Habitat Management Plan
for
Lake Alice Wildlife Management Area
2019 – 2028

Division of Fish and Wildlife
Bureau of Wildlife

1115 Route 86, Ray Brook, NY 12977

February 20, 2019

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Prepared by:

John O'Connor, Biologist 1 (Wildlife)
Lake Alice WMA Land Manager

Reviewed and approved by:

Paul Jensen, Regional Wildlife Manager
Bureau of Wildlife

25 April 2019
Date

James Farquhar III, Chief
Bureau of Wildlife

30 April 2019
Date

Tony Wilkinson, Director
Division of Fish and Wildlife

4/30/19
Date

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

TABLE OF CONTENTS

LIST OF FIGURES

SUMMARY

Lake Alice Wildlife Management Area (WMA) was purchased in 1953 and 1970 with both state and federal funds. The 1,522-acre WMA was once part of the 15,000-acre Heart's Delight Farm owned by William H. Miner. Miner constructed several impoundments on the property, including the 81-acre Lake Alice, named after his wife, to supply irrigation water and hydro power for the farm.

As former agricultural lands, Lake Alice was acquired to provide nesting and feeding habitat for a variety of waterfowl. A diverse mix of wetland and upland habitats are managed for wildlife including waterfowl, white-tailed deer, black bear, ruffed grouse, American woodcock, ring-necked pheasant, gray squirrel, cottontail rabbit, furbearers, marsh birds, and songbirds. The WMA is home to many species of birds that are state listed as threatened, endangered, or species of greatest conservation need (SGCN). Although not identified as a Bird Conservation Area, it is a site on the Lake Champlain Birding Trail and a popular destination for bird watchers.

Popular among hunters, trappers, and anglers as well, Lake Alice WMA affords multiple recreational opportunities throughout the year. The shallow impoundments are home to healthy populations of largemouth bass and pan fish, and attract large flocks of ducks, Canada geese, and snow geese each fall. The grasslands are stocked with adult ring-necked pheasants prior to hunting season and brush piles and shrublands ensure cottontails are plentiful. Timber harvests and other habitat management techniques on the WMA have resulted in abundant ruffed grouse populations; white-tailed deer are plentiful and pursued by many hunters each fall.

Access to the WMA has been improved recently. Multiple parking areas and hiking trails are located on the WMA. A car-top boat launch affords easy access to the Lake. A universally accessible nature trail has two viewing areas that provide panoramic views of marsh, grassland, and forested habitats. The nearly three miles of trails are utilized year-round, with cross-country skiing, snow shoeing, and snowmobiling allowed in the winter.

Habitat management goals for Lake Alice WMA are consistent with NYS Department of Environmental Conservation (DEC) guidance on public use of and primary goals for WMAs, including:

Primary Goals

- GOAL 1—Provide and enhance habitat for a diversity of wildlife with an emphasis on game species and those species listed as endangered, threatened or special concern, or listed as SGCN.

- GOAL 2—Provide and enhance opportunities to participate in wildlife-dependent recreation (e.g., hunting, trapping, fishing, wildlife observation and photography) that is compatible with the ecological integrity of the area.

Secondary Goals

- GOAL 3—Foster understanding and instill appreciation of the diversity and interconnectedness of wildlife and their habitats.

- GOAL 4—Allow for non-wildlife-dependent recreation (e.g., hiking, biking, horseback riding, skiing, and dog training/trials) provided the activity is compatible with the primary goals associated with wildlife-dependent recreation and wildlife habitat enhancement.

Specific goals for Lake Alice WMA include:

- Managing approximately 15% as wetland and open water to provide habitat for nesting and migratory waterfowl, marsh birds, amphibians, reptiles, and aquatic furbearers;
- Managing approximately 10% as young forest (12% of the total forested area) to promote American woodcock, ruffed grouse, and wild turkey habitat;
- Managing approximately 10% as grassland and shrubland to provide essential components of American woodcock, ruffed grouse, and wild turkey habitat, as well as habitat for grassland birds, nesting waterfowl, whip-poor-will, and pheasant stocking; and
- Managing approximately 60% as intermediate and mature forest to provide habitat for white-tailed deer, black bear, and forest-dwelling raptors.

I. BACKGROUND AND INTRODUCTION

PURPOSE OF HABITAT MANAGEMENT PLANS

BACKGROUND

Active management of habitats to benefit wildlife populations is a fundamental concept of wildlife management and has been an important component of DEC's program for decades. Beginning in 2015, 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's 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 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 a description of the habitat on the WMA and identify target species for management;
- Identify habitat goals for WMA-specific target species, and consider the juxtaposition of all habitat types to guide the conservation and management of sensitive or unique species or ecological communities;
- Identify acreage-specific habitat goals for the WMA to guide management actions;
- Provide specific habitat management prescriptions that incorporate accepted best management practices;
- Establish a forest management plan to meet and maintain acreage goals for various forest successional stages;
- Address management limitations such as access challenges (e.g., topography); and
- Provide the foundation for evaluating the effectiveness of habitat management.

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

Definitions are provided in Appendix A.

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

This plan and the habitat management it recommends will comply 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 and National Historic Preservation Act (SHPA), prior to implementation.

WMA OVERVIEW

LOCATION

Lake Alice WMA is located in DEC Region 5, Town of Chazy, Clinton County (Figure 1).

TOTAL AREA

1,522 acres

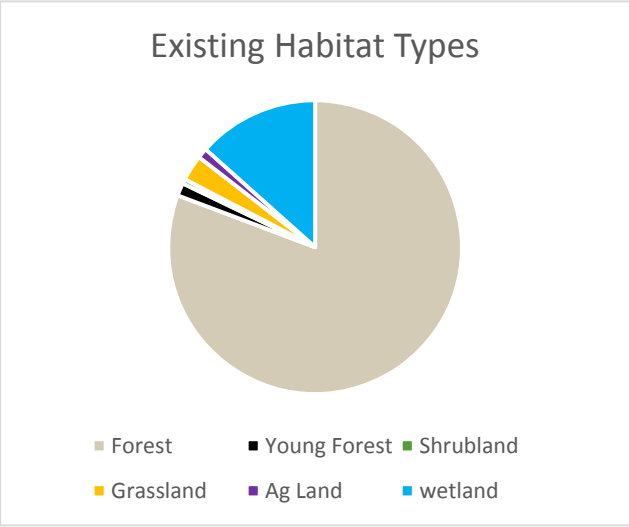
HABITAT INVENTORY

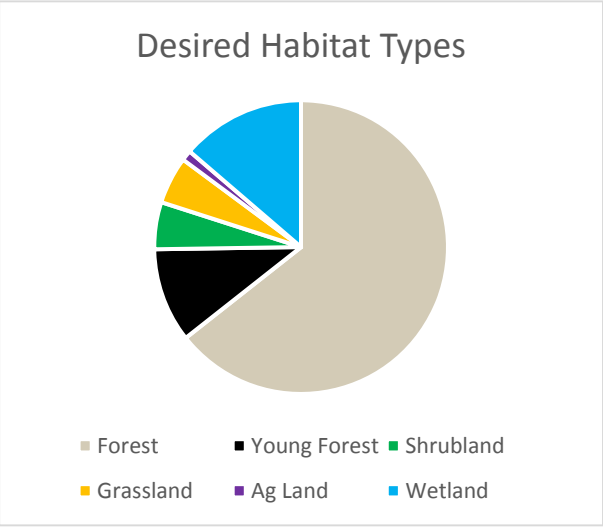
A habitat inventory of the WMA was conducted in 2016 and is proposed to be updated every 10-15 years to document the existing acreage of each habitat type and help determine the location and extent of future management actions. Table 1 summarizes the current acreage by habitat type and the desired acreage after management. Desired conditions were determined with consideration of habitat requirements of target wildlife species, 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 Lake Alice WMA.

Habitat Type	Current Conditions (as of 2016)			Desired Conditions	
	Acres	Percent of WMA	Miles	Acres	Percent of WMA
Forest [a]	1,211.6	79.6%		938.0	Decrease to 62% [b]
Young forest	20.8	1.4%		152.2	Increase to 10%
Shrubland	8.6	0.5%		76.1	Increase to 5%
Grassland	43.0	2.8%		76.1	Increase to 5%
Agricultural land	16.5	1.1%		16.5	No change
Wetland (natural) [c]	89.1	5.9%		89.1	No change
Wetland (impounded) [c]	111.6	7.3%		152.2	Increase to 10%
Open water	0	0%		0	No change
Other (trails, utility ROW)	20.8	1.4%		20.8	No change
Roads	0	0%	2.7	0	No change
Rivers and streams			7.5		No change
Total Acres:	1,522	100%		1,522	

[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:

Wildlife present on Lake Alice WMA include many species commonly found throughout northeastern New York and the Champlain Valley:

- White-tailed deer, black bear, cottontail, gray squirrel
- Beaver, mink, muskrat, fox, fisher, bobcat, coyote, river otter
- Wood duck, Canada goose, mallard, hooded merganser
- American woodcock, ruffed grouse, ring-necked pheasant
- Eastern kingbird, Baltimore oriole, bobolink, American robin
- Bullfrog, green frog, pickerel frog
- Snapping turtle, painted turtle, garter snake, milk snake

Wildlife and Plant Species of Conservation Concern:

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

Table 2. Species of conservation concern that may be present on Lake Alice 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 bittern		SC	x
	American black duck			HP
	American kestrel			x
	American woodcock			x
	Bald eagle		T	x
	Black-crowned night-heron			x
	Black-throated blue warbler			x
	Black tern		E	HP
	Bobolink			HP
	Brown thrasher			HP
	Canada warbler			HP
	Common nighthawk		SC	HP
	Cooper's hawk		SC	
	Eastern meadowlark			HP
	Eastern whip-poor-will		SC	HP

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

Table 2. Continued				
Species Group	**Species**	**Federal Status**	**NY Status**	**NY SGCN**
Birds (cont.)	Horned lark			HP
	Least bittern		T	x
	Northern goshawk		SC	x
	Northern harrier		T	x
	Osprey		SC	
	Pied-billed grebe		T	x
	Red-headed woodpecker		SC	HP
	Red-shouldered hawk		SC	x
	Ruffed grouse			x
	Sedge wren		T	HP
	Sharp-shinned hawk		SC	
	Wood thrush			x
Mammals	Moose			x
Amphibians and reptiles	Snapping turtle			x
Fish	None known			
Invertebrates	None known			
Plants	None known			

Significant Ecological Communities:

There are several rare and significant natural communities located on Lake Alice WMA as identified by the NY Natural Heritage Program. The state rank reflects the rarity within NY, ranging from S1, (rarest), to S5, (stable); definitions are provided in Appendix A. The following significant ecological communities occur on the WMA; community descriptions are from *Ecological Communities of New York State, Second Edition* [5] (Figure 2):

- **Hemlock-northern hardwood forest (S4)-** a mixed forest that typically occurs on middle to lower slopes of ravines, on cool, mid-elevation slopes, and on moist, well-drained sites at the margins of swamps. In any one stand, eastern hemlock is codominant with any one to three of the following: sugar maple, red maple, yellow birch, black birch, red oak, American beech, white ash, chestnut oak, white oak, white pine; other trees may include hop hornbeam, black cherry, and basswood. The relative cover of eastern hemlock is quite variable, ranging from nearly pure stands in some steep ravines to as little as 20% of the canopy cover. Striped maple is often prominent as a mid-story tree.
- **Limestone woodland (S2S3)-** a conifer or hardwood dominated woodland that occurs on shallow soils over limestone bedrock, and usually includes numerous small rock outcrops. Typical examples have pure calcareous bedrock such as limestone, dolomite,

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

calcite, or marble. Other examples may have hybrid bedrock types such as amphibolites or Potsdam sandstone. The tree canopy may be open or closed. There are usually several codominant trees, although one species may become dominant in any one stand.

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

Soils:

The soil across much of Lake Alice WMA is very stony, gently sloping, well to moderately well-drained loam. The primary area where forest management is planned is composed mainly of Peasleeville loam (PfB) and Schroon fine sandy loam (SkB) soil groups. PfB and SkB soils are very stony and have a land capability classification of 6s, occurring on a 0-8% slope.[6] These are shallow, droughty, or stony soils that have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat. The poor growing conditions resulting from these soils result in slow tree growth. All proposed forest management actions will consider these growing conditions to ensure long-term forest health.

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 Lake Alice WMA include:

- Eight wetlands 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.
- Six 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 Class D.[7] These streams are Tracy Brook, tributaries of Tracy Brook, and tributaries of Corbeau Creek.

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.

[6] Soil classification information available from: US Department of Agriculture, Natural Resources Conservation Service. Available online at http://www.nrcs.usda.gov/wps/portal/nrcs/surveylist/soils/survey/state/?stateId=NY.
[7] Information about stream classification is available online at http://www.dec.ny.gov/permits/6042.html.
[8] Available online at http://www.dec.ny.gov/outdoor/104218.html.

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 Lake Alice WMA (Figures 4 and 5). The landscape within a three-mile radius of the WMA is primarily privately-owned land including:

- Forest (47% combining deciduous, evergreen, and mixed)
- Wetland (23% combining emergent and woody wetlands)
- Pasture/hay and grassland (15%)
- Cultivated crops (12%)
- Developed (2%)
- Early successional shrubland (1%)

The landscape surrounding Lake Alice WMA is primarily composed of forested habitats. A large percentage of the forest is intensively managed for maple sugar production. Very little young forest exists on the WMA or surrounding landscape. For that reason, it is the goal of DEC's Young Forest Initiative (YFI) to create young forest habitat to promote regeneration of select forest stands to enhance wildlife habitat, ensure a healthy forest, and improve opportunities for hunting and other wildlife-related recreation.[9] At a larger landscape scale, Lake Alice WMA is near the Adirondack Forest Preserve, where mature forest stands predominate; therefore, DEC should pursue the creation of young forest where it has the authority to do so.

Several other conservation lands are located near the WMA. The William H. Miner Agricultural Research Institute (Miner Institute) manages thousands of acres of land for agriculture and forest research. Some of this land adjoins the WMA, but these properties are not managed for wildlife nor are they open to the public for hunting or other types of recreation. Although research goals change over time, the amount of young forest being created on these lands is limited.

Kings Bay WMA (672 acres), Montys Bay WMA (318 acres), and Lewis Preserve WMA (1,356 acres) are all within ten miles of Lake Alice WMA. The eventual implementation of the YFI on these WMAs will diversify the forested ecosystem in the area and significantly increase the amount of young forest on the landscape.

Flat Rock State Forest (1,931 acres) is approximately four miles from Lake Alice WMA. While it is possible to manage the forests on this property, including the creation of young forest, it is unlikely that any forest management will occur during the term of this plan. A UMP for Flat Rock State Forest has been written but is not yet approved.

[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.

II. MANAGEMENT STRATEGIES BY HABITAT TYPE

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

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

FOREST

Forested acreage includes the following forest types:

Natural forest: naturally forested areas, including hardwoods and softwoods. Includes upland forest stands that are not young forest, i.e., pole stands, other intermediate forest age classes, mature forest, and old growth forest.
Plantation: planted forested areas, generally planted in rows dominated by one or two species.
Forested wetland: wetlands 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 areas, 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 areas.

Young forest habitat found at Lake Alice WMA.

Photo: Amanda Stickles, NYSDEC

Forest management on Lake Alice WMA will incorporate 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 created the YFI program to increase the amount of young forest on WMAs to benefit wildlife that require this transitional, disturbance-dependent habitat.[10]

[10] 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.

MANAGEMENT OBJECTIVES

- Increase young forest to 152.2 acres (10% of the total WMA) to improve habitat for young forest-dependent wildlife.
- Improve the diversity of the forest habitat for forest wildlife.
- Increase mast production and hardwood browse availability.

DESCRIPTION OF EXISTING FOREST HABITAT AND TARGET SPECIES

There are 1,232 forested acres on Lake Alice WMA. Forest habitat primarily consists of mature and intermediate natural forest with a species composition typical of northern hardwood forest and hemlock – hardwood forest. Table 3 provides a summary of the forested areas, including the most common tree species present in each. The forest inventory conducted in 2016 divided the WMA into 2 compartments; with compartment 1 containing all lands north of Macadam Road, and compartment 2 south of Macadam Road.

Only a small amount of young forest currently exists on the WMA and is the result of an experimental rotational clear-cut designed to improve habitat for ruffed grouse. A larger amount of pine/spruce plantation is present, most of which was planted by William Miner to provide refuge for game animals on his once massive Heart's Delight Farm. Approximately 20% of the forest is forested wetland, reflective of the surrounding landscape.

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

Forest Type	Acres (as of 2016)	Desired Acres	Overstory species
Natural forest (mature/intermediate)	864.6	812.4	red maple, hemlock, sugar maple, white pine, white cedar, green ash
Plantation	83.0	24.6	white pine, Norway spruce
Forested wetland	264.0	264.0	red maple, green ash, black ash
Young forest	20.8	131.4	birch, aspen, maple, ash, elm
Young forest (forested wetland)	0	0	red maple, green ash, black ash
Total Forested Acres:	1,232.4	1,232.4	

Young Forest Target Species:

Habitat has been managed for ruffed grouse on the WMA since 1986 and continues to be our primary target species. Additional target species for young forest include American woodcock, white-tailed deer, whip-poor-will, and wild turkey. These species rely on young forest adjacent to mature forest for nesting, foraging, and cover and will benefit from management that creates the following habitat conditions:

Young forest created for ruffed grouse at Lake Alice WMA.

Photo: Amanda Stickles, NYSDEC

- American woodcock:
    - Singing/peenting ground – Open areas from 1 to >100 acres, usually in an abandoned field.
    - Foraging – 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 with high stem density.
    - 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 a high midstory stem density.[12] [13]
- Wild turkey:
    - Strutting areas – Open fields with short vegetation, <12 inches preferred, and mature hardwoods.
    - Nesting cover – Blowdowns and the bases of trees and stumps in open hardwoods and brushy cover in early successional habitats and field edges.
    - Brood rearing – The best brooding cover is fields with herbaceous vegetation from 12-18 inches preferred.
    - Foraging – The habitat required ranges from open old-field areas to mature forests:
        - Spring diet – Tubers and invertebrates.
        - Summer diet – Poult diets consist primarily of invertebrates. Adult diets consist of invertebrates and tubers, switching over to herbaceous

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

[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 for Pennsylvania Ruffed Grouse, Pennsylvania Game Commission. 10 pp.

vegetation and soft mast as summer progresses.
        - Fall diet – Hard and soft mast, seeds, and invertebrates.
        - Winter diet – Hard and soft mast, seeds (birch if available) and hardwood buds.
    - Winter cover – Mature conifer stands.
    - Roosting – Mature hardwoods and softwoods. Adults with flightless poults tend to roost on the ground under large trees with a dense understory of young trees, shrubs, downed trees, rock outcrops, or brushy fields.[14] [15]
- White-tailed deer:
    - Fawning areas – Vary from open forest to hay fields to brushy cover.
    - Spring/summer diet – Primarily herbaceous vegetation (clover, *Rubus* sp., forbs, etc.), hardwood foliage, soft mast, and agricultural crops where available.
    - Fall diet – Hard mast, preferably acorns, hardwood foliage, and agricultural crops where available.
    - Winter diet – Hardwood buds, fallen leaves, hard mast and conifers, preferably white cedar.
    - Bedding cover – Varies from open hardwoods with laydowns to dense thickets of early succession shrublands or hardwood and softwood regeneration.[16]
- Whip-poor-will:
    - General – Large home ranges encompass both forested and open areas in close proximity. Suitable sites provide this landscape configuration and are typically near known, occupied areas.
    - Nesting – Forested habitat with well-drained soils and adjacent to open areas. Often pine or pine/hardwood forests, especially pitch pine barrens; rarely hardwood forests or stands with closed canopy or dense shrub layer. Soils critical since the nest is placed directly in leaf litter on forest floor.
    - Foraging – Open habitat (e.g., fields, gravel or sand pits, regenerating forest clearcuts, powerlines) adjacent to mature forest, due to increased prey (Lepidopterans) availability and/or increased lunar illumination. Within regenerating stands, disproportionately use areas within 100m of mature forest edge and typically avoid interior of large clearcuts.
    - Roosting – Daytime roosts directly on ground or on low branch in forest/young forest. [17, 18]

[14] USDA – NRCS. 1999. Wild Turkey (*Meleagris gallopavo*) Fish and Wildlife Habitat Management Leaflet. 12 pp.
[15] Dickson, J. G. 1992. The Wild Turkey: Biology and Management. National Wild Turkey Federation and USDA Forest Service. Stackpole Books, PA. 480 pp.
[16] Halls, L. K., ed. 1984. White-tailed Deer: Ecology and Management. The Wildlife Management Institute. Stackpole Books, PA. 864 pp.
[17] Hunt, P. 2014. Best Management Practices for the Eastern Whip-poor-will in New Hampshire. New Hampshire Audubon, Concord, NH. 13 pp.
[18] Wilson, M. D., and B. D. Watts. 2008. Landscape configuration effects on distribution and abundance on whip-poor-wills. The Wilson Journal of Ornithology. 120(4): 778-783.

Mature Forest Target Species:
Several stands of high-quality mature forest exist throughout Lake Alice WMA. Although there is currently an overabundance of mature forest on the WMA, important habitat areas will be retained. The target species for mature forest include:

- whip-poor-will
- red-shouldered hawk
- northern goshawk
- sharp-shinned hawk
- coopers hawk

Management actions undertaken for these five species will likely benefit other SGCN associated with mature forest including black-throated blue warbler, wood thrush, Canada warbler, and red-headed woodpecker. American kestrel, wood duck, and hooded merganser also rely on natural tree cavities found in mature forests for nesting.

White-tailed deer are also a target species for mature forest at Lake Alice WMA. A known deer yard exists on the WMA consisting of mature white pine and eastern hemlock. These stands will require careful management to increase food availability while retaining the beneficial characteristics of the conifer canopy that reduces snow depths within these areas during the winter.

Forested Wetland Target Species:
More than 20% of the forested habitat at Lake Alice WMA is forested wetland. While some of this forest may be managed as young forest, especially for the benefit of American woodcock, some of it is unsuitable for timber management practices. However, all age classes of forested wetland provide excellent habitat for a variety of wildlife. Wood ducks and hooded mergansers depend on tree cavities that occur naturally in the mature forested wetlands of the WMA. Beavers periodically flood and modify many of the forested wetlands on the WMA, benefiting a suite of furbearer, bird, reptile, and amphibian species.

MANAGEMENT HISTORY

The forest at Lake Alice WMA has been managed throughout its history. The WMA was once part of William H. Miner's 15,000-acre Heart's Delight Farm. Miner cleared thousands of acres of forest for agricultural purposes including crop production, livestock grazing, and the development of irrigation ponds and hydroelectric power. He also managed a sugar bush where upwards of 10,000 maple trees were tapped each spring. Much of the undeveloped forest was set aside as game preserves for buffalo, deer, elk, and partridge. The remains of tall, woven wire fences can still be found on much of the WMA.

The department acquired the WMA in stages. The largest parcels were acquired from the William H. Miner Foundation in 1953 and 1970. A maintenance center was established at Lake Alice and the WMA was intensively managed for several decades . The closure of the maintenance center in 1993 has resulted in more limited forest management taking place since then.

In 1975, SUNY ESF initiated a project to evaluate the management of ruffed grouse habitat based on a system of rotational clear cuts in a 220- acre mixed hardwood forest.[19] The project area was broken into a control unit and an experimental unit, with normally prescribed timber stand improvement (TSI) harvests occurring in the control unit and one quarter of the experimental unit clearcut every ten years. The first timber harvest in this project occurred in 1986, the second in 2009. Four 5-acre blocks were clearcut in 1986 with an additional 30-acre selective cut. Five blocks totaling 17.4 acres were clearcut in 2009 with no additional TSI work in the control unit. A recent study by SUNY Plattsburgh found that this timber management project has resulted in improved habitat conditions for ruffed grouse within the project area.[20] The ruffed grouse flush rate at Lake Alice during the study far exceeded the flush rate for the surrounding Champlain Valley and Transition Ecozone as determined by the DEC grouse hunting log.[21] The grouse flush rate at Lake Alice was also higher than the state average and was only slightly exceeded by the flush rates reported for the Northern Adirondacks and Tug Hill Ecozones.

SUNY Plattsburgh proposed a hybrid poplar clone site and tillage trial for a section of Lake Alice WMA in 1986.[22] This research project resulted in approximately 8 acres of old hay field divided into several rectangular plots that received experimental tillage treatments and plantings of hybrid poplar clones in 1987. The initial research project was supposed to conclude in 1991, however the poplar stands were intensively managed until the trees were severely damaged by an ice storm in 1998. The stands remained until they were clearcut by DEC in 2009 after determining that the stands provided very little value to wildlife. Stump sprouts of hybrid poplar quickly grew up, along with a diverse assortment of native shrub species.

After the ice storm of January 1998, DEC Division of Operations staff salvaged broken and damaged white cedar from two stands of forested wetland (A-35 & B-13) at Lake Alice for use in other conservation projects, such as Adirondack lean-to construction and repair.

Apple and cherry trees have been planted in various locations around the WMA. These trees were once intensively managed to provide mast production as food for wildlife. More recently this effort has only occurred sporadically, as staff time or volunteers are available.

Finally, forest stands 1-29, 2-2, and 2-3 contain a deer winter yard (Figure 7). Some selective cutting has occurred in these stands in an effort to provide hardwood browse for deer during winter.

IMPLEMENTATION PLAN AND ANTICIPATED SCHEDULE

The following management is proposed in order to reach the goal of 152.2 acres of young forest within ten years:

[19] Chambers, R.E. 1975. Ruffed Grouse Management Project. SUNY ESF unpublished project proposal. 3pp.
[20] Ramsdell, C. 2017. Assessing the quality of ruffed grouse habitat in a managed early-successional mixed hardwood forest at Lake Alice Wildlife Management Area, Chazy, NY. SUNY Plattsburgh unpublished report. 18pp.
[21] Available online at http://www.dec.ny.gov/docs/wildlife_pdf/grouselogrpt15.pdf .
[22] Abrahamson, L.P., E.A. White, K.B. Adams, H.A. Randy, R.A. Inslerman, and J.M. Peterson. 1986. Hybrid poplar clone/site and tillage trial. Unpublished cooperative research proposal. 10pp.

- **Management planned for 2019-2023** (Table 4, Figures 6 & 7):
    - Clearcut portions of white pine plantations in Stands 1-14 and 1-11 (35 acres).
    - Clearcut the next rotation of 5 acre blocks in Stands 1-15, 1-20, and 1-23 (25 acres).
    - Clearcut blocks in a portion of Stand 1-17 (25 acres).
- **Management planned for 2024-2028** (Table 5, Figures 6 & 7):
    - Clearcut the Norway spruce plantation in Stand 1-36 (5.7 acres)
    - Conduct seed tree cuts in Stands 2-7 and 2-9 (15.5 acres)
    - Conduct a shelterwood cut in portions of Stand 2-39 (22 acres)
    - Clearcut portions of Stand 2-6 and 2-11 (24 acres)

Table 4. Forest management schedule for the first five-year period of this HMP (2019-2023).

Stand	Acres	Size Class	Forest Type		Management Direction	Treatment Type
			Current	Future		
1-14	42.8	Pole Timber 6”-11” DBH	Plantation	Young Forest	Wildlife	Clearcut
1-17	53.6	Small Saw Timber 12”-17” DBH	Northern Hardwood	Young Forest	Wildlife	Clearcut
1-23	30.4	Small Saw Timber 12”-17” DBH	Other	Young Forest	Wildlife	Clearcut
1-15	12	Small Saw Timber 12”-17” DBH	Other	Young Forest	Wildlife	Clearcut
1-20	9	Small Saw Timber 12”-17” DBH	Other	Young Forest	Wildlife	Clearcut
1-21	36.9	Small Saw Timber 12”-17” DBH	Other	Young Forest	Wildlife	Thinning
1-11	9.9	Small Saw Timber 12”-17” DBH	Plantation	Young Forest	Wildlife	Clearcut

Table 5. Forest management schedule for the second five-year period of this HMP (2024-2028).

Stand	Acres	Size Class	Forest Type		Management Direction	Treatment Type
			Current	Future		
1-36	5.7	Small Saw Timber 12”-17” DBH	Plantation	Young Forest	Wildlife	Clearcut
2-7	7.4	Small Saw Timber 12”-17” DBH	Other	Young Forest	Wildlife	Seed Tree
2-9	8.1	Pole Timber 6”-11” DBH	Other	Young Forest	Wildlife	Seed Tree
2-11	22.3	Pole Timber 6”-11” DBH	Other	Young Forest	Wildlife	Clearcut
2-39	22.3	Small Saw Timber 12”-17” DBH	Northern Hardwood	Young Forest	Wildlife	Shelterwood
2-6	32.8	Small Saw Timber 12”-17” DBH	Northern Hardwood	Young Forest	Wildlife	Clearcut

Stand locations and planned management actions are also summarized in Figures 6 & 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). Briefly, habitat management for each of these stands will include the following:

- **Stands 1-14, 1-11, and 1-36:** Clearcut harvest of 40.7 acres to convert portions of white pine and Norway spruce plantations to naturally regenerated mixed forest stands and create young forest habitat.
- **Stands 1-17, 2-6, and 2-11:** Clearcut harvests of 49 acres to regenerate stands and create young forest habitat. Five 5-acre blocks (25 acres total) of maple and beech will be cut in Stand 1-17 to expand upon the rotational clearcuts already established just east of this Stand. 12 acres of northern hardwood will be clearcut in portions of Stand 2-6, and an additional 12 acres will be clearcut in Stand 2-11, to provide browse adjacent to the deer wintering yard, and create young forest habitat.
- **Stands 1-15, 1-20, and 1-23:** Clearcut harvest of five 5-acre blocks totaling 25 acres. This will be the third harvest to occur in this established rotational clearcut area designed to provide optimal ruffed grouse habitat. Mature maple, basswood, aspen, and white pine will be harvested to allow for aspen, ash, and maple regeneration.
- **Stands 2-7 and 2-9:** Seed tree harvest of 15.5 acres to regenerate stands and create young forest habitat. High quality aspen will be retained to influence the regeneration of a young aspen forest. These stands also contain a variety of fruit and nut trees including walnut, oak, apple and cherry, as well as mature aspen, maple, and ash. The apple trees and some of the nut producing trees may also be retained to diversify the habitat value of young forests.
- **Stand and 2-39:** Initial shelterwood harvest of 22 acres to regenerate hemlock in the stand and create young forest to improve the quality of the habitat in the deer wintering yard.
- **Stand 1-21:** Second thinning harvest of 36.9 acres to manage species composition and stocking levels of the stand. Initial thinning harvest occurred in 1986. This stand consists of aspen, basswood, maple, and ash.
- **All harvested areas:** Small forest openings of 3 to 5 acres, planted with native grasses and wild flowers, will be created on harvest landings and in other suitable areas with permanent access for maintenance, to benefit our target young forest wildlife species.
- **All harvested areas:** Shrublands will be created along access roads and in other suitable areas to provide ruffed grouse brood habitat, and in and adjacent to forested wetlands to benefit American woodcock.

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** [23]
Soils	*Rutting Guidelines for Timber Harvesting on Wildlife Management Areas*
Water quality	*NYS Forestry Best Management Practices for Water Quality*
Wildlife	*Retention Guidance on Wildlife Management Areas*
Plantations	*Plantation Management Guidance on Wildlife Management Areas*

Wildlife Considerations:

Treatments will be designed to reduce impacts to sensitive species on or near Lake Alice WMA that warrant special consideration, including bats (e.g., northern-long-eared bat), forest raptors (e.g., red-shouldered hawk, northern goshawk), and other SGCN birds (e.g., Eastern whip-poor-will, red-headed woodpecker, Canada warbler, American kestrel). Timing harvests to occur in the winter is perhaps the easiest way to minimize or avoid adverse impacts. There are no known bat occurrences on or near the WMA, however, there are records of northern long-eared bat in southern Clinton County. To protect bats, surveys will occur in suitable habitat prior to timber harvest activities to determine probable presence or absence, or harvests will take place during the winter (October 1-March 31). Forest management will also follow retention guidelines that will protect potential roost trees.

Forest Health Considerations:

Shallow stony soils throughout parts of the WMA may slow the regeneration of certain tree species. These conditions will be considered when planning habitat management and timber harvesting operations. Slow growth of desirable tree species could allow less desirable or invasive species to outcompete. This may require some additional treatments of interfering vegetation to promote the establishment of desired regeneration.

Fourteen percent of the forest stands on the WMA contain invasive species, primarily honeysuckle and buckthorn. Phragmites grows in dense stands on adjacent properties and present a constant threat for Lake Alice. In stands where native and non-native vegetation has been identified as interfering with desirable regeneration, additional treatments of interfering vegetation may be required to promote the establishment of desired regeneration.

Currently, major insect pests such as Asian Longhorn Beetle (ALB), Hemlock Woolly Adelgid (HWA), and Emerald Ash Borer (EAB) are not known to occur on or near Lake Alice WMA. DEC staff will continually monitor for invasive pests and will utilize adaptive management when necessary.

Pre- and Post-treatment Considerations:

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

Treatments will usually control invasive and/or interfering vegetation. Mechanical treatments include cutting invasive/undesired species from the understory and/or soil scarification.

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

Chemical treatments involve the limited use of approved herbicides applied by a certified applicator to reduce vegetative competition. Also, planting native shrub/tree species may be warranted to provide specific habitat needs for target wildlife species.

MANAGEMENT EVALUATION

In order to determine whether the desired forest regeneration and wildlife responses have been achieved by the management outlined above, pre- and post-management assessments will be conducted as described in the *Young Forest Initiative Monitoring Plan: 2016-2025*.[24] The Monitoring Plan establishes statewide standards for evaluating vegetation and target wildlife responses to forest management to determine if the outcome is as desired. 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 Lake Alice WMA, which may be assessed to determine response to management, include:

- American woodcock
- Ruffed grouse
- Wild turkey
- White-tailed deer
- Whip-poor-will

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. Shrubland is typically characterized by >50% cover of shrubs and <25% canopy cover of trees.

MANAGEMENT OBJECTIVES

- Maintain the existing shrubland habitat on the WMA.
- Increase the total shrubland habitat to 5% of the WMA area by maintaining portions of stands that are clearcut at shrub height in perpetuity.
- Promote dominance of native shrub species to enhance habitat quality.
- Monitor stands for invasive species and eradicate where feasible.

DESCRIPTION OF EXISTING SHRUBLAND HABITAT AND TARGET SPECIES

Lake Alice WMA currently contains 8.6 acres of managed shrubland habitat that resulted from the clearing of the experimental hybrid poplar plots. Additionally, small patches of shrublands exist throughout the multiple grassland habitats, along the shorelines and dikes of the impoundments, and many of the stands of forested wetlands include shrubland habitats that weren't delineated during the forest inventory.

Target species for shrubland management on Lake Alice WMA are:

- American woodcock
- Ruffed grouse

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

- Whip-poor-will

Maintaining shrubland habitat is also expected to benefit many other species of wildlife including some SGCN known to nest and/or forage on the WMA including brown thrasher.

MANAGEMENT HISTORY

Very little management has occurred within shrubland habitats at Lake Alice WMA. In 2009 several acres of shrubs were cleared adjacent to Lake Alice, West Pond, Tracy Brook Riffle Ponds 1, 2, & 3, and the Power House Pond. At the same time, the experimental hybrid poplar stands were clearcut. These areas have regenerated naturally into dense patches of native shrubs that have been very beneficial to the cottontail population on the WMA.

Also in 2009, as part of the timber harvest in the rotational clear-cut area, all trees and shrubs were removed within 50 feet of both sides of the existing haul road through the stand. This was done to open the corridor and provide some connectivity between the harvested blocks. It was intended that this 6-acre area would be maintained in a constant state of early succession by preventing the vegetation from growing beyond shrub height. However, this management action has been delayed and natural regeneration has occurred.

IMPLEMENTATION PLAN AND ANTICIPATED SCHEDULE

- **Management planned for 2019 - 2023** (Figures 6 & 7):
    - Brush hog, burn, or hydro-axe the 50-foot clearing on both sides of the haul road in Stand 1-19.
    - Brush hog or hydro-axe alternating strips through the shrub patches of Stand 2-30.
    - Brush hog or hydro-axe alternating strips through the patch of shrubs in Stand 2-19, and clear shrubs from shoreline of West Pond.
    - Plant speckled alder in Stand 2-17.
- **Management planned for 2024 - 2028** (Figures 6 & 7):
    - Brush hog, burn, or hydro-axe the 50-foot clearing on both sides of the haul road in Stand 1-19.
    - Brush hog or hydro-axe alternating strips through the shrub patches of Stand 2-30.
    - Brush hog or hydro-axe alternating strips through the patch of shrubs in Stand 2-19.
    - Thin speckled alder in Stand 2-17.

BEST MANAGEMENT PRACTICES

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

MANAGEMENT EVALUATION

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

GRASSLAND AND OTHER OPEN SPACE

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

MANAGEMENT OBJECTIVES

- Maintain existing grassland habitats.
- Enhance the quality of the existing grassland habitats for breeding, nesting, and wintering species.
- Increase total grassland habitat to 5% of WMA area by stumping portions of stands that are clearcut and planting native warm season grasses and forbs.
- Manage small or narrow fields for pheasant stocking and hunting.
- Provide nesting habitat and cover for waterfowl, especially adjacent to wetlands/waterbodies.
- Monitor fields for invasive species and eradicate where feasible.

DESCRIPTION OF EXISTING GRASSLAND HABITAT AND TARGET SPECIES

Lake Alice WMA contains 43 acres of grassland habitat in several small fields that are intermixed with shrubland, wetland, and open water habitats. The poor quality soils and poor drainage make the fields undesirable for corn production, the dominant agricultural product in the area, and challenging for hay production.

Target species for grassland management on Lake Alice WMA are:

- American woodcock
- Ruffed grouse
- Wild turkey
- White-tailed deer
- Canada goose
- Bobolink
- Eastern meadowlark
- Horned lark
- Northern harrier
- American kestrel

The grasslands at Lake Alice WMA are mowed in strips to facilitate pheasant hunting.

Photo: Amanda Stickles, NYS DEC.

MANAGEMENT HISTORY

The grassland habitat at Lake Alice WMA has changed very little since DEC acquisition of the land. Early on, significant efforts were placed on erecting and maintaining cattle fencing around the perimeter of the grasslands to prevent grazing from neighboring farms. Crops such as buckwheat, clover, and alfalfa were planted to benefit

wildlife. Other fields were routinely mowed to provide short, tender grasses for wildlife grazing, especially Canada geese. Some of the wetter fields were abandoned and allowed to revert to shrublands of alder and willow.

In 1985, DEC entered a Conservation Agreement with the Clinton County Soil and Water Conservation District. The District identified 69 acres of hay land that was then leased to local farmers. The District recommended the planting of switchgrass on the WMA, however switchgrass was expensive and not readily available so reed canary grass and Japanese millet was planted instead. These farmers were then asked to plant, mow, hay, or brush hog the remaining grassland habitats in trade. This practice continued for several decades until the local farms lost interest in these small fields of reed canary grass.

Approximately 8 acres of grassland habitat were planted to hybrid poplar trees in 1987 as part of a research project described above in the forest management section. These stands were harvested in 2009 and currently provide shrubland habitat.

In recent years, most of the fields have been mowed annually in alternating strips to provide cover for ring-necked pheasants that are stocked on the WMA each fall. Miner Institute had a cooperative agreement for the purpose of harvesting low quality hay for animal bedding from certain fields. After several years of haying and fertilizing, the grasses were reinvigorated and able to outcompete the goldenrods and other species that had taken over these fields.

IMPLEMENTATION PLAN AND ANTICIPATED SCHEDULE

- **Management planned for 2019 - 2028** (Figures 6 & 7):
    - Mow all fields in Stands 19 and 27 in late August or September (annually) in alternating strips to provide cover for stocked pheasants.
    - Mow all fields in Stand 20 in late August or September (annually) in alternating large blocks.
    - Hay Stand 25 in late August (annually) and brush hog any un-hayed sections. Monitor this stand for the presence of grassland nesting birds.
- **Management planned for 2024 - 2028** (Figures 6 & 7):
    - Hay Stand 25 with timing restrictions applied based on the bird species recorded. Annually brush hog any section of these fields where hay is not harvested.

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

[25] 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

DEC staff will conduct grassland bird surveys following standard point count protocols.

AGRICULTURAL LAND

Agricultural lands on WMAs include any acreage on which crops are grown, primarily areas that are under cooperative agreements or farming contracts, and wildlife food plots.

MANAGEMENT OBJECTIVES

- Maintain the existing 16.5 acres of agricultural agreements on the WMA.
- Increase the diversity of crops grown through the agricultural agreement.
- Provide residual forage for a suite of wildlife species.
- Monitor fields for invasive species and eradicate where feasible.

DESCRIPTION OF EXISTING AGRICULTURAL LANDS AND TARGET SPECIES

There are 16.5 acres of agricultural land at Lake Alice WMA. Of this, 5 acres are currently producing corn and/or soy beans while the remainder is hay. Target species and other species that benefit from the management of agricultural lands on Lake Alice WMA are the same as for the grassland management section above.

MANAGEMENT HISTORY

Lake Alice WMA was once part of William H. Miner's 15,000-acre Heart's Delight Farm. The grasslands and agricultural lands were used to produce a variety of crops as well as for grazing cows, horses, goats, and sheep. Crops beneficial to wildlife, such as buckwheat, clover, and alfalfa were planted by DEC for years. The Clinton County Soil and Water Conservation District maintained a small field of switchgrass for several years for the purpose of harvesting seed for conservation planting projects elsewhere. The switch-grass did not grow well and was plagued with an infestation of spotted knapweed.

Through a cooperative agreement, Miner Institute has established six long term nutrient runoff research plots on approximately six acres to accurately quantify nutrient and sediment fluxes through direct comparisons of nutrient loss as affected by different drainage water management, manure management, and/or differing crop rotations. Corn and/or soy beans are typically planted on these plots for evaluation.

IMPLEMENTATION PLAN AND ANTICIPATED SCHEDULE

- **Management planned for 2019 - 2028** (Figures 6 & 7):
    - Renew agricultural agreements with Miner Institute.

Miner Institute has been a vital partner in the management of Lake Alice WMA over the years. Our agricultural agreement allows Miner Institute the use of six acres of crop land for research and 10.5 acres for harvesting low quality hay for animal bedding. Miner Institute fertilizes these fields and leaves some residual crop standing for wildlife. Additionally, the haying and fertilizing maintains the grassland character of these fields better than brush-hogging. Haying is an activity that DEC is not equipped to do, and the fields we brush-hog are constantly plagued with woody stems and grow herbaceous vegetation other than grasses.

BEST MANAGEMENT PRACTICES

Harvest practices which result in residual forage availability will be encouraged to provide food for a suite of wildlife species. Agreements might be adjusted according to recommendations of the land manager and/or regional wildlife manager to ensure habitat value for wildlife.

MANAGEMENT EVALUATION

DEC staff will monitor conditions of the agreement and adjust the conditions if necessary. Staff will also conduct grassland bird surveys following standard point count protocols.

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

- Increase the acreage of natural and impounded wetlands found on the WMA by 2.5%.
- Provide and enhance habitat for wetland-dependent wildlife such as waterfowl, furbearers, and marsh birds by manipulating water levels in the impoundments.
- Enhance wetland habitat by creating openings in the dense cattail marsh.
- Reconnect floodplains and reestablish transition zones by removing unnecessary berms and old piles of side cast dredge spoils.
- Prevent woody vegetation from growing on the impoundment dikes.
- Maintain, repair, and replace control structures as needed for water level management.
- Monitor wetlands for invasive species and eradicate where feasible.

DESCRIPTION OF EXISTING WETLAND HABITAT AND TARGET SPECIES

There are an estimated 89.1 acres of natural (emergent and scrub/shrub) wetlands, 111.6 acres of impounded wetlands, and 264 acres of forested wetlands at Lake Alice WMA.

The wetlands provide habitat for species such as:

- Least bittern, sedge wren, pied-billed grebe
- Northern harrier, bald eagle, osprey
- American bittern, American black duck, black tern
- Snapping turtle, and other turtles, frogs, and snakes
- Moose, mink, muskrat, beaver, otter, and other furbearers
- Mallard, Canada goose, wood duck, green-winged teal, ring-necked duck
- Sora and Virginia rail

MANAGEMENT HISTORY

The impoundments at Lake Alice WMA, as well as dozens of others in the surrounding area, were constructed by William H. Miner for irrigation and hydropower purposes. Dam development at Lake Alice began in 1907. Lake Alice, named for Miner's wife, and West Pond received water from Tracy Brook and several springs and supplied water to a large water tower on the farm for irrigation and livestock watering. East Pond, the Riffle Ponds, and the Powerhouse Pond together provided the hydraulic head necessary to operate two turbines located in the powerhouse constructed adjacent to the powerhouse pond dam. These turbines stopped generating in 1910 after Miner constructed larger hydroelectric power projects nearby.[26]

It's not clear when Lake Alice was last used for water supply. Miner managed the lake as a wildlife refuge and utilized it for private recreation for several decades. There was a large boat house on the Lake when the state acquired the property in 1953.

After DEC acquisition, a large area around Lake Alice and the other impoundments on Tracy Brook remained a wildlife refuge that was closed to hunting and trapping but open to other forms of recreation such as wildlife viewing, fishing, and hiking. A portion of the dike was reconstructed almost immediately, and the pipelines connecting the impoundments to Miner Farm were removed. Approximately a dozen potholes were excavated in areas of natural wetlands and the wetter portions of the agricultural fields. Water levels in the lake and impoundments were annually manipulated to mimic the flood/dry conditions of natural wetlands according to accounts from former DEC staff that worked at Lake Alice. Unfortunately, there is no written documentation of the historical wetland/ impoundment management that was planned or accomplished, however, it must have resulted in a mix of emergent vegetation and deep open water with submerged vegetation (hemi-marsh) since black tern once favored Lake Alice as a nesting location. Regular water level management ceased after the closure of the Lake Alice maintenance center in 1993.

The lake and other impoundments remained at static water levels for several decades. Largemouth bass were stocked by DEC in 1997 in Lake Alice and later spread to all the downstream impoundments. The vegetation in and around the lake and other impoundments changed in response to the static water levels. The cattail marsh at the southern and eastern ends of the lake increased in size and formed a dense monoculture. At some point Eurasian water

[26] Dawson, J. Hydropower and its Transmission in the Lake Champlain Basin. Proceedings 1981 8th annual Lake Champlain Basin Environmental Conference, Miner Center, Chazy, NY, June 9-10, 1981.

milfoil invaded the Lake. Recent surveys show that it is now abundant throughout Lake Alice and the other Tracy Brook impoundments.[27]

In 2001, SUNY Plattsburgh proposed a project to enhance wetland habitats and improve the existing water control structures on the WMA.[28] The water control structure and spillway on Lake Alice was repaired in 2002-2003, but none of the other control structures or spillways received attention. In 2004 and 2005, some potholes and level ditches were excavated within the cattail marsh to increase the amount of cattail – open water contact. Dredging and shape reconfiguration of several potholes also took place to enhance the quality of the habitat they provide to nesting birds. Lastly, purple loosestrife plants were hand pulled from all wetland areas on the WMA.

From 2010 through 2014, stands of Phragmites located across the WMA were treated with herbicide to eradicate infestations of the invasive plant in an effort to slow its spread. These treatments were incredibly successful but require continued effort that has been difficult to maintain amongst competing priorities. Phragmites is well established on properties near Lake Alice and spot treatments will be continuously necessary on the WMA.

The process to repair and/or replace the water control structures on the other Tracy Brook impoundments began in 2006 and a Phase I Engineering Investigation was completed in 2008.[29] The draft report for the Phase II Engineering Report was received in 2011.[30] Funding for design and permitting was set aside for several years but this project has yet to be completed.

The spillways on the Riffle Ponds and the Power House Pond are also failing. The value of these ponds to wildlife needs to be evaluated and the cost to repair them weighed against the cost of a Tracy Brook stream and wetland restoration project.

West Pond was annually drawn down in May and flooded in September of 2016 - 2018 as part of a three-year moist soil management experiment. Annual plants were slow to respond initially, likely due to the length of time the pond had been permanently flooded, but eventually exceeded expectations by 2018. Smartweed, rice cut grass, and wool grass were the most abundant species present, accounting for more than 75% aerial coverage of the pond. The only invasive plant detected was purple loosestrife at 6% aerial coverage.

As mitigation for off-site impacts to federally regulated wetlands, The New York State Department of Transportation (DOT) reconfigured some of the potholes in Stands 2-27 and 2-29 in 2017-18. This project increased the amount and diversity of the wetland habitat in these Stands by removing some of the berm material separating the potholes, and reshaping and re-grading the potholes. Connectivity of the potholes and Tracy Brook was also improved. The

[27] Langdon, S. and R. Schultz. 2015. Lower Lake Alice wetland characteristics: baseline data on an impoundment in the Lake Alice Wildlife Management Area prior to a drawdown. Unpublished report. 42 pages.
[28] Wu, M. 2006. Wildlife habitat enhancement at Lake Alice Wildlife Management Area. Project Final Report. SUNY Plattsburgh. 25pp.
[29] O'Brien and Gere Engineers, Inc. 2009. Final Report, Inspection of Lake Alice Dam and Tracy Brook dams nos. 1-5, Lake Alice Wildlife Management Area. Project no. S4007-01.
[30] O'Brien and Gere Engineers, Inc. 2011. Phase II Investigation Report, Lake Alice Dam, Tracy Brook Dam Nos. 1 & 2 and other structures, Lake Alice Wildlife Management Area. Project no. S4007-01.

mono-culture of reed canary grass was removed and the reconfigured wetlands and adjacent upland were planted with herbaceous, shrub, and tree species beneficial to wetland wildlife.

IMPLEMENTATION PLAN AND ANTICIPATED SCHEDULE

- **Management planned for 2019-2023** (Figures 6 & 7):
  - Drawdown East Pond, if spillway condition allows.
  - Remove sidecast fill and berms from around potholes.
  - Enhance pothole wetland habitat with plantings.
  - Spot treat outbreaks of Phragmites.
- **Management planned for 2024-2028** (Figures 6 & 7):
  - Drawdown Lake Alice
  - Repair Lake Alice spillway and water control structures.
  - Repair/replace West Pond spillway and water control structures.
  - Repair/replace East Pond spillway and water control structures.
  - Spot treat outbreaks of Phragmites.
  - Evaluate potential for construction of green tree reservoir in Stands 2-16, 2-15 and 2-8.

BEST MANAGEMENT PRACTICES

Water level drawdowns are necessary for vegetation management in marsh areas. Drawdowns help control vegetation and maintain an interspersion of marsh vegetation and open water needed by many marsh species and waterfowl. Drawdowns during the marsh bird nesting season will be avoided when possible, but drawdowns during this season will periodically be needed to provide effective vegetative control. Fluctuating water levels will be minimized to the extent possible, given the limitations of water fluctuation control, especially during drawdowns.

West Pond spillway in deteriorated condition.

Photo: John O'Connor, NYSDEC

Date restrictions for water level management or equipment in wetlands will be followed to protect species such as pied-billed grebes (May 1st – July 31st). Finally, mechanical access to the shallow emergent marshes will be restricted or prohibited to protect least bitterns.

MANAGEMENT EVALUATION

Annual marsh bird surveys are conducted on the area in May and June to monitor species such as American and least bittern, pied-billed grebe, sedge wren, swamp sparrow, marsh wren, sora, and Virginia rail. Surveys for black terns are also conducted every three years as part of the Black Tern Statewide Survey. Reptile and amphibian surveys need to be conducted in and around the pothole wetland habitats. Invasive species will be monitored and controlled where possible.

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., Lake Alice).

West Pond at Lake Alice WMA, a full pool on the left and drawndown on the right with exposed mudflats prior to annual plant growth

Photo: Connor Cincotta, NYS DEC

Lake Alice WMA has several named waterbodies: Lake Alice (81 acres), West Pond (10 acres), East Pond (9 acres), Riffle Ponds 1, 2, & 3 (1.4 acres), and Power House Pond (0.5 acres). These are all impoundments on Tracy Brook (Class D). Since these waterbodies are man-made impoundments and consist of very shallow open water habitat, their management is covered in the Wetlands Section above.

HABITAT MANAGEMENT SUMMARY

In summary, Table 7 lists the habitat management actions planned for Lake Alice 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 Lake Alice WMA, 2019-2028. (Also see Figures 3 and 6.)

Habitat	Management Action	Acres	Timeframe
Forest	Clearcut harvest of Stands 1-11, 1-14 1-15, 1-17, 1-20, and 1-23	131.3	2019-2023
Forest	Thinning harvest of Stand 1-21	36.9	2019-2023
Forest	Clearcut harvest of Stands 1-36, 2-6, and 2-11	49	2024-2028
Forest	Seed tree harvest of Stands 2-7 and 2-9	15.5	2024-2028
Forest	Shelterwood harvest of Stand 2-39	22	2024-2028
Forest	Control invasive species as needed		2019-2028
Forest	Release apple trees		2019-2028
Shrubland	Burn or Hydro-axe Stand 1-19	6	2019-2028
Shrubland	Cut strips through Stands 2-30 and 2-19	8	2019-2028
Shrubland	Plant / thin speckled alder in Stand 2-17	2.8	2019-2028
Shrubland	Promote dominance of native shrub species by controlling invasive shrub species		2019-2028
Shrubland	Create additional shrubland patches	67.5	2019-2028
Grassland	Maintain grasslands by mowing and haying	43	Annually
Grassland	Improve grassland quality (control invasives, lime, fertilize, disk, reseed)	43	As needed 2019-2028

Table 7 continued			
Grassland	Create additional grassland openings	33	2019-2028
Agricultural Lands	Renew agricultural agreement	16.5	2019-2028
Wetlands / Open Water	Increase and enhance wetland and open water habitat	200.7	2019-2028
Wetlands / Open Water	Maintain impoundments, dikes, spillways, and water control structures	111.6	2019-2028
Wetlands / Open Water	Monitor and control invasive species	200.7	2019-2028
Wetlands / Open Water	Manipulate water levels in impoundments	111.6	2019-2028

III. FIGURES

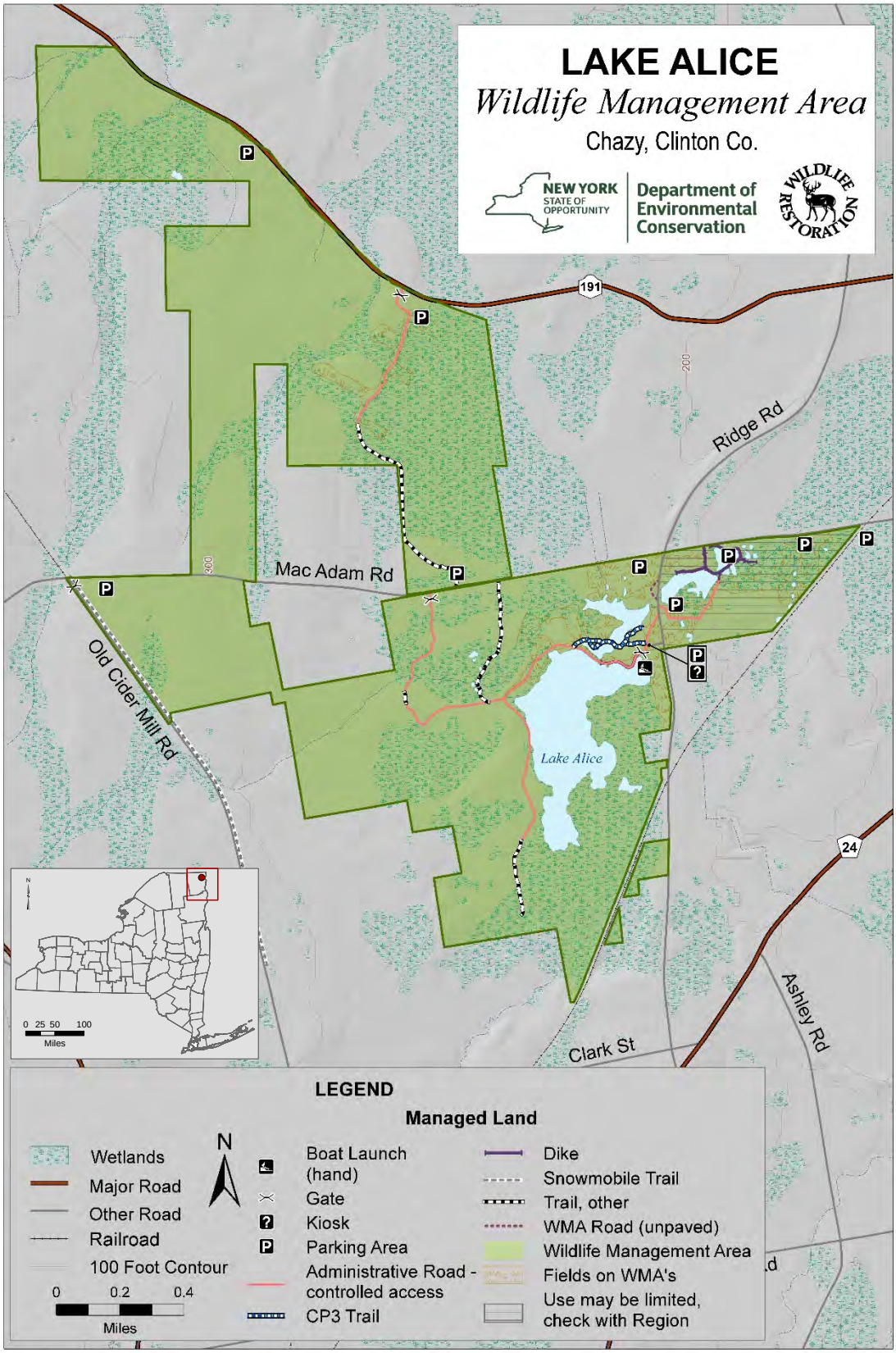


FIGURE 1. Location and access features at Lake Alice WMA.

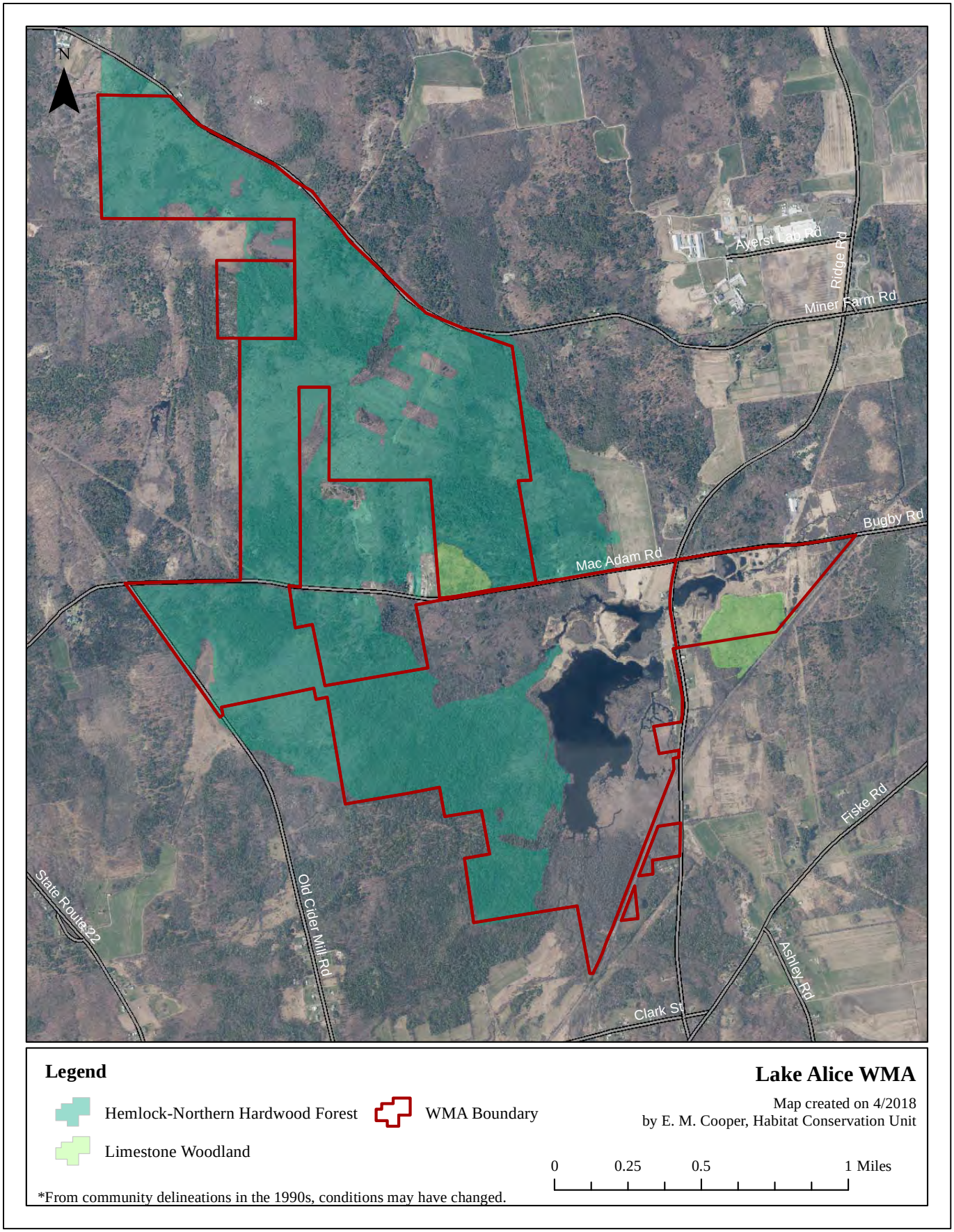


FIGURE 2. Significant ecological communities on Lake Alice WMA. Data from the NY Natural Heritage Program.

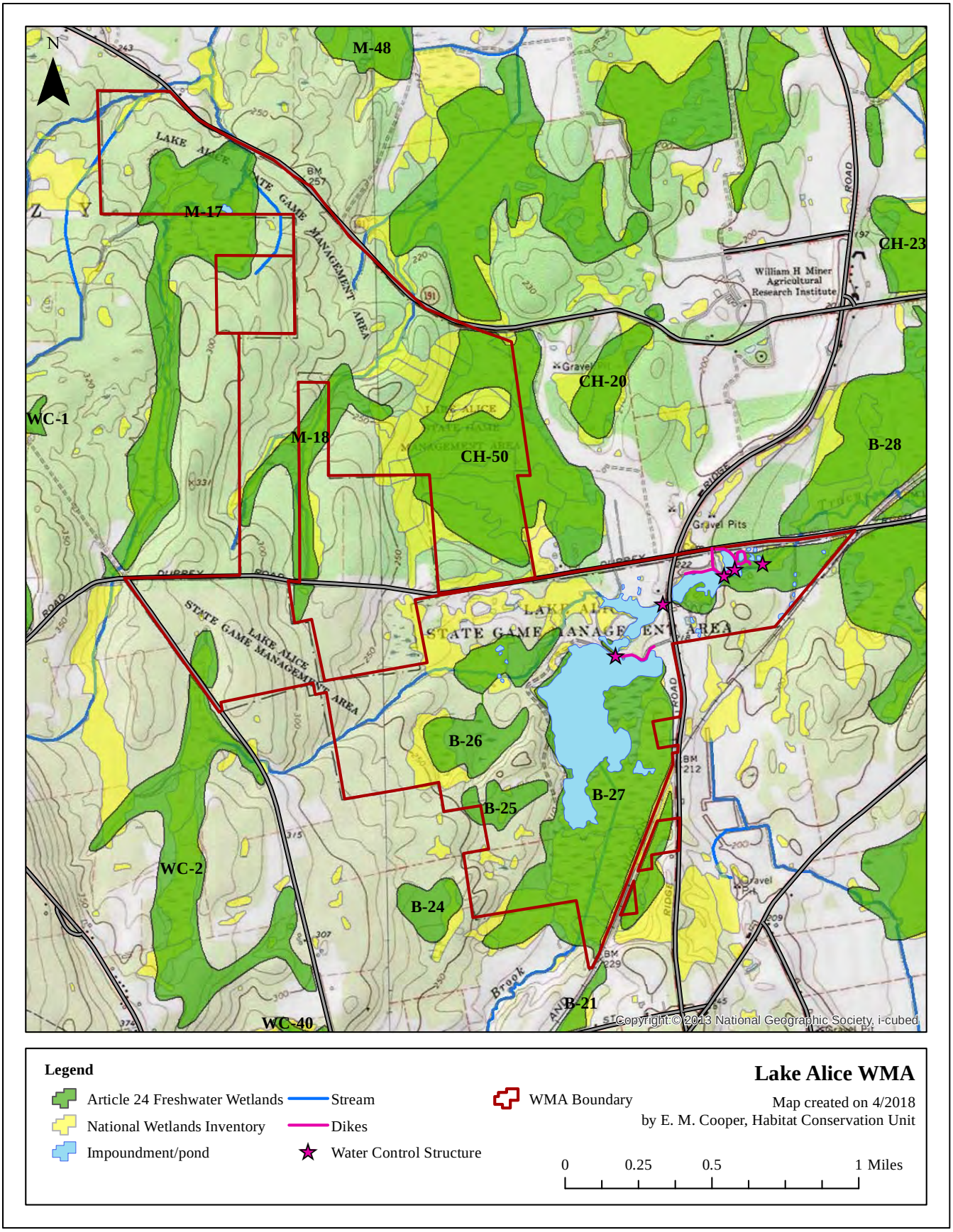


FIGURE 3. Wetlands, open water, and streams of Lake Alice WMA. Note: Wetland boundaries are not exact and may not be used for regulatory purposes without a current delineation.

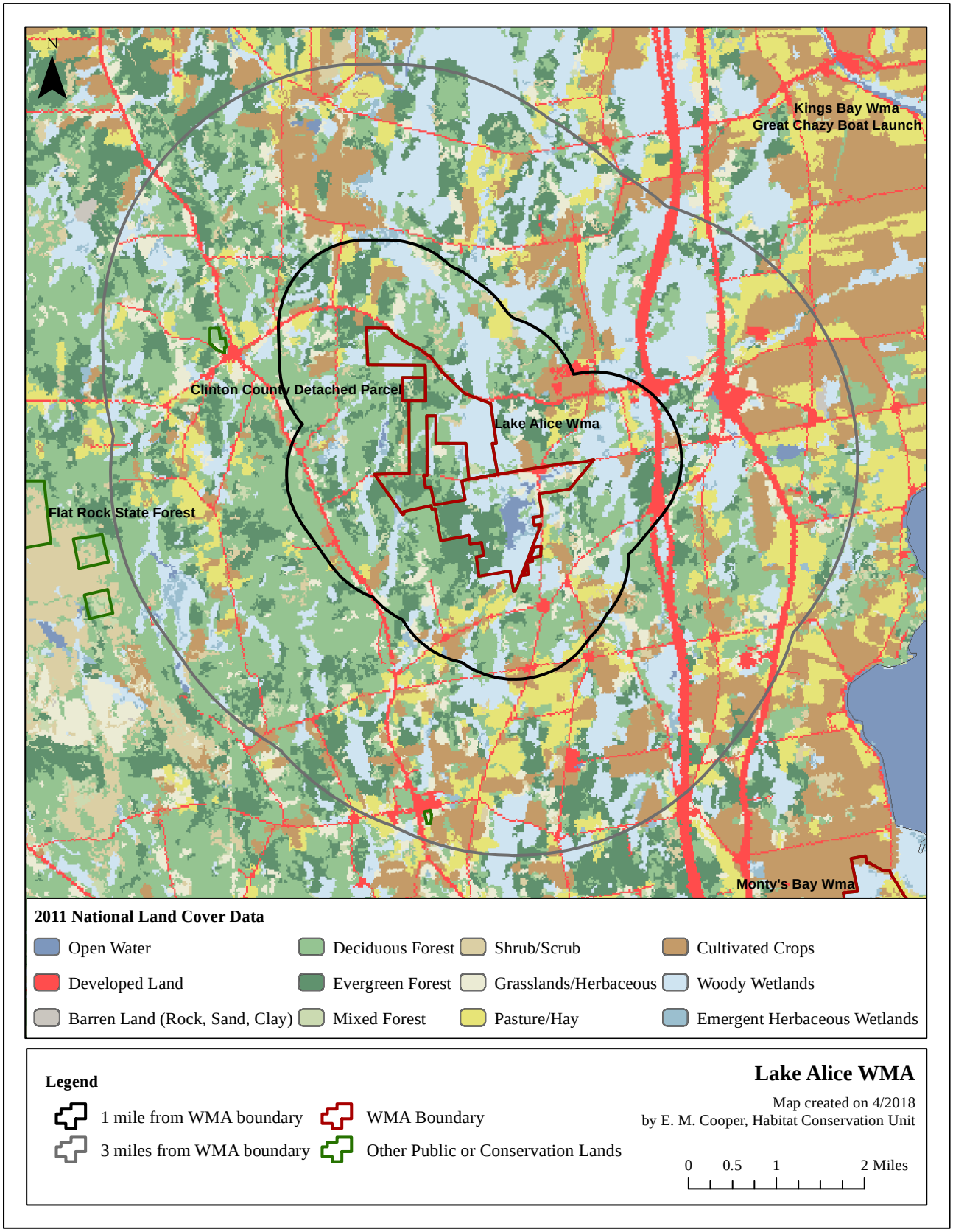


FIGURE 4. Land cover types and conservation lands in the landscape surrounding Lake Alice WMA. Conservation lands are from the NY Protected Areas Database available online at http://www.nypad.org/. Land cover types are from the 2011 National Land Cover Data (NLCD) and differ from the habitat types used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

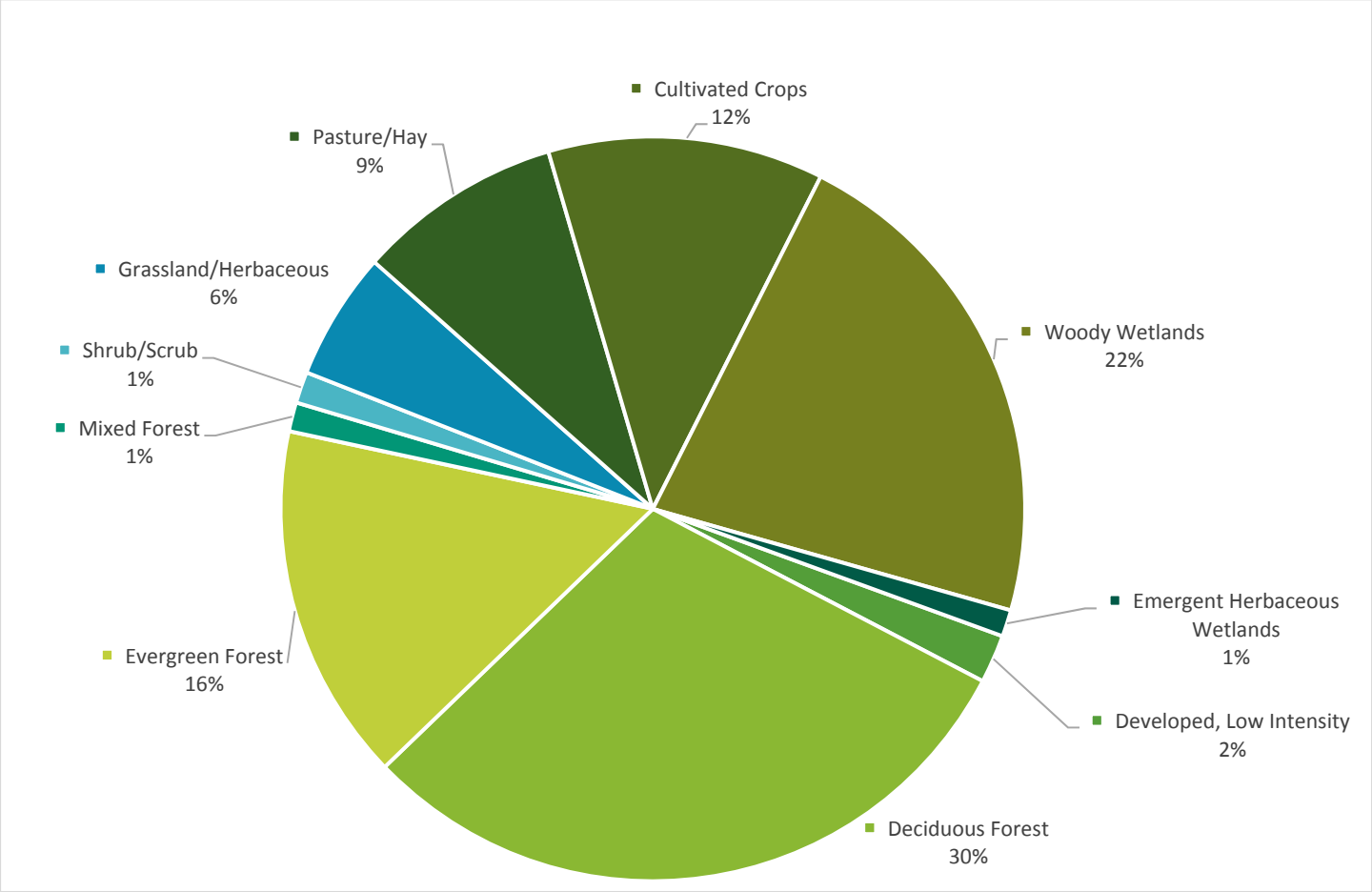


FIGURE 5. Percent cover of land cover types within three miles of Lake Alice WMA.

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.

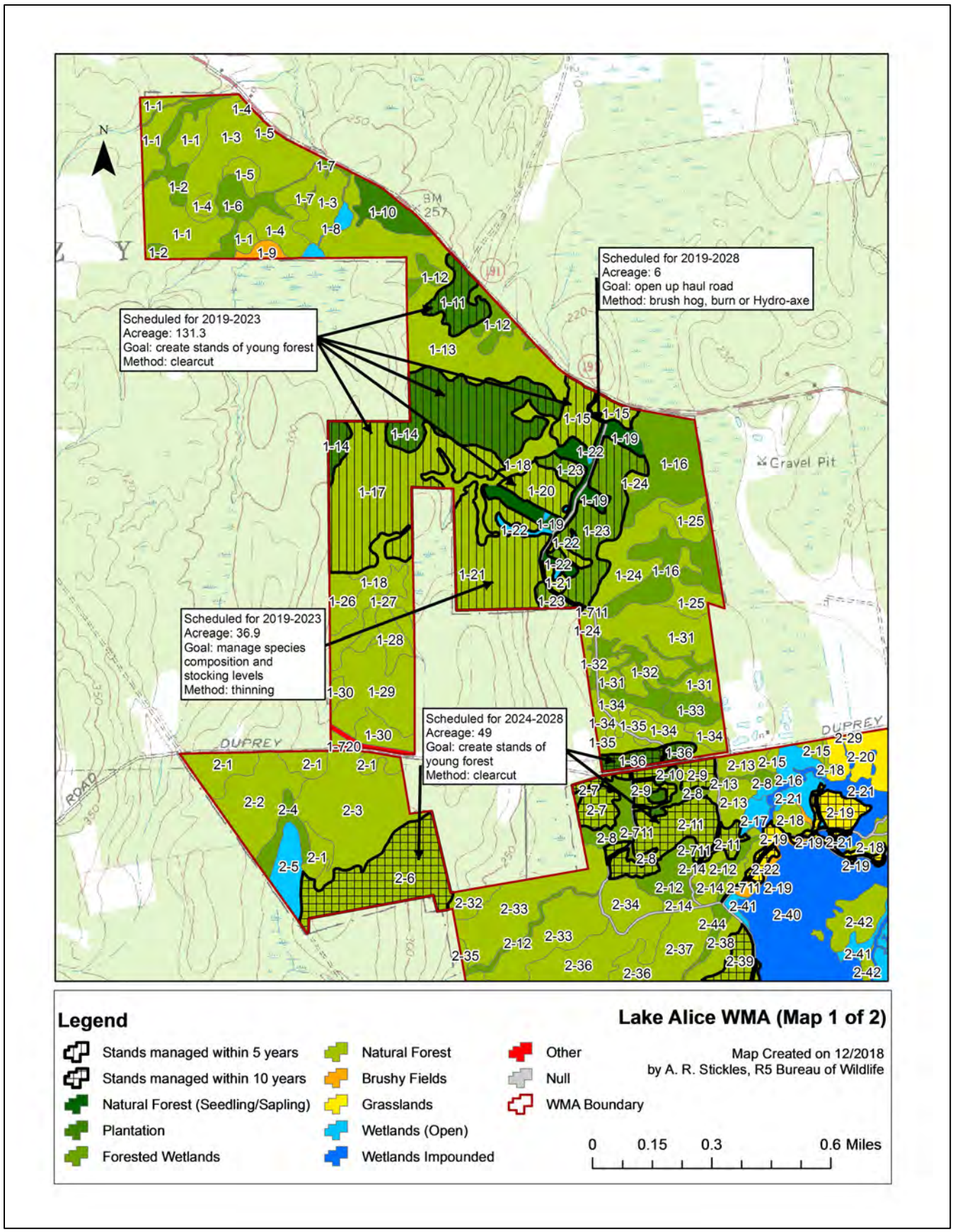


FIGURE 6. Habitat types and locations of proposed management on Lake Alice WMA (map 1 of 2). Numbers indicate the stand number from habitat inventory.

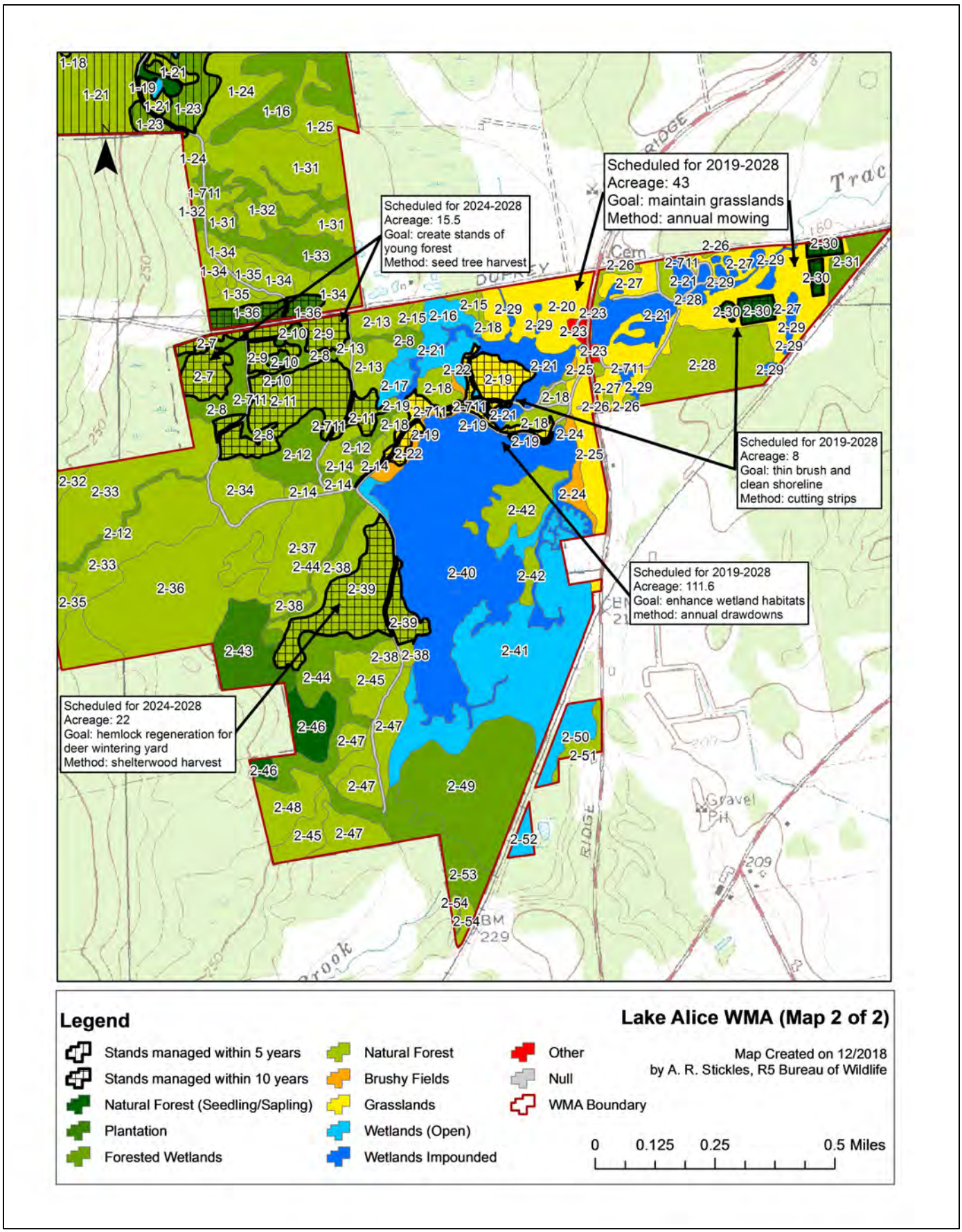


Figure 7. Habitat Types and Locations of proposed management on Lake Alice WMA (map 2 of 2). Numbers indicate the stand number from habitat inventory.

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).[31] 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).[32]

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.

[31] Available online at http://www.dec.ny.gov/regulations/28693.html.
[32] 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.