver, muskrat, mink, river otter

[20] Mitchell, J.C., A.R. Breisch, and K.A. Buhlmann. 2006. Habitat Management Guidelines for Amphibians and Reptiles of the Northeastern United States. Partners in Amphibian and Reptile Conservation, Technical Publication HMG-3, Montgomery, AL. 108pp.

[31] 48-D Final Report, NYSDEC Cortland Sub-Office, Cortland, NY.

MANAGEMENT HISTORY

The open water on this WMA is managed directly (shoreline) and indirectly (streams) by the New York State Canal Authority.

IMPLEMENTATION PLAN AND ANTICIPATED SCHEDULE

- **Management planned for** 2020-2029 (Figure 6):
  - Maintain the current acreage and quality of open water.
  - Monitor and control invasive plants as needed.

BEST MANAGEMENT PRACTICES

Habitat management activities will be conducted in accordance with the NYSDEC General Permit (GP-0-16-003), the New York Freshwater Wetlands Act (ECL Article 24), and Water Resources Law (ECL Article 15, Title 5).

MANAGEMENT EVALUATION

Water bodies on Three Mile Bay WMA that are not directly connected to Oneida Lake, are not regularly surveyed for fish species composition. If future fisheries surveys determine the presence of any significant species, adjustments to the treatment schedule may be required.

HABITAT MANAGEMENT SUMMARY

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

Habitat	Management Action	Acres	Timeframe
Forest	Patch clearcut stands B1, B4, B5, and B17. Apple tree release stands B4 and B5.	79	2020-2024
Forest	Clearcut stands B12, B25, and B26.	10	2020-2024
Forest	Thin stands B3, B11, B14, and B27.	92	2025-2029
Forest	Patch clearcut stand B6.	20	2025-2029
Forest	Seed tree cut stand B8.	13	2025-2029
Forest	Shelterwood cut stands B20, B22, B23, and B24.	39	2025-2029
Shrubland	Maintain as needed.	15	2020-2029
Grassland	Maintain as needed.	146	2020-2029
Wetland	Maintain as needed.	447	2020-2029
Open Water	Maintain as needed.	143	2020-2029

III. FIGURES

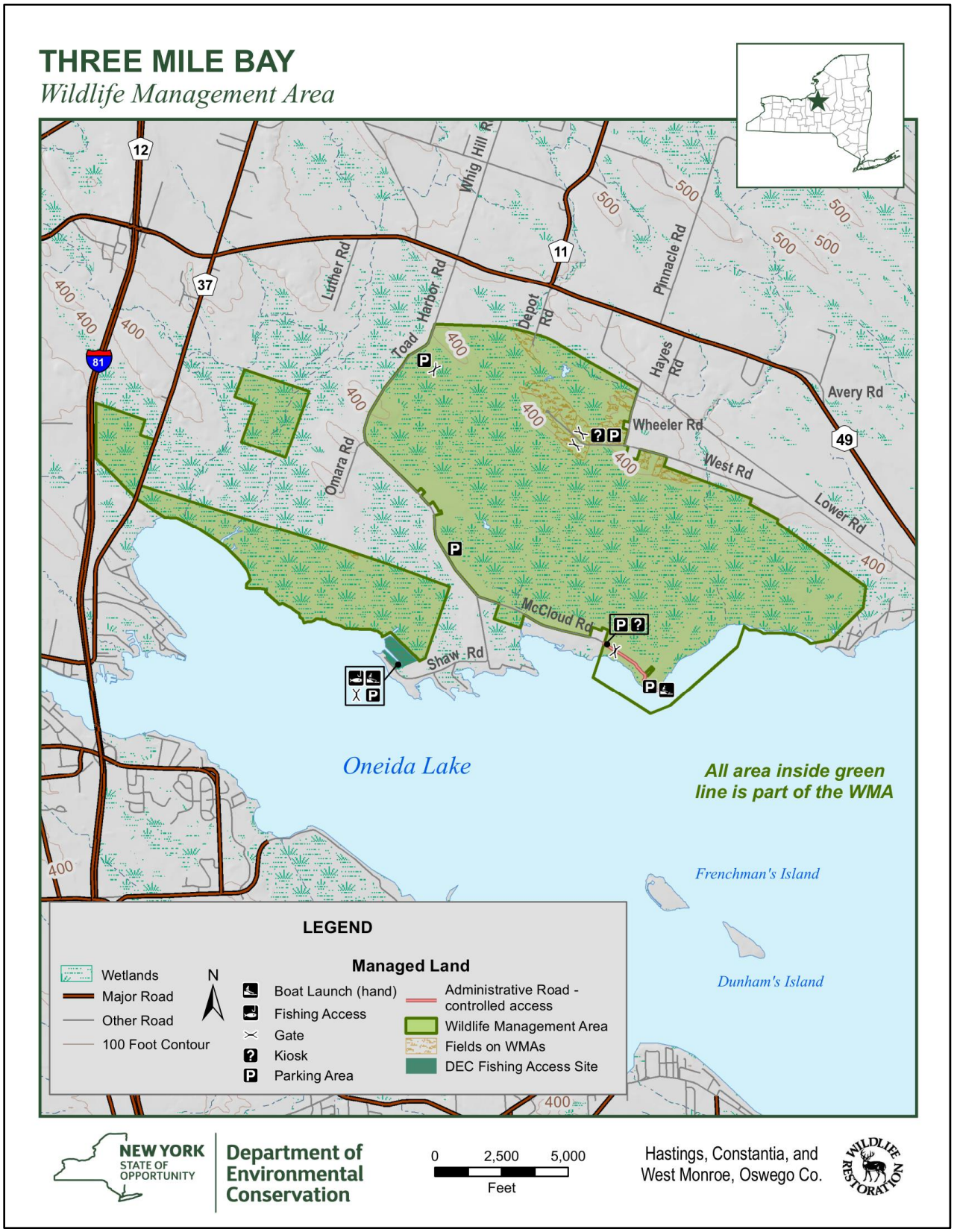

FIGURE 1. Location and access features at Three Mile Bay WMA.

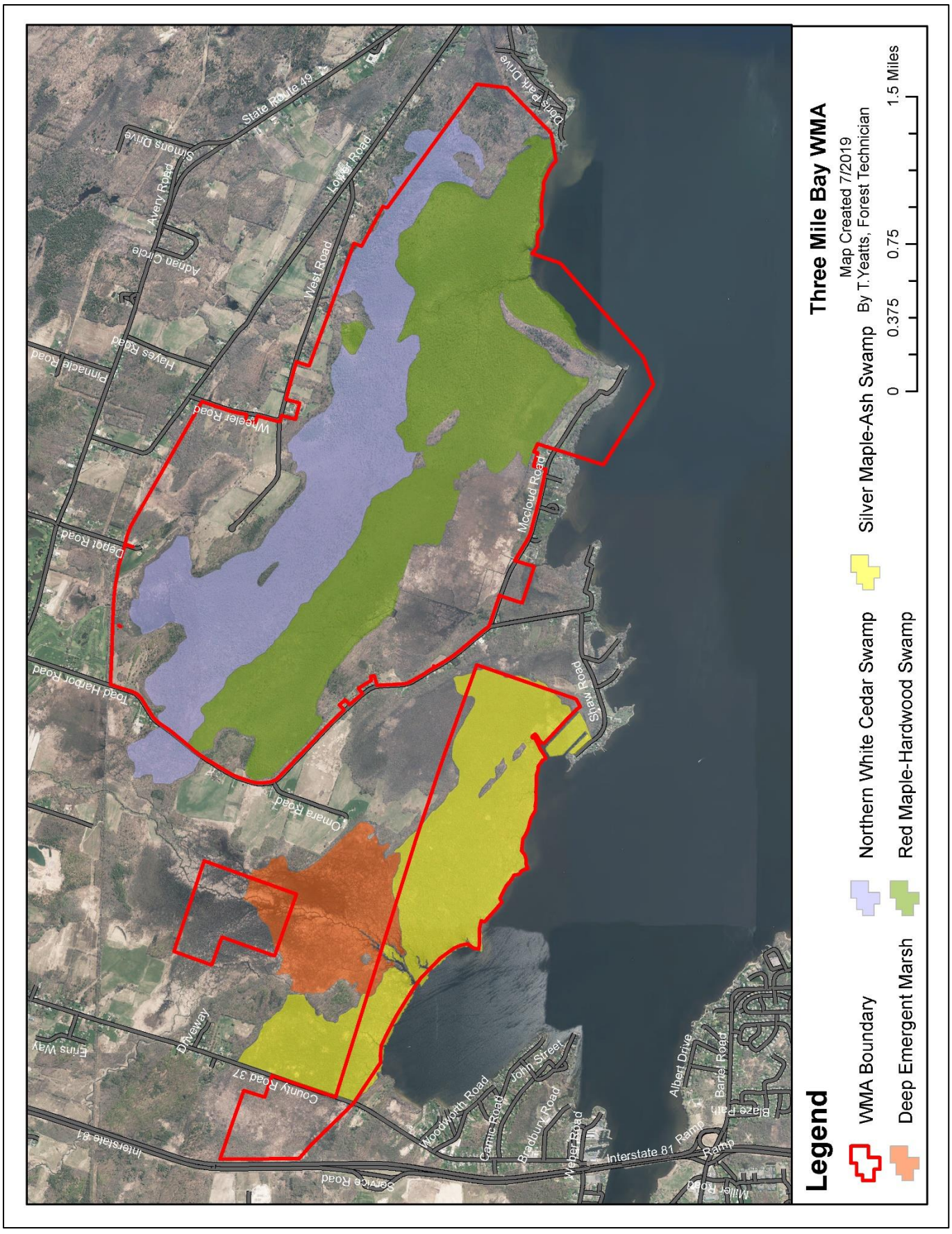

FIGURE 2. Significant ecological communities on Three Mile Bay WMA. Data from the NY Natural Heritage Program.

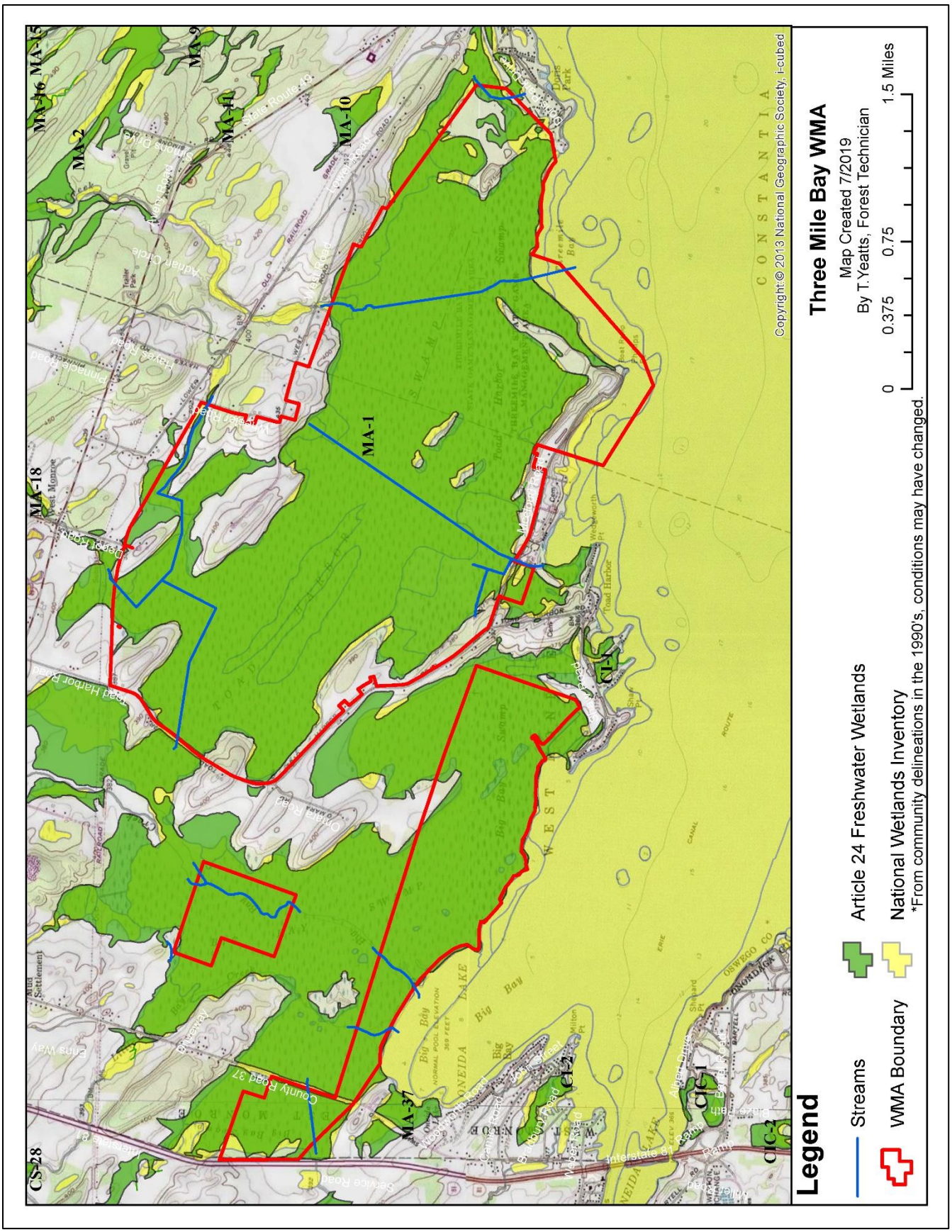

FIGURE 3. Wetlands, open water, and streams of Three Mile Bay WMA. Note: Wetland boundaries are not exact and may not be used for regulatory purposes without a current delineation.

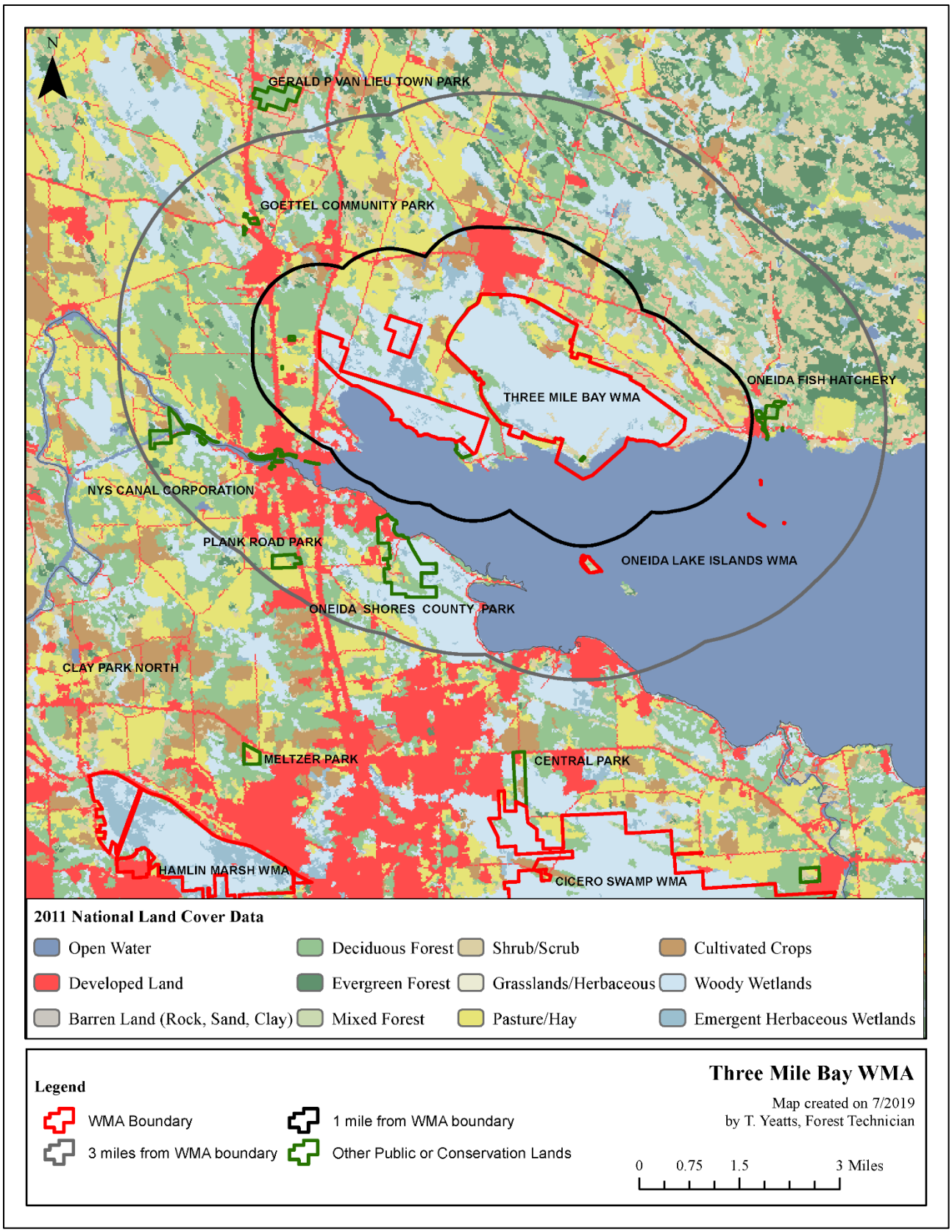

FIGURE 4. Land cover types and conservation lands in the landscape surrounding Three Mile Bay WMA. Conservation lands are from the NY Protected Areas Database available online at http://www.nypad.org/. Land cover types are from the 2011 National Land Cover Data (NLCD) and differ from the habitat types 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.

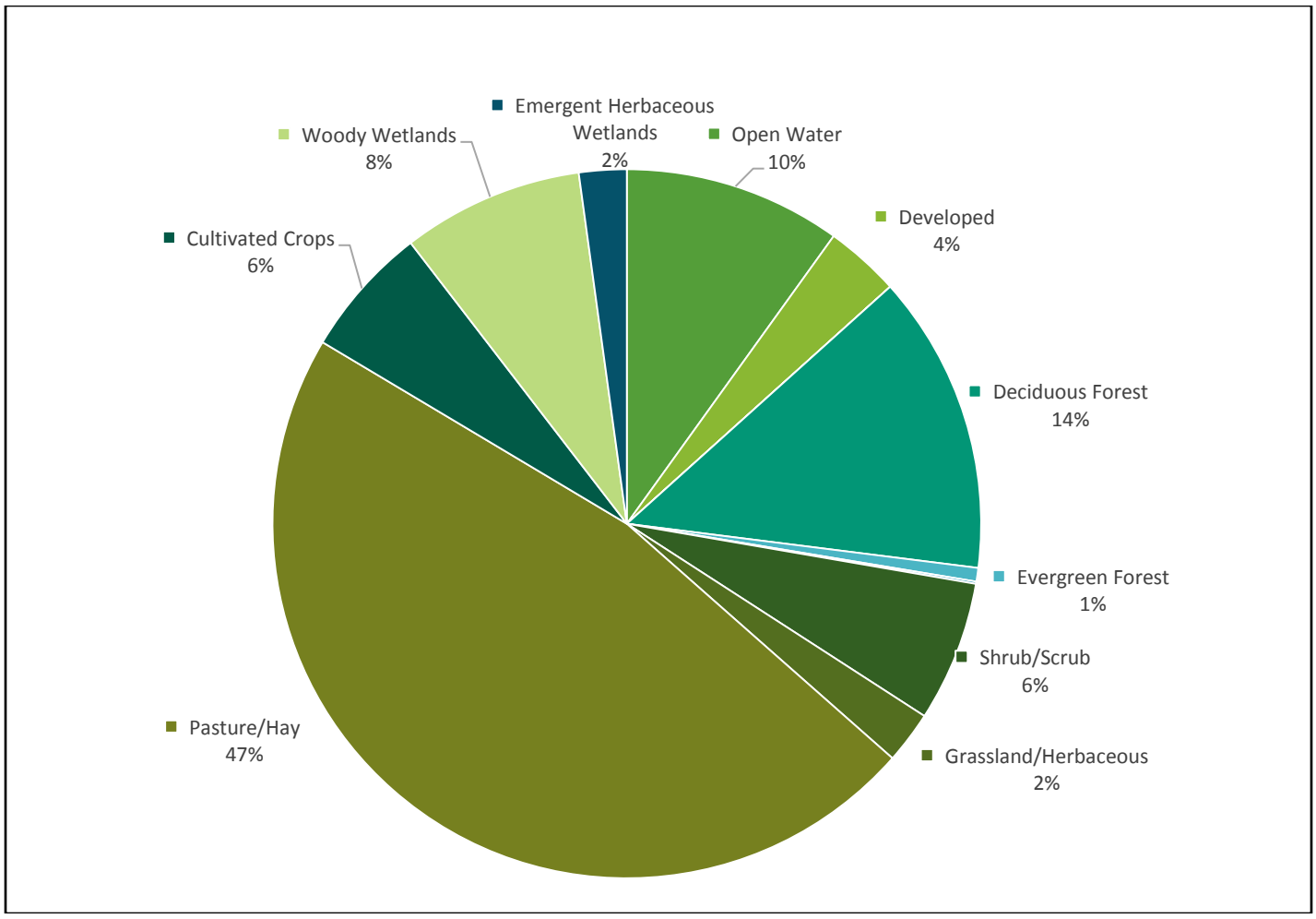

FIGURE 5. Percent cover of land cover types within three miles of Three Mile Bay WMA.

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.

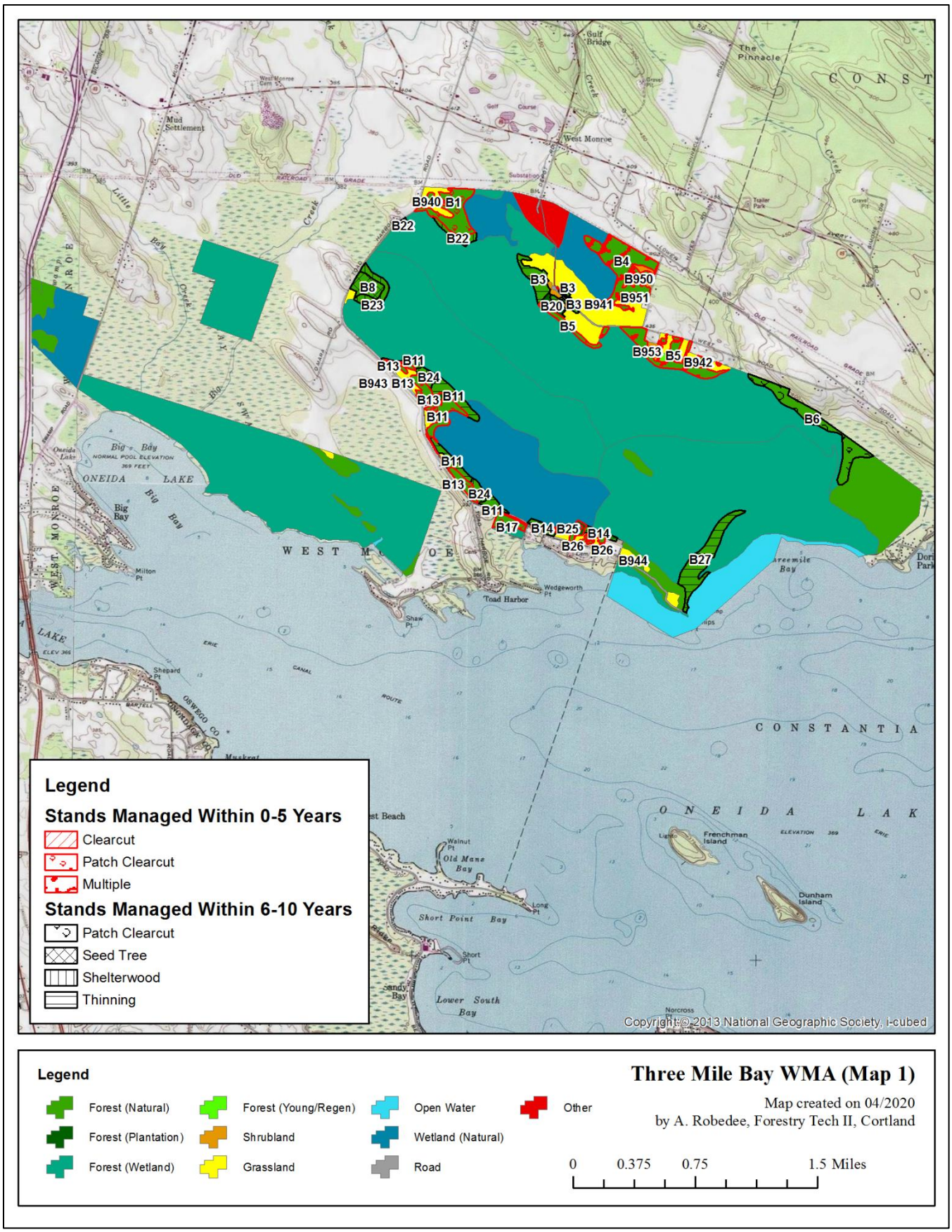

FIGURE 6. Habitat types and location(s) of proposed management on Three Mile Bay WMA (Map 1 of 2). Numbers indicate the stand number from habitat inventory.

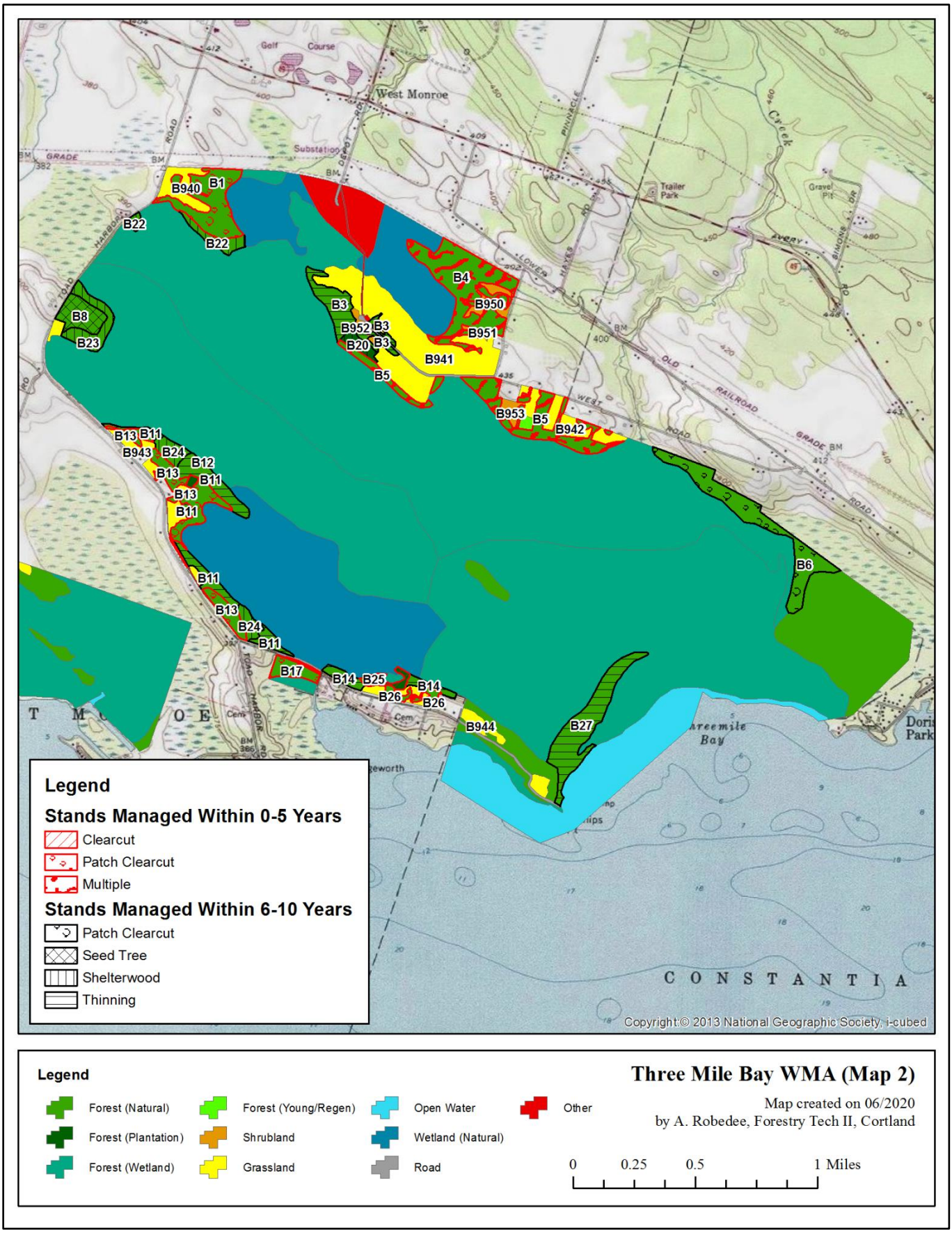

FIGURE 7. Habitat types and location(s) of proposed management on Three Mile Bay WMA (Map 2 of 2). Numbers indicate the stand number from habitat inventory.

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).[21] 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).[22]

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.

[21] Available online at http://www.dec.ny.gov/regulations/28693.html.
[22] 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.