Habitat Management Plan
for
Perch River Wildlife Management Area
2021 – 2030

Upper Pool at Perch River WMA.

Photo: NYSDEC

Division of Fish and Wildlife
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SUMMARY

Perch River Wildlife Management Area (WMA), previously referred to as a Game Management Area, was acquired in 1948 through purchases and easements made by New York State. Several parcels have been added to the WMA since the initial purchase. Perch River WMA now contains nearly 8,000 acres with an additional 452 acres of flooding easement. The area is comprised of a series of wetland pools surrounded by grassland, shrubland, and forest habitat and was designated as a Bird Conservation Area (BCA)[1] due to its diverse habitat types and bird species. Perch River WMA is also part of Audubon's Important Bird Area known as the Perch River Complex and it lies within the St. Lawrence River Valley Grassland Bird Focal Area. The array of habitat types on the WMA support numerous game and non-game wildlife species including several that are threatened and endangered.

Historically, the land surrounding Perch River WMA was quality agricultural land with many small streams (Carter Creek, Stone Mills Creek, Miller Creek, Hyde Creek, and Parrish Creek) that fed Perch River. During the early 1900s, hay cut on the river flats was shipped to downstate markets. To prevent flooding of those haying areas and to serve as a roadway across the marshes, a dike was built by hand across the flats about two miles below Perch Lake outlet. The land use patterns today continue to be mostly agricultural and most of the grassland areas on Perch River WMA are managed by agricultural co-operative agreements with local hay farmers. Restrictions are placed on the timing of mowing to protect the grassland bird species that occupy the fields.

There is evidence of Native American use of the area; the "Perch Lake Mounds" were first mentioned in historic literature as early as 1850. Several archeological studies have been conducted along Perch Lake. Recent investigations and work including the stabilization of the mounds were conducted by the Thousand Island Chapter of the NYS Archaeological Association beginning in 1995 (Abel et al. 2001; NYSM A2000.29)[2].

Perch River WMA contains three main wetland pools which account for over 50% of the WMA acreage. These pools (Upper, Lower, and Stone Mills) are managed primarily for waterfowl production and migration, breeding threatened/endangered bird species, and hunter access. The NYS Department of Environmental Conservation (DEC), then known as the Conservation Department, initiated the major marsh development by constructing the Upper Pool dam/dike in 1952 and completed it in 1955. The construction of the dam in the Lower Pool was initiated in 1965 and the Stone Mills Pool dam in 1975. Recent wetland enhancement projects are described in the wetland section below.

Today, Perch River WMA is a popular location for waterfowl hunting, upland game hunting, bird watching, and furbearer trapping. White-tailed deer, Wild Turkey, American Woodcock, and a variety of waterfowl, are found on the area along with Ring-necked Pheasants that are stocked within the grassland portions of the area. Marsh birds, grassland birds, and songbirds,

[1] Perch River BCA was designated in 2001. More information can be found at https://www.dec.ny.gov/outdoor/46441.html#Wildlife.

[2] Abel et al. 2001 and NYSM A2000.29 Are files located in an archive at NYSDEC Region 6 Headquarters Office.

including several rare species, may also be found on the WMA, making the area a popular site for bird watchers. Perch River WMA provides a healthy population of furbearers such as muskrat, river otter, and beaver for trappers to pursue.

There are three distinct management zones with corresponding degrees of public use within Perch River WMA. The "wildlife refuge" zone, where unauthorized trespassing is not allowed, and the "wetlands restricted" zone, where access (controlled hunting and trapping) is allowed by permit, are governed by special use regulation, 6NYCRR Part 54 (Public Use of Perch River, Wilson Hill, and Upper & Lower Lakes WMA's) [3]. The third zone, designated as "State Land - Wildlife management Area" is open to the public without a permit and is governed by WMA regulations, 6NYCRR Part 51 (Public Use of State WMA's)[4]. Currently 6NYCRR Part 51 is being amended. Three types of signs may be encountered when on the WMA as shown below.

Wetland and grassland management are the primary focus landscapes on Perch River WMA. Due to the limited forest habitat and the abundance of invasive shrubs, young forest management will focus on controlling invasive species in the existing forest and shrubland habitat to improve the habitat for wildlife and wildlife-dependent recreation. The key habitat management goals for the WMA include:

- Maintaining approximately 55% as wetlands and open water, to provide prime breeding and migratory stopover habitat for waterfowl and marsh birds,
- Maintaining approximately 18% as intermediate and mature forest (10 to >100 years),
- Managing approximately 12% as early successional shrublands,
- Managing approximately 12% as grasslands, and
- Managing 4% of the WMA as young forest to provide habitat for a suite of species including Golden-winged Warbler, American Woodcock, and Eastern Whip-poor-will.

I. Background and Introduction

Purpose of Habitat Management Plans

[3] 6NYCRR Part 54 Regulations, https://govt.westlaw.com/nycrr

[4] 6NYCRR Part 51 Regulations, https://govt.westlaw.com/nycrr

BACKGROUND

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

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

SCOPE AND INTENT

Primary purposes of this document:

- Provide the overall context of the habitat on the WMA and identify the target species for management;
- Identify habitat goals for WMA-specific target species, contemplating juxtaposition of all habitat types to guide the conservation and management of sensitive or unique species or ecological communities;
- Identify acreage-specific habitat goals for the WMA to guide management actions;
- Provide specific habitat management prescriptions that incorporate accepted best management practices;
- 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 habitat adaptability and resilience under projected future conditions will be considered during the habitat management planning process and will be considered in any actions that are recommended in HMPs. Changing conditions that may affect habitat composition include warmer temperatures, milder winters, longer growing seasons, increased pressure from invasive species, more frequent intense storms, and moisture stress. It is also important to consider landscape level effects to maintain the connectedness of habitats to allow range adjustments of both plant and wildlife species.

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

WMA Overview

Location

Perch River WMA is located in DEC Region 6, Towns of Brownville, Orleans, and Pamelia, Jefferson County (Figure 1).

Total Area

7,932 acres with an additional 452 acres of flooding easement.

Habitat Inventory

A habitat inventory of the WMA was conducted between 2011 and 2014. Table 1 summarizes the current acreage by habitat type and the desired acreage after management. Desired conditions were determined with consideration of habitat requirements of targeted wildlife, current conditions on the WMA, and conditions in the surrounding landscape (see Landscape Context section below).

Table 1. Summary of current and desired habitat acreage on Perch River WMA.

Habitat Type	Current Conditions (as of 2014)			Desired Conditions	
	Acres	Percent of WMA	Miles	Acres	Percent of WMA
Forest [a]	1,529	19%		1,402	Decrease to 18%
Young forest	7	<1%		134	Increase to 2%[c]
Shrubland	1,103	14%		987[c]	Decrease to 12%
Grassland	801	10%		917	Increase to 12%
Agricultural land	0	0%		0	No change
Wetland (natural) [b]	171	2%		171	No change
Wetland (impounded) [b]	3,037	38%		3,037	No change
Open water	1,226	15%		1,226	No change
Other (building/mowed dikes)	21	<1%		21	No change
Roads	37	<1%		37	No change
Rivers and streams			14		No change
Total Acres:	7,932	100%		7,932	

[a] Forest acreage includes all mature and intermediate age classes of natural forest, plantations, and forested wetlands. Young forest is reported separately. Definitions are provided in the Forest section of this plan.
[b] Wetland acreage does not include forested wetlands, since they are included in the Forest category.
[c] 144 acres of shrubland is included in the Young Forest goal of 278 acres, which would increase young forest to nearly 4% of the WMA.

ECOLOGICAL RESOURCES

Wildlife Overview:

Wildlife present on Perch River WMA includes many species commonly found throughout northern New York and eastern Lake Ontario lake plains, such as:

- Beaver, muskrat, mink, river otter
- Red-winged Blackbird, Eastern Meadowlark, Bobolink, Brown Thrasher, Scarlet Tanager, Willow Flycatcher, Pileated Woodpecker, Red-bellied Woodpecker, Wood Thrush, various waterfowl species
- Eastern coyote, white-tailed deer, Wild Turkey, gray fox, red fox
- Painted turtle, snapping turtle, wood turtle
- Bullfrog, northern leopard frog, green frog, American toad, spring peeper, wood frog
- Garter snake, northern water snake, DeKay's brown snake, red-bellied snake, eastern milk snake
- Red-backed salamander, blue spotted/Jefferson's complex salamander

Wildlife and Plant Species of Conservation Concern:

The following federal or state listed Endangered (E), Threatened (T), or Special Concern (SC) species and/or Species of Greatest Conservation Need (SGCN) may occur on the WMA (Table 2).[5] SGCN listed below include species that have been documented on or within the vicinity of the WMA and 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,[6] NY Reptile and Amphibian Atlas,[7] DEC wildlife surveys and monitoring, and eBird.[8]

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

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

Species Group	Species	Federal Status	NY Status	NY SGCN
Birds	American Bittern			x
	American Black Duck			HP
	American Kestrel			x
	American Woodcock			x
	Bald Eagle		T	x
	Black Rail			HP
	Black Tern		E	HP
	Black-bellied Plover			x
	Black-billed Cuckoo			x
	Black-crowned Night-heron			x
	Black-throated Blue Warbler			x
	Blue-winged Teal			x
	Blue-winged Warbler			x
	Bobolink			HP
	Brown Thrasher			HP
	Canada Warbler			HP
	Caspian Tern			x
	Common Goldeneye			x
	Common Loon			x
	Common Nighthawk			HP
	Common Tern		T	x
	Cooper's Hawk		SC	
	Eastern Meadowlark			HP
	Golden-winged Warbler			HP
	Grasshopper Sparrow			HP
	Great Egret			x
	Greater Scaup			x
	Greater Yellowlegs			x
	Henslow's Sparrow		T	HP
	Horned Lark			HP
	Least Bittern		T	x
	Lesser Scaup			x
	Northern Goshawk			x
	Northern Harrier		T	x
	Northern Pintail			x
	Osprey		SC	
	Peregrine Falcon		E	x
	Pied-billed Grebe		T	x
	Red-headed Woodpecker			HP
	Red-shouldered Hawk			x
	Ruddy Duck			x
	Ruffed Grouse			x
	Rusty Blackbird			HP

Table 2 cont.				
Species Group	**Species**	**Federal Status**	**NY Status**	**NY SGCN**
Birds	Scarlet Tanager			x
	Sedge Wren		T	HP
	Semipalmated Sandpiper			HP
	Sharp-shinned Hawk		SC	
	Short-billed Dowitcher			HP
	Short-eared Owl		E	HP
	Upland Sandpiper		T	HP
	Vesper Sparrow			HP
	Wood Thrush			x
Mammals	Indiana myotis	E	E	HP
	Little brown myotis (little brown bat)			HP
	Northern myotis (long-eared bat)	T	T	HP
Amphibians and reptiles	Blanding's turtle		T	HP
	Blue-spotted salamander			HP
	Smooth greensnake			x
	Spotted turtle		SC	HP
	Snapping turtle			x
	Western chorus frog			x
	Wood turtle			HP
Fish	Bridle shiner			x
Invertebrates	Ebony boghaunter			
	Karner blue butterfly	E	E	HP
Plants	Dragon's mouth orchid		T	
	Rock elm (cork elm)		T	
	Northern bog aster		T	
	Glomerate sedge		T	

Significant Ecological Communities:

There are several rare and/or significant natural communities located on Perch River WMA as identified by the NY Natural Heritage Program (Figure 2). The state rank reflects the rarity within NY, ranging from S1, considered the rarest, to S5, considered stable; definitions are provided in Appendix A. The following noteworthy ecological communities occur on the WMA; additional information about significant ecological communities is available in *Ecological Communities of New York State, Second Edition* [9] and in the Perch River WMA Biodiversity Inventory Final Report (1996) prepared by the NY Natural Heritage Program.

[9] 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 https://www.nynhp.org/ecological-communities/.

- **Shrub swamp (S5)** - a mostly inland wetland dominated by tall shrubs that occurs along the shore of a lake or river, in a wet depression or valley not associated with lakes, or as a transition zone between a marsh, fen, or bog and a swamp or upland community. The substrate is usually mineral soil or muck. A few examples may have a shallow layer of sphagnous peat. This is a very broadly defined type that includes several distinct communities and many intermediates. Shrub swamps are very common and quite variable. They may be co-dominated by a mixture of species or have a single dominant shrub species.
- **Dwarf shrub bog (S3)** - an ombrotrophic or weakly minerotrophic peatland dominated by low-growing, evergreen, ericaceous shrubs and peat mosses (Sphagnum spp.). The surface of the peatland is typically a mosaic of hummock/hollow microtopography. The hummocks tend to have a higher abundance of shrubs than the hollows; these bogs have more than 50% cover of low-growing shrubs. Water is usually nutrient-poor and acidic.
- **Winter-stratified monomictic lake (S2)** - the aquatic community of a large, shallow lake that has only one period of mixing each year because it is very shallow in relation to its size (e.g.,Oneida Lake), with a mean depth less than 6 m (20 ft), and surface area of approx. 200 km^2 (80 mi^2), and is completely exposed to winds. These lakes continue to circulate throughout the summer; stratification becomes disrupted at some point during an average summer. These lakes typically never become thermally stratified in the summer, but they freeze over and become inversely stratified in the winter (coldest water at the surface). They are eutrophic to mesotrophic lakes.
- **Medium fen (S2S3)** - a moderately minerotrophic peatland (intermediate between rich fens and poor fens) in which the substrate is a mixed peat composed of graminoids, mosses, and woody species. Medium fens are fed by waters that are moderately mineralized, with pH values generally ranging from 4.5 to 6.5. Medium fens often occur as a narrow transition zone between an aquatic community and either a swamp or an upland community along the edges of streams and lakes.
- **Red maple-Tamarack peat swamp (S2S3)** - a mixed swamp that occurs on organic soils (peat or muck) in poorly drained depressions. These swamps are often spring fed or enriched by seepage of minerotrophic groundwater resulting in a stable water table and continually saturated soil. Soils are often rich in calcium.
- **Rich shrub fen (S1S2)** - a strongly minerotrophic peatland in which the substrate is a woody peat, which may or may not be underlain by marl or limestone bedrock. Rich fens are fed by waters that have high concentrations of minerals and high pH values, generally from 6.0 to 7.8.
- **Black spruce-Tamarack bog (S3)** - a conifer forest or woodland that occurs on acidic peatlands in cool, poorly drained depressions.
- **Red maple-Hardwood Swamp (S4S5)** - a hardwood swamp that occurs in poorly drained depressions or basins, usually on inorganic soil, but occasionally on muck or shallow peat, that is typically acidic to circumneutral. This is a broadly defined community with several regional and edaphic variants. The hydrology varies from permanently saturated to the surface to seasonally flooded/wet with hummocks and hollows.

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 Perch River WMA include:

- One wetland regulated by Article 24 of the Environmental Conservation Law and several additional wetlands shown on the National Wetlands Inventory (NWI; Figure 3). The state-regulated wetland is protected by a buffer zone of 100 feet from the field-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.
- Many 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 C therefore streams are regulated by Article 15 of the Environmental Conservation Law (navigable waters), and water quality standards will be adhered to. [10] These smaller streams meander through the large wetland complex and into the Perch River which eventually flows into Lake Ontario in Black River Bay.
- Perch Lake and the adjacent uplands. The lake and the surrounding area are designated as a wildlife refuge, providing important habitat for several wildlife species. In addition to the ecological importance of the lake, there are historical features in the uplands bordering the lake which should be protected during any management activities in this area (Figures 6 - 10).

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*.[11] 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.

Soils:

The topography of Perch River WMA consists of flat, open wetlands and sloped uplands with occasional rocky outcrops. Specific soil groups on the WMA include Kingsbury silty clay, Covington silty clay, Galoo-Rock outcrop complex, Vergennes silty clay loam, Farmington loam, Wilpoint silty clay loam, Chaumont silty clay, and very rocky Benson-Galoo complex.[12] Slopes typically range from 0 to 8%. The soils across much of the WMA are poorly drained and do not provide ideal conditions for farming or tree growth but are suitable for habitat for wetland dependent wildlife. The uplands are a mix of loamy soils, which are suitable for vegetation growth, and shallow, rocky soils, which limit vegetation growth and create a nearly barrens-like habitat.

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

LANDSCAPE CONTEXT

The goals of this HMP have been developed with consideration of surrounding landscape features and the availability of habitats and other conservation lands adjacent to Perch River WMA (Figure 4). The landscape within a three-mile radius of the WMA is mostly privately-owned land consisting of:

- Pasture/hay and grassland (55%)
- Deciduous forest (17%)
- Wetlands (15% combining emergent and woody wetlands)
- Cultivated crops (4%)
- Development (4%)
- Early successional shrubland (1%)
- Evergreen forest (2%)
- Open water (1%)

Nearby conservation lands include:

- Dexter Marsh WMA (1,241 acres) six miles to the southwest
- Ashland Flats WMA (2,028 acres) nine miles to the west
- French Creek WMA (2,277 acres) nine miles to the northwest
- Indian River WMA (948 acres) ten miles to the northeast
- Coyote Flats State Forest (560 acres) two miles to the north east
- Chaumont Barrens -The Nature Conservancy (1,993 acres) seven miles to the west

Perch River WMA is located in an agricultural area, with little contiguous forested habitat (approximately 19% combined forest cover in the surrounding landscape - NLCD 2016, Figures 4 and 5). Grassland habitat and wetland habitat are abundant on the WMA and in the surrounding area.

In 2015, DEC launched the Young Forest Initiative (YFI) to increase the amount of young forest on WMAs to benefit wildlife that require this transitional, disturbance-dependent habitat. Less than 20% of Perch River WMA is forested, and much of the existing forest is either forested wetland or contains sparse trees and abundant invasive shrubs; little quality forest exists on the WMA or in the surrounding landscape. However, shrublands are abundant on the WMA and can provide some of the same benefits to wildlife as young forest habitat. Much of the shrubland habitat is also poor quality due to an over-abundance of invasive shrubs. To retain the little existing quality forest and to improve the existing shrubland habitat, both shrublands and forest will be managed to achieve the young forest goal. The management described in this plan will provide enough young forest habitat to meet DFW's YFI goal of managing at least 10% of the forested landscape on most WMAs as young forest.[13] The young forest goal will be achieved through improving existing forest and restoring shrublands dominated by invasive honeysuckle and buckthorn. This will benefit wildlife and provide increased recreational opportunities.

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

II. MANAGEMENT STRATEGIES BY HABITAT TYPE

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

- Maintain habitat characteristics that will benefit wildlife abundance and diversity within the New York State 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 acres, including hardwoods and softwoods. Includes any upland forested acreage that is not young forest, i.e., pole stands, other intermediate forest age classes, mature forest, and old growth forest.
Plantation: planted forested acres, generally planted in rows dominated by one or two species.
Forested wetland: wetland acres where forest or shrub vegetation accounts for greater than 50% of hydrophytic vegetative cover and the soil or substrate is periodically saturated or covered with water.
Young forest: young or regenerating forested acres, which are typically aged 0-10 years since a disturbance or regeneration cut, depending upon the site conditions. May include both natural forest and plantations.
Young forest (forested wetland): young, regenerating forested wetland acres.

Forest management on Perch River WMA incorporates an approach to create and/or maintain the diversity of forest age classes that are required to support a diversity of wildlife. Forest management on this WMA will focus on reducing invasive species and improving the health, structure, and species diversity of the forest habitat.

MANAGEMENT OBJECTIVES

- Soften the transitions between grasslands and mature forest while treating other stands (i.e., create feathered edges), for species like American Woodcock and Eastern Whip-poor-will.
- Retain the existing forested wetland to protect water and soil quality and to provide habitat for forest-dependent wildlife.
- Increase young forest habitat from 7 acres to 134 acres (9% of the total forested area) and control invasive shrubs on 144 acres of shrublands to improve habitat for young forest-

dependent wildlife, specifically focusing on American Woodcock, Golden-winged Warbler, and Whip-poor-will.
- Improve forest health by implementing timber stand improvement (TSI) measures, such as clearing invasive species and removing cull trees, on 32 acres.
- Retain the small quantity of quality forest that currently exists on the WMA and focus on improving or restoring the poor-quality forest and shrublands.

DESCRIPTION OF EXISTING FOREST HABITAT AND TARGET SPECIES

Perch River WMA contains 1,536 acres of forested habitat, nearly half of which is forested wetlands dominated by red and silver maple and wetland shrubs. There are a few pine and spruce plantations scattered across the WMA, often mixed with hardwoods and invasive shrubs. Many of the upland forest stands are predominately shrublands, with a sparse mix of hardwood trees such as elm, ash, maple, and oak, and a thick understory of invasive honeysuckle and buckthorn. While limited, there are pockets of quality upland hardwoods that include a mix of oak, hickory, maple, ash, basswood, butternut, and walnut, with an open understory containing sapling-size maple and ironwood. These pockets will be favored for retention, with the planned management focusing on improving and restoring the poor-quality forests where invasive shrubs dominate the understory and little desirable regeneration is able to grow under the current conditions. Table 3 provides a summary of the forested areas, including the most common species found in each.

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

Forest Type	Acres (as of 2014)	Desired Acres	Overstory species
Natural forest (mature/intermediate)	723	636	Ash, maple, hickory, oak, elm, and basswood
Plantation	59	19	White spruce, white pine
Forested wetland	747	747	Ash, elm, willow, red maple, silver maple
Young forest	7	134	White ash, white spruce, and thick brush (honeysuckle and buckthorn)
Young forest (forested wetland)	0	0	-
Total Forested Acres:	1,536	1,536	

The planned management will benefit American Woodcock, Eastern Whip-poor-will, Golden-winged Warbler, and other Species of Greatest Conservation Need. These species rely on forest and young forest areas for nesting, foraging, and cover and will benefit from management that creates the following habitat requirements:

- **American Woodcock:**
  - Singing/Peenting Ground – Open areas from 1 acre 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) or blueberry fields and reverting farm fields. [14]

- **Eastern Whip-poor-will:**
  - General – Large home ranges with both forested and open areas in close proximity. Suitable sites provide this landscape configuration and are typically near known, occupied areas especially within Focus 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 clutch of 2 eggs 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 100 meters 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. [15, 16]
- **Golden-winged Warbler:**
  - Singing ground – Open patches from 5 to 25 acres, usually in a patch with maple, oak, or hickory trees to perch on in the opening.
  - Nesting – Fields or patches from 5 to 25 acres that are heavily vegetated with herbaceous cover with a moderate density of shrubs near a mature forest edge.
  - Brood rearing – Similar to nesting except also including clumps of younger trees.
  - Foraging – Open areas with herbaceous vegetation that support insects and spiders.[17] Males use mature forest during the breeding season.[18]
  - Post-fledging – Mature forest. [19]

MANAGEMENT HISTORY

Since acquiring the property, DEC has planted several patches of softwoods across the WMA. From 1960 to 1978, approximately 75 acres were planted with red pine, Scotch pine, and white spruce. These plantings ranged in size from 2 acres to nearly 25 acres. Due to various factors, some of these plantations did not survive and are now a mix of hardwoods and shrubs. In 1992

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[15] Hunt, P. 2014. Best Management Practices for the Eastern Whip-poor-will in New Hampshire. New Hampshire Audubon, Concord, NH. 13 pp.
[16] 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.
[17] Golden-winged Warbler Working Group. 2013. Best Management Practices for Golden-winged Warbler Habitats in the Great Lakes Region. Available online at https://gwwa.org.
[18] Streby, H. M., J. P. Loegering, and D. E. Andersen. 2012. Spot mapping underestimates territory size and use of mature forest by breeding male Golden-winged Warblers. Wildlife Society Bulletin 36:40–46.
[19] Streby, H. M., S. M. Peterson, G. R. Kramer, and D. E. Andersen. 2015. Post-independence fledgling ecology in a migratory songbird: implications for breeding-grounds conservation. Animal Conservation. 18:228-235

and several years after, DEC and some school programs planted an additional 6 acres with white pine and white spruce along Dog Hill Road to provide winter cover for wildlife.

IMPLEMENTATION PLAN AND ANTICIPATED SCHEDULE

As noted in the Landscape Context section, above, forest habitat is lacking both on the WMA and in the surrounding landscape. For that reason, it is important to retain the existing forest habitat on the WMA. Thus, the planned management focuses on improving the health, structure, and diversity of the current forest. Due to the limited quantity of forest habitat on the WMA and the abundance of shrubland habitat, which is also important to young forest dependent species, the young forest habitat goal will be achieved by managing both forest and shrubland. The habitat management outlined in this section will manage 134 acres of forest (9% of the total forest area) and 144 acres of shrublands to create 278 acres of habitat suitable for young forest dependent species (11% of the combined forest and shrubland area). The current 7 acres of young forest is expected to mature into intermediate forest before the end of this 10-year plan, so that acreage is not included in the young forest acreage goal.

The following management is proposed for the next 10 years with a young forest acreage goal of reaching approximately 278 acres (including shrubland management) and a TSI goal of approximately 32 acres:

- **Management planned for 2021-2025** (Table 4, Figures 7 - 11):
  - **Stands A-22 and 24; and D-11.2, 17, 18, 19, and 21 (84 acres)** – Mix of seed tree, shelterwood, and clearcuts to create young forest habitat and improve forest health.
  - **Stands A-18.2, 23, and 25; and D-12, 13, 15, and 20 (94 acres)** – Invasive species management and cull tree removal in shrublands to improve shrubland quality and provide early successional/young forest habitat.
  - **Stands A-21, D-14, and D-16 (11 acres)** – TSI and invasive species management to improve habitat quality and forest health.
- **Management planned for 2026-2030** (Table 5, Figures 7 - 11):
  - **Stands C-11 and 14; and D-30 (28 acres)** – Mix of seed tree, shelterwood, and clearcuts to create young forest habitat and improve forest health.
  - **Stands E-20, 21, 22, and 23 (22 Acres) – S**helterwood harvests to create young forest habitat and improve forest health.
  - **Stand E-19 (50 acres)** – Invasive species management and cull tree removal in shrublands to improve shrubland quality and provide early successional/young forest habitat.
  - **Stands C-13 and D-31 (21 acres)** – TSI and invasive species management to improve habitat quality and forest health.

Table 4. Forest management schedule for the first five-year period of this HMP (2021-2025).

Stand	Acres	Size Class	Forest Type		Management Direction	Treatment Type
			Current	Future		
A-18.2	9	Variable	Shrubland	Shrubland	Wildlife	Clear invasives/ cull removal
A-21	5	Pole Timber 6”-11” DBH	Transitional Hardwood	Transitional Hardwood	Wildlife	TSI/clear invasives
A-22	10	Pole Timber 6”-11” DBH	Transitional Hardwood	Seedling-Sapling-Natural	Wildlife	Seed tree/ shelterwood
A-23	29	Variable	Shrubland	Shrubland	Wildlife	Clear invasives/ cull removal
A-24	8	Pole Timber 6”-11” DBH	Spruce and Natural Species	Seedling-Sapling-Natural	Wildlife	Clearcut with reserves
A-25	19	Variable	Shrubland	Shrubland	Wildlife	Clear invasives/ cull removal
D-11.2	28	Seedling-Sapling <6” DBH	Northern Hardwood/ Shrubs	Seedling-Sapling-Natural	Wildlife	Seed tree/ shelterwood
D-12	6	Variable	Shrubland	Shrubland	Wildlife	Clear invasives
D-13	2	Variable	Shrubland	Shrubland	Wildlife	Clear invasives/ cull removal
D-14	3	Pole Timber 6”-11” DBH	Pine and Natural Species	Pine and Natural Species	Wildlife	TSI/clear invasives
D-15	22	Variable	Shrubland	Shrubland	Wildlife	Clear invasives
D-16	3	Pole Timber 6”-11” DBH	Northern Hardwood	Northern Hardwood	Wildlife	TSI/clear invasives
D-17	18	Pole Timber 6”-11” DBH	Pine Plantation	Plantation/ Seed-Sap Natural	Wildlife	Shelterwood
D-18	3	Pole Timber 6”-11” DBH	Pine Plantation	Plantation/ Seed-Sap Natural	Wildlife	Shelterwood
D-19	12	Pole Timber 6”-11” DBH	Pine/Spruce Plantation	Plantation/ Seed-Sap Natural	Wildlife	Shelterwood
*D-20	7	Variable	Shrubland	Shrubland	Wildlife	Clear invasives/ cull removal
D-21	5	Seedling-Sapling <6” DBH	Northern Hardwood	Seedling-Sapling-Natural	Wildlife	Seed Tree

Table 5. Forest management schedule for the second five-year period of this HMP (2026-2030).

Stand	Acres	Size Class	Forest Type		Management Direction	Treatment Type
			Current	Future		
C-11	5	Pole Timber 6”-11” DBH	Northern Hardwood	Seedling-Sapling-Natural	Wildlife	Patch clearcut
C-13	16	Pole Timber 6”-11” DBH	Northern Hardwood	Seedling-Sapling-Natural	Wildlife	TSI/clear invasives
C-14	11	Seedling-Sapling <6” DBH	Seedling-Sapling-Natural	Seedling-Sapling-Natural	Wildlife	Seed tree/ shelterwood
D-30	12	Seedling-Sapling <6” DBH	Northern Hardwood	Seedling-Sapling-Natural	Wildlife	Clearcut with reserves/clear invasives
D-31	5	Pole Timber 6”-11” DBH	Northern Hardwood	Northern Hardwood	Wildlife	TSI/clear invasives
E-19	50	Variable	Shrubland	Shrubland	Wildlife	Clear invasives/ cull removal
E-20	8	Pole Timber 6”-11” DBH	Oak - Hickory	Oak – Hickory	Wildlife	Shelterwood
E-21	7	Pole Timber 6”-11” DBH	Transitional Hardwood	Seedling-Sapling-Natural	Wildlife	Shelterwood
E-22	3	Pole Timber 6”-11” DBH	Spruce Plantation	Plantation/ Seed-Sap Natural	Wildlife	Shelterwood
E-23	4	Small Saw Timber 12”-17” DBH	Pine Plantation	Plantation/ Seed-Sap Natural	Wildlife	Shelterwood

Due to the variable nature of the forest habitat on Perch River WMA the management planned for several of the stands will involve more than one treatment type, as noted in Tables 4 and 5 and in the following stand descriptions. For example, Stand A-22 will have seed tree harvests and shelterwood harvests in different sections of the stand. The purpose of this is to do what is most fitting in each part of the stand, to achieve the desired habitat conditions while improving the health and productivity of the forest.

Seed tree harvests will be in areas where there are a few scattered desirable overstory trees, such as healthy oak and black cherry, and a significant quantity of cull trees and/or undesirable understory species. Management in these sections will focus on removing undesirable trees and providing growing space for intermediate to intolerant species such as oak, cherry, butternut, and aspen. The open canopy will allow for regeneration while the scattered residual trees will provide mast and shelter for wildlife and a seed source for regeneration. The seed tree harvests are anticipated to benefit species such as American Woodcock, and Golden-winged Warbler.

Shelterwood harvests will be in sections where there are more desirable overstory trees and fewer cull trees. In these locations, more canopy cover will be retained to favor intermediate to shade-tolerant species such as some softwoods, oaks, and maples. This type of treatment will initiate regeneration while retaining a few mature forest features that are important for wildlife. Management is expected to benefit species which depend on both young forest and mature forest, such as Cerulean Warbler and Whip-poor-will.

Patch clearcuts will be in parts of the stands where there are either pockets of aspen or few to no desirable overstory trees. The patch clearcuts will provide significant sunlight to the forest floor, which will favor intolerant regeneration such as aspen, birch, and black cherry. Cutting the pockets of aspen will initiate vigorous aspen root sprouting, which will provide dense regeneration particularly beneficial to Ruffed Grouse.

Stand locations and planned management actions are summarized in Figures 7 - 11. Specific forest stand descriptions and detailed management prescriptions will be prepared for each proposed forest management area prior to implementation (see template, Appendix C). Briefly, habitat management will include the following:

Management planned for 2021-2025 (Table 4, Figures 7 - 11):

Compartment A - Check Station (Stands A-18.2, 21, 22, 23, 24, & 25; approx. 80 acres):

- **Stand A-18.2** is a patchy shrubland with a mix of grassy openings, thickets of honeysuckle, and scattered trees (primarily maple, ash, pine, and spruce). The planned management will cut paths and pockets in the invasive shrubs to increase the quality of the habitat and possibly attract Golden-winged Warbler. Many of the existing trees will be kept, and groups of native trees and shrubs may be planted.
- **Stand A-21** is a northern hardwood forest. Most of the trees are in the sapling to pole timber size range (primarily maple), with an overstory of a few larger sawtimber-sized trees (primarily oak, hickory, maple, and basswood). The understory is open, except along the boundaries of the stand where honeysuckle and buckthorn are creeping in. The ground is rocky and slopes towards the wetland. The only management planned at this time is to cut or treat the invasive species on approx. 5 acres along the edge of the stand when management occurs in the adjacent stands.
- **Stand A-22** is a shrubby northern hardwood stand with three separate sections. The western and the eastern sections have more trees than the middle section, and contain a decent mix of oak, maple, hickory, hackberry, ash, and cherry. The middle section is shrubbier, with thick honeysuckle and buckthorn. A mowed trail runs through a portion of this middle section. The planned management will focus on removing cull trees and the invasive shrubs in the middle section and part of the eastern section, with the goal of providing growing space for desirable regeneration and improving the health of the existing forest.
- **Stand A-23** is a shrubland with thick honeysuckle and a few scattered trees (primarily maple and elm, with a few oak). The ground is rocky but fairly level. The invasive shrubs will be cleared, and patches of native trees and shrubs may be planted to improve the shrubland habitat.

- **Stand A-24** is a shrubby stand with pockets of trees (primarily maple, cherry, elm, ash, and spruce). The thick shrubs will be cleared, and patches of native trees and shrubs may be planted.
- **Stand A-25** is a shrubland with exceptionally thick honeysuckle. There are very few other plants or trees in this stand. The ground is rocky, but generally not steep. The thick honeysuckle will be cleared, and patches of native trees and shrubs may be planted where feasible.

Compartment D – Cook Road (Stands D-11.2, 12, 13, 14, 15, 16, 17, 18, 19, 20, & 21; approx. 109 acres):

- **Stand D-11.2** is a highly variable stand. Most of the stand consists of thick honeysuckle and buckthorn with very few trees, but some sections contain decent hardwoods with a number of sapling and pole timber sized trees (primarily maple, with some oak, hickory, butternut, elm, and ash) and a fairly open understory. The terrain is steep in sections, with rocky slopes and low-lying areas. The recommended management will focus on reducing the invasive shrubs and promoting native trees and shrubs to improve habitat for Golden-winged Warbler and Whip-poor-will. The planned management will involve a mix of seed tree cuts, shelterwood cuts, and patch clearcuts to create the mosaic of habitat types important to young forest dependent species.
- **Stand D-12** is a shrubland with a patchy mix of grass and shrubs on poorly drained soil, ideal for American Woodcock. Paths and patches will be cut through the invasive shrubs to increase the patchiness of the habitat. Native shrubs and a few trees may be planted to shift the species composition to more beneficial species.
- **Stand D-13** is a shrubland with thick honeysuckle, buckthorn, and dogwood; pockets of hardwood trees; and a few open, grassy areas. The invasive shrubs will be treated when the adjacent stands are treated, to improve the quality of the habitat.
- **Stand D-14** is a small plantation with two sections. The northern section contains large spruce trees with a mix of maple, hickory, and invasive shrubs in the understory. The southern section contains pole to small sawtimber size red pine with a few maple, hickory, and oak trees. Honeysuckle is creeping into the southern section from the adjacent shrubland (Stand D-15), and it is recommended that the invasive species be treated in both sections when the adjacent stands are treated. At that time, a few of the trees may be removed to improve forest health.
- **Stand D-15** is a shrubland with exceptionally thick honeysuckle. There are a few trees around the outside of the stand (mostly maple, oak, and red pine, and a few apples). Other than rocky slopes near the northern and eastern edges, most of the stand is fairly level with rock and moss under the thick honeysuckle. The planned management will remove the invasive honeysuckle and buckthorn and attempt to establish native trees and shrubs to create habitat suitable for Golden-winged Warbler and Whip-poor-will.
- **Stand D-16** is a small mixed hardwood stand, divided into two sections along the WMA boundary. The dominant tree species are red and sugar maple, bitternut and shagbark hickory, basswood, and hackberry. The stand is in moderately good health, except for invasive honeysuckle and buckthorn encroaching from the adjacent shrublands. It is recommended that these invasive shrubs be removed when the adjacent stands are treated. At that time, the stand will be reevaluated and a few of the trees may be removed to improve forest health and structure. However, the majority of the trees will be retained to provide mast and shelter for wildlife, a potential seed source for regeneration into the

adjacent shrublands, and a small area of mature forest. Along with Stand D-11.1, this stand will provide mature forest habitat which is important to Golden-winged Warbler, Whip-poor-will, and many other wildlife species.

- **Stands D-17, 18, and 19** are pine and spruce plantations with honeysuckle, buckthorn, and dogwood in the understory. Sapling and pole timber sized oak, hickory, maple, and aspen can be found in sections of the stands. The ground is generally level, with some poorly drained sections. A shelterwood harvest is planned in which the brush will be cleared and a few of the cull trees will be removed to improve the health of the forest and provide growing space for regeneration. The residual overstory trees will provide both softwood cover, which is lacking on much of the WMA, and a few mature forest features that are important to wildlife. Regeneration in the poorly drained areas will provide habitat ideal for American Woodcock, and regenerating aspen is particularly beneficial to Ruffed Grouse.
- **Stand D-20** is a shrubland with patchy grassy openings. Structurally, it is currently ideal for Golden-winged Warbler and American Woodcock. To maintain and improve this habitat, it is recommended that meandering trails and occasional pockets be cut in the shrubs to provide the patchiness necessary for these species. It would also be beneficial to improve the species composition by clearing some of the invasive shrubs and planting patches of native shrubs.
- **Stand D-21** is a mix of invasive honeysuckle and buckthorn with scattered hardwood trees in the overstory (primarily hickory, elm, basswood, ash, and maple). Most of the trees are in rough condition, with poor form and poor health. The ground slopes towards the wetland and is rocky in places. A seed tree cut is recommended, where the invasive shrubs will be cleared, and the trees will be removed except for the few larger, healthy trees which will be left to provide seed to establish the new forest.

Management planned for 2026-2030 (Table 5, Figures 7 - 11):

Compartment C – Buckminster Road (Stands C-11, 13, and 14; approx. 32 acres):

- **Stand C-11** is a mixed hardwood forest with ash, maple, elm, and cherry and a few apple and thornapple trees. There is a significant amount of buckthorn and honeysuckle in the understory, as well as dogwood. The planned management will clear approximately ¼ of the stand in the time covered by this plan, with the idea that another ¼ will be cleared every three to five years, to provide young forest habitat over time. The clearings will be in swaths running from the field (Stand C-12.1) to the wetland. This will create young forest on a slope that becomes gradually wetter as it approaches the wetland, which is excellent foraging habitat for American Woodcock.
- **Stand C-13** is a mixed hardwood forest with a decent blend of maple, oak, hickory, and cherry and a significant amount of ironwood, honeysuckle, and buckthorn in the understory. The stand is rocky in places and slopes from Buckminster Road towards the field. The planned management will clear the invasive shrubs. Once the shrubs have been removed, the stand will be reevaluated and a shelterwood harvest may be conducted to provide growing space by removing the undesirable trees. The objective is to improve the health of the forest to provide intermediate to mature forest in close proximity to young forest habitat, which is important to a suite of wildlife species, particularly Golden-winged Warbler.

- **Stand C-14** is a mixed stand with approximately half consisting of sapling and pole timber sized hardwoods (primarily maple, with some larger oak and hickory) and half dominated by buckthorn, honeysuckle, prickly ash, and juniper. The invasive shrubs will be removed, and the hardwoods will be thinned to improve the health of the forest and provide growing space for regeneration, which may provide suitable habitat for Whip-poor-will.

Compartment D – Route 12 (Stands D-30 & 31; approx. 17 acres):

- **Stand D-30** is divided into two sections. The northern section is a mix of hardwoods and invasive shrubs; no management is planned in this section at this time. The southern half of the stand is located just off State Route 12 and is dominated by honeysuckle, prickly ash, and buckthorn. There are a few scattered trees, but most are not in good health. The ground is shallow and rocky. The southern section will be clearcut, except for the very few desirable trees. Where feasible, native trees and shrubs may be planted to direct the regeneration towards desirable species.
- **Stand D-31** is a mixed hardwood stand with maple, ash, oak, hickory, and butternut trees. The trees are in fairly good health, so little management is planned at this time. Approximately 5 acres along the southwestern edge (the boundary with Stand D-30) will have invasive honeysuckle and buckthorn removed when Stand D-30 is managed.

Compartment E – Perch Lake Refuge (Stands E-19, 20, 21, 22, & 23; approx. 72 acres):

- **Stand E-19** is a shrubland dominated by a mix of honeysuckle and dogwood, with buckthorn and a few scattered trees and seedlings. The planned management will clear paths and patches in the brush in the main section of the stand (approx. 50 acres), with the goal of improving habitat for Golden-winged Warbler. Some sections of the stand are poorly drained, which will be beneficial for American Woodcock habitat. Native trees and shrubs may be planted in patches to improve the species diversity of the stand.
- **Stand E-20** is a transitional hardwood forest with a decent mix of oak, hickory, basswood, ash, and maple, which are good sources of food and shelter for wildlife. The honeysuckle and buckthorn in the understory will be cleared and a few cull trees may be cut to provide growing space for regeneration.
- **Stand E-21** is a transitional hardwood forest with oak, ash, basswood, and elm. The ground is poorly drained in most parts of the stand, with grassy hummocks throughout. The planned management will focus on removing the invasive honeysuckle and buckthorn, as well as a few undesirable trees, with the objective of promoting forest regeneration which will provide important feeding habitat for American Woodcock.
- **Stands E-22 & 23** are Norway spruce and Scotch pine plantations, respectively. Both plantations are in rough condition; many of the overstory trees have poor form, are missing tops, or are dying. The understory is filled with honeysuckle and buckthorn and there is very little tree regeneration. The invasive species and a few cull trees will be removed, and native seedlings may be planted when Stand E-19 is treated.

BEST MANAGEMENT PRACTICES

Forest management on all WMAs follows Best Management Practices (BMPs) 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 [20]
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:

Perch River WMA supports multiple state listed threatened and endangered bird, insect, and plant species. Many of the threatened or endangered bird species on the WMA are associated with the wetlands, open water, and/or grasslands. To protect these species, forest management immediately adjacent to wetland and grassland areas may be limited or avoided during the breeding season. Due to the occurrence of Indiana bats and northern long-eared bats within Jefferson County, tree selection for cuts and the timing of cuts will be evaluated and BMPs will be implemented to protect the bats.

Forest Health Considerations:

The forests on Perch River WMA are in moderate health. Poorly drained soils, thick brush, or rocky ground limit growth and regeneration in many parts of the WMA. The primary forest health concerns are invasive insect and plant species.

The most significant invasive insect to watch for is emerald ash borer (EAB). While EAB has not been recorded on the WMA, it is gradually spreading throughout the state and has been confirmed in Watertown, less than 10 miles from the WMA. EAB is an invasive beetle that feeds on and kills all species of ash trees and significant ash mortality is expected when the beetle reaches the WMA. At that time, dead or dying ash trees may be removed from the WMA if deemed a hazard to infrastructure or adjacent private property.

As noted throughout this document, several species of invasive plants are well established on Perch River WMA. Buckthorn and honeysuckle dominate the understory in most of the shrublands and forest stands, often preventing desirable regeneration. While these invasive plants do provide the dense, shrubby habitat that many wildlife species depend on, this habitat is of much lower quality than native shrublands and forests. The understory lacks diversity and the forage is less nutritious for the wildlife species that forage on it. Other significant invasive plants on the WMA include pale swallowwort, multiflora rose, bittersweet, and barberry. As outlined in this HMP, most forest and shrubland management on the WMA will focus on controlling invasive plant species and establishing regeneration that will provide better wildlife habitat. This will be accomplished through brush clearing, herbicide treatments, and planting. All treatment areas will be monitored, and additional treatments will occur as needed until desirable regeneration has been established.

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

Pre- and Post-treatment Considerations:

Herbicide application prior to and/or after some forest management activities will be needed to control invasive plant species. Patches of trees and native shrubs may be planted in several of the stands following treatment. The plantings will increase species diversity and will claim the growing space, reducing the risk of invasive species dominating an area after treatment.

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

MANAGEMENT EVALUATION

In order to determine whether the desired forest regeneration and wildlife response(s) have been achieved by the management outlined above, pre- and post-management assessments will be conducted in accordance with guidelines in the *Young Forest Initiative Monitoring Plan: 2016-2025*.[21] The Monitoring Plan establishes statewide standards for evaluating vegetation and target wildlife responses to forest management to determine if the outcome is as prescribed. Regeneration assessments will be conducted within one year of harvest completion, three, and five years after the harvest or until the forester determines adequate natural or artificial (i.e., planting) regeneration has been securely established. YFI wildlife target species selected for Perch River WMA, which may be assessed to determine response to management, include:

- Golden-winged Warbler
- Eastern Whip-poor-will
- American Woodcock

SHRUBLAND

Shrublands are early successional habitats dominated by woody plants typically less than ten feet tall with scattered open patches of grasses and forbs that provide floristic diversity. Shrublands are typically characterized by >50% cover of shrubs and <25% canopy cover of trees. These early successional habitats sometimes grow stagnant and need to be refreshed through mowing or cutting to release newer shrubbery. Transitional succession into forested habitat is also a way to create a young forest mix of shrub and trees, where canopy covers may increase over time.

MANAGEMENT OBJECTIVES

- Provide 987 acres of shrubland habitat for shrubland obligate species and other wildlife, including several YFI target species.
- Remove invasive species and consider planting patches of native shrubs on 144 acres to improve shrubland quality and habitat for both shrubland and young forest dependent species.
- Continue renovating 116 acres of shrublands to convert them to grassland habitat.

[21] The YFI Monitoring Plan is available online at https://www.dec.ny.gov/outdoor/104218.html.

DESCRIPTION OF EXISTING SHRUBLAND HABITAT AND TARGET SPECIES

There are 1,103 acres of shrublands on Perch River WMA that consist mostly of honeysuckle and buckthorn, with some willow, dogwood, alder, and viburnum found amongst the dominant invasive species. Shrubland management that focuses on reducing the invasive species and introducing native trees and shrubs will increase the diversity of the habitat and will improve the quality of the habitat for Eastern Whip-poor-will, Golden-winged Warbler, Ruffed Grouse, American Woodcock, and many other shrubland and young forest dependent species.

MANAGEMENT HISTORY

In 2010, the Department of Transportation (DOT) purchased approximately 200 acres of grassland and shrubland habitat mix that is contiguous to Perch River WMA with the intent of turning it over to the DEC. This parcel was purchased as mitigation for impacts to grassland bird species from the construction of the Fort Drum Connector Route (I-81 to Fort Drum North Gate).

IMPLEMENTATION PLAN AND ANTICIPATED SCHEDULE

- **Management planned for 2021-2030** (Figures 7 - 11):
    - **Stands A-18.2, 23, and 25; D-12, 13, 15, and 20, and E-19 (144 acres)** – Invasive species management and cull tree removal to improve shrubland quality and provide early successional/young forest habitat. *(See Forest section for details)*.
    - **Stands C-1 and 25 (116 acres)** – Continue shrubland renovation and hedgerow removal to convert the shrubland to grassland habitat.
    - Periodically mow meandering trails in stands such as C-1 and C-25 to maintain patches of herbaceous cover for Eastern Whip-poor-will and to provide access for hunters, birdwatchers, and other wildlife-dependent recreational activities.

BEST MANAGEMENT PRACTICES

Brush hogging/mowing will be conducted from mid-August through April to minimize interference with wildlife breeding activities. Due to the poorly drained soils in many areas, brush clearing will likely be limited to dry or frozen conditions.

MANAGEMENT EVALUATION

Continue with current DEC conducted presence/absence survey point counts for Golden-winged Warbler on the WMA. These point counts will display trend data (pre- and post-treatment) to document any response to recent habitat management for shrublands and/or young forest.

GRASSLAND

Grasslands are open, grassy areas with a minimal amount of shrub and tree cover (<35%) that are maintained, or could be maintained, without significant brush cutting. Agricultural contracts which follow BMPs for grassland bird species are used on Perch River WMA as a means to manage the large grassland fields on the WMA.

MANAGEMENT OBJECTIVES

- Maintain the existing grassland areas (801 acres).
- Increase grassland by clearing woody growth in shrublands (116 acres)
- Enhance the quality of grassland fields by removing shrubs or dense vegetation from the fields (e.g., brush hogging, disking and seeding, and/or hydro-axing), where appropriate.
- Increase grassland field sizes by removing hedge rows or trees that divide the fields.
- Provide nesting habitat and cover for waterfowl by extending grasslands to the edge of the water where feasible.
- Provide suitable habitat for pheasant stocking and hunting.
- Attempt to control invasive species (pale swallow-wort, buckthorn, and honeysuckle).

DESCRIPTION OF EXISTING GRASSLAND HABITAT AND TARGET SPECIES

Perch River WMA falls within the St. Lawrence Valley Grassland Focal Area and within a proposed Grassland Conservation Center in the NYSDEC Strategy for Grassland Bird Habitat Management and Conservation 2021-2026. Grasslands in this area are important for reaching the goals set forth in the North American Bird Conservation Initiative and the Comprehensive Wildlife Conservation Strategy for the eastern Lake Ontario-St. Lawrence Basin in New York State. There are currently 801 acres of grassland habitat on Perch River WMA (Figure 6), with plans to increase it to 917 acres. The larger open fields on the WMA support several threatened and endangered grassland bird species, while the smaller patches of fields support a variety of wildlife species including nesting waterfowl. Several small fields have been planted with pollinator seed mix and/or sunflower seed to benefit declining pollinator species.

Species that benefit from grassland habitat on the WMA include:

- Henslow's Sparrow
- Northern Harrier
- Bobolink
- Sedge Wren
- Short-eared Owl
- DeKay's brown snake
- Ring-necked snake
- Smooth green snake

MANAGEMENT HISTORY

In the past, the majority of old field/grassland habitat had been maintained through multiple agricultural co-operative agreements. Annual or rotational late season mowing has been used to set back vegetative succession and maintain quality grassland habitat. DEC operations staff mow the smaller fields on the WMA.

IMPLEMENTATION PLAN AND ANTICIPATED SCHEDULE

- **Management planned for 2021-2030** (Figure 6):
    - Continue mowing large grassland fields (Stands A-1, 9, 27.1, 31, and 42; B-1; C-15, 18, 21, and 24; and E-28, 44, 45, 47, 50, 51, 52, and 54) on an annual or rotational basis depending on vegetation growth to prevent woody growth while also allowing for specific grassland conditions such as providing thatch coverage.
    - Continue mowing small grassland fields (Stands A-18.1; C-12.1; D-22, 28, and 34; and E-32 and 39) on an annual or rotational basis to maintain the open habitat for wildlife use and hunter access.
    - Continue renovating Stands C-1 and 25 to convert the shrublands to quality grassland habitat (116 acres).
    - Remove hedgerows to increase the size of the fields (Between stands A-9 off Vaadi Road).
    - Utilize grassland bird BMPs (i.e., late mowing and rotation mowing)
    - Utilize agricultural contracts to achieve the desired acres to be mowed annually.

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

General Management Recommendations

- Target management for grassland bird species known to be in the vicinity and consider the needs of both breeding and wintering grassland bird species.
- Consider the surrounding landscape when making management decisions.
- Conduct baseline grassland bird surveys on newly acquired fields or fields targeted for management changes to determine species present.
- Increase field size by hedgerow removal, removing trees, etc. to benefit species that require large fields.
- Conduct invasive species control (common 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, and grazing to maintain grassland habitat, after evaluating the appropriateness of these methods relative to site conditions and management objectives.

[22] 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.

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 the preferred mowing regime and strip mowing should be limited (especially in fields over 25 acres).
- Un-mowed blocks should be in the shape of a square as opposed to long rectangles.
- 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 have conducted annual presence/absence point counts for grassland breeding birds on the WMA since 2013. Surveys are conducted to determine species response to ongoing habitat management and are targeted for threatened and endangered grassland bird species such as Henslow's Sparrow, Upland Sandpiper, Sedge Wren, and Northern Harrier. Winter raptor surveys have also been conducted on this area and target Short-eared Owls and Northern Harriers. These surveys are scheduled to continue at least once every three years or as determined necessary by the Regional Wildlife Manager.

AGRICULTURAL LAND

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

DESCRIPTION OF EXISTING AGRICULTURAL LANDS HABITAT

There is no acreage on Perch River WMA that is managed as agricultural row crop (currently hay only) and no plan to develop such habitat. The hay that is grown on the area is considered "mushroom hay" as it is cut late in the season after the grassland bird species have completed their nesting. These fields are outlined in Table 7 or Figure 6.

MANAGEMENT HISTORY

Since the WMA was acquired, multiple cooperative agreements have been in place for the cutting of hay; these fields are included in the Grassland section, above. Grazing has also been allowed in some of the fields but has not occurred since 2006.

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 OF THE THREE POOLS

- Provide shallow water to produce the maximum number of invertebrates for foraging and nesting waterfowl.
- Maintain shallow water habitat and adequate aquatic vegetation growth for waterfowl nesting, foraging and rearing of young.
- Provide nesting, foraging, and cover habitat for Blanding's turtle.
- Maintain habitat for wetland-dependent wildlife such as waterfowl, muskrat, river otter and beaver.
- Maintain approximately 608 acres of open water in the three pools (Stone Mills-168 acres, Upper-87 acres, and Lower-353 acres), as currently exists.
- Provide nesting, foraging, and cover habitat for Blanding's turtle.
- Manage for vegetative diversity as necessary potentially via channeling and potholing.
- Eradicate or control aquatic invasive species.

DESCRIPTION OF EXISTING WETLAND HABITAT AND TARGET SPECIES

There are 3,208 acres of natural and impounded wetlands (non-forested; see Forest section for the forested wetlands) on Perch River WMA (Figure 3). In addition, 608 acres of the open water habitat is included in this section since it is part of the three managed wetland pools. Perch Lake and Perch River account for the remaining open water habitat, which is covered in the Open Water section. The diverse wetlands consist of scrub-shrub, emergent, and open water wetlands and provide habitat for species such as:

- American Woodcock, American Bittern, Least Bittern, Belted Kingfisher, Black Tern, Caspian Tern (non-breeding), migratory waterfowl, Greater Yellowlegs, Bald Eagle
- Beaver, muskrat, river otter
- Blanding's turtle, midland painted turtle, wood turtle
- Bullfrog, northern leopard frog, green frog, American toad, spring peeper, wood frog, pickerel frog
- Northern water snake, eastern milk snake

MANAGEMENT HISTORY

Construction of the main Upper Pool dam/dike began in 1952 and was finished in 1955. Upgrades to the structure were made in 1968, 1987, the late 2000's, and more recently in 2019-2020. Previous water manipulation was difficult and was largely dependent on the quantity of rainfall received during the growing season. Historically, water levels in normal rainfall years would provide enough water to hold the pool at a full level well into the summer months. In 1968 sheet piling was installed at a leak in the dam/dike so full pool levels could be maintained longer. This manner of control limited the possibilities for water level management.

Significant update to water control structure at Upper Pool (Main Dike), circa 1987

Photo: NYSDEC

In 1987 the spillway crest of the Upper Pool was set at 318.0 feet and the top of dam elevation was 324.0 feet. High water in the pool at that time was considered to be 321.0 feet. Improvements to the water control structure were implemented in the early 2000s, however the improvements didn't alleviate the water level concerns. In 2019, a new four gate/stop log water control structure was installed in the Upper Pool dam allowing for greater capacity to regulate water levels within that pool. The recent project completed in 2020 also includes a newly constructed weir with the top crest set at 319.5 feet and stop logs set within the weir to aid in

lowering water levels if necessary. The gates are set at an elevation of 318.2 feet and with the stop logs in at 319.7 feet. These new structures will give staff the ability to hold the water level 1.5 feet higher and allow water to be released at a much faster rate when necessary.

Upper Pool structure (four bays) at Perch River WMA, 2021.

Photo: NYSDEC

The Upper Pool contains 87 acres of open water (Stand D-3, Figures 7 - 11). When the surrounding wetlands and forested wetlands are included, the total open water and wetland habitat in the Upper Pool complex is 3,753 acres (Stands B-6, 7, 8, 9, and 10; D-1, 3, 4, and 5; and E-2, 3, 4, 5, 6, 7, 18, 36, 37, 38, 42, and 99).

In 2019, the invasive aquatic plant water chestnut was discovered in the channel in the Upper Pool. In an attempt to eradicate this plant from the WMA, annual "water chestnut pulls" have occurred since the discovery of the plant and will continue in the future. Other control measures will be utilized if hand pulling is not effective.

Lower Pool structure (six bays) at Perch River WMA, 2021.

Photo: NYSDEC

The Lower Pool was constructed in 1965 within and directly on native bedrock. On average the spillway crest was 316.0 feet above sea level and the top of dam was 323.0 feet. Stone Mills outlet flows under the Vaadi Road into the Upper Pool and water from the Upper Pool flows into the Lower Pool via the four gate/stop log structure and spillway. During snow melt or large rain events the capacity to quickly release water from Lower Pool was always a challenge and at times not feasible. In 2007-2008, the metal water control structure was replaced with a stop log control structure to better manage water levels, but the structure was still too small to handle the volume of water that needed to pass through quickly. In 2017, a new six gate/stop log water control structure was constructed within the dam/dike to allow for greater manipulation of the water, especially the release of water quickly. Building this structure was a pre-requisite to the construction of the Upper Pool control structure since

increasing the ability to hold water back above the Lower Pool meant that there needed to be a mechanism to release more water quickly downstream. The top of the gates for this control structure are set at 315.3 feet and with the stop logs installed the height is 317.3 feet.

The Lower Pool contains 353 acres of open water (Stand C-7, Figures 7 - 11). When the surrounding wetlands and forested wetlands are included, the total open water and wetland habitat in the Lower Pool complex is 476 acres (Stands C-6, 7, 8, 9, and 10).

Stone Mills twin culverts at Perch River WMA, 2021.

Photo: NYSDEC

Stone Mills Pool was created in 1975 and was significantly updated in 1989. After the 1989 work was completed the spillway crest was 327.5 feet with the dam elevation at 329.0 feet. The purpose of the pool at that time was to provide the maximum amount of shallow flooded area for waterfowl nesting, feeding, and rearing young. Repair work to the culvert outlet structures was conducted in 2019-2020 and included slip lining the two outflow culverts. Current water level management continues to include maintaining water levels and habitat conditions for nesting waterfowl in addition to providing ideal conditions for other wildlife species that utilize the pool.

Stone Mills Pool contains 168 acres of open water (Stand A-15, Figures 7 - 11). When the surrounding wetlands and forested wetlands are included, the total open water and wetland habitat in the Stone Mills Pool complex is 639 acres (Stands A-2, 5, 6, 12, 15, 16, 17, 28, 29, 36, 37, and 39).

Other man-made wetland features are located on the WMA: Three paddy fields totaling 30 acres were created shortly after the completion of the Upper and Lower Pools. The fields were created to allow gravity flow of water into them under normal rainfall years. When droughts occurred, pumping of water into the fields was the primary source of water. The drier years allowed previous managers to plant the fields with cereal grains. Shortly after these fields were created, another paddy field was created allowing more flexibility in water level control without the use of pumping. As part of the Upper Pool construction project in 2019-2020, a new single sluice gate control was also installed within the Upper Pool dam/dike with the capability to release water into the paddy dikes as warranted.

IMPLEMENTATION PLAN AND ANTICIPATED SCHEDULE

- **Management planned for 2021-2030: (Stone Mills Pool, Upper Pool, and Lower Pool, Figures 1, 7-11)**
    - Manipulate water levels to achieve desired habitat characteristics needed for various wildlife species and their life cycles and to improve hunter access. Management techniques will vary, as needed, depending on the objective:
        - Water levels will periodically be held high to flood out monotypic vegetation (ex. rice grass and cattails), resulting in the preferred hemi-marsh conditions.

- Water levels will periodically be drawn down to increase vegetation diversity, increase waterfowl productivity, control invasive species, or as another method to control monotypic vegetation such as cattail.

Best Management Practices

Water level management will be conducted as needed to manipulate the diversity of vegetation species and their makeup within each pool. Periodic drawdowns will occur when the desired diversity of vegetation in the pools is diminished and/or begins to become monotypic.

Drawdowns will not occur during winter months, to protect wintering reptiles and amphibians, nor during active waterfowl nesting. Drawdowns are typically initiated in early spring before bird species have begun breeding and nesting. Depending on the rainfall, water is gradually added back to the exposed pool in late summer.

The regional representative for DFW's Amphibian and Reptile Diversity team will be consulted prior to conducting management in known areas of Blanding's and wood turtle occurrences on the WMA.

Management Evaluation

Periodic drawdowns have been conducted at Stone Mills Pool but were not feasible in the other two pools prior to the recent addition of the water control structures and weirs. Depending on vegetation makeup and threatened and endangered species occupying the three pools, scheduled drawdowns will be conducted in the future.

Open Water (Waterbodies and Watercourses)

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

Management Objectives

- Maintain 1,226 acres of open water as it currently exists.
- Provide nesting, foraging, and cover habitat for Blanding's turtle and migratory waterfowl.

Description of Existing Open Water Habitat and Target Species

There are 1,226 acres of open water on the WMA, which make up Perch Lake, Perch River, and part of the Stone Mills Pool, Upper Pool, and Lower Pool (Figure 3). The 608 acres of open water habitat that are included in the three pools are covered in the Wetlands section, above.

Perch Lake, the largest section of open water, is approximately 593 acres in size. It is currently designated as a wildlife refuge and is only open to the public in the winter for ice fishing, or if the wildlife manager designates an "Open House" which is scheduled annually for August 16th through the 31st. Several fish species are caught through the ice and include northern pike, yellow perch, black crappie, largemouth bass, and sunfish. Smaller fish species within the lake include brown bullhead, banded killifish, bluntnose minnow, bridle shiner, fathead minnow, rock

bass, central mudminnow, fallfish, tadpole madtom, white sucker, and golden shiners. Several protected birds use the area for breeding, nesting, and rearing of young. The latest general biological survey was completed in 2005.

MANAGEMENT HISTORY

Perch Lake was closed for public fishing for nearly 45 years after the WMA was acquired in 1948. In 1995 the lake was opened for the first time for ice fishing, allowing anglers to fish from December 1st through March 1st. The purpose of opening the lake to ice fishing was for recreational purposes and gave the state the opportunity to research how ice fishing impacted northern pike populations. This research was conducted by DEC staff in collaboration with Cornell University. The research project began in 1995 and ended in 1999 with many large (greater than 39 inch) pike caught the first year and the pike gradually became less numerous and smaller as the lake remained open for fishing. Perch Lake continues to provide above average pike fishing; however, the large pike (greater than 39 inches) are now rare.

IMPLEMENTATION PLAN AND ANTICIPATED SCHEDULE

- **Management planned for 2021-2030: (Figures 7-11)**
    - None planned at this time.

HABITAT MANAGEMENT SUMMARY

In summary, Table 7 lists the habitat management actions planned for Perch River 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 Perch River WMA, 2021-2030. (See Figure 6-11)

Habitat	Management Action	Acres	Timeframe
Forest	Create young forest habitat through seed tree, shelterwood, or clearcuts in Stands A-22, 24; D-11.2, 17, 18, 19, and 21	84	2021-2025
Forest	TSI in Stands A-21, D-14, and D-16	11	2021-2025
Forest	Create young forest habitat through seed tree, shelterwood, or clearcuts in Stands C-11, 14; D-30; E-20, 21, 22, and 23	50	2026-2030
Forest	TSI in Stands C-13 and D-31	21	2026-2030
Shrubland	Manage invasives and remove cull trees in Stands A-18.2, 23, 25; D-12, 13, 15, and 20. Plant patches of native trees and shrubs, as needed, to establish native species.	94	2021-2025
Shrubland	Manage invasives and remove cull trees in Stand E-19. Plant patches of native trees and shrubs, as needed, to establish native species.	50	2026-2030
Shrubland	Continue renovating Stands C-1 and 25 to convert to grassland habitat.	116	2021-2030
Grassland	Mow and manage grassland according to BMPs – Stands A-1, 9, 18.1, 27.1, 31, and 42; B-1; C-12.1, 15, 18, 21, and 24; D-22, 28, and 34; and E-28, 32, 39, 44, 45, 47, 50, 51, 52, and 54	801	2021-2030
Wetlands	Inspect and treat berms of impounded wetlands as needed – Stand A-26, C-4, and D-33.	21	2021-2030

III. FIGURES

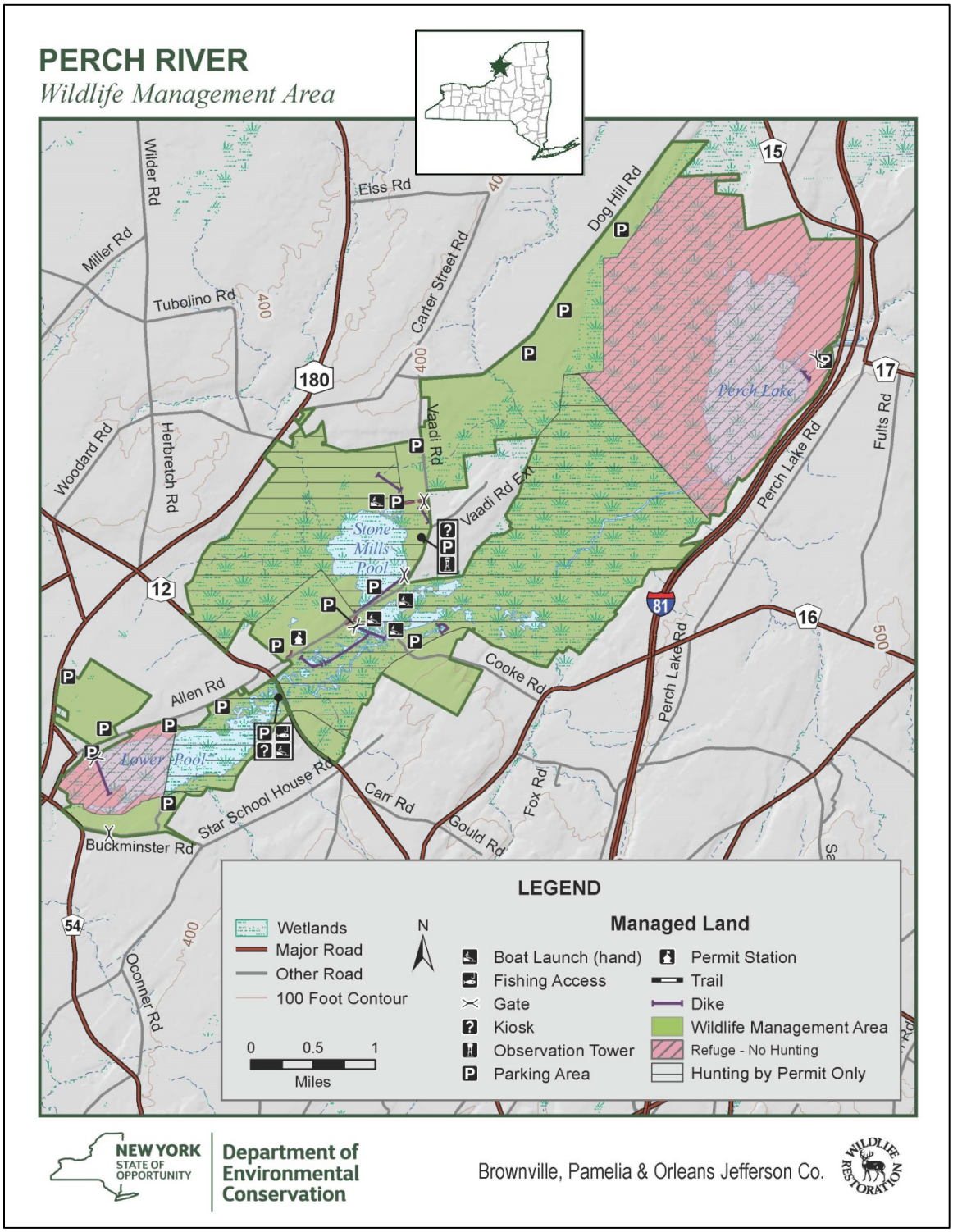

FIGURE 1. Location and access features at Perch River WMA

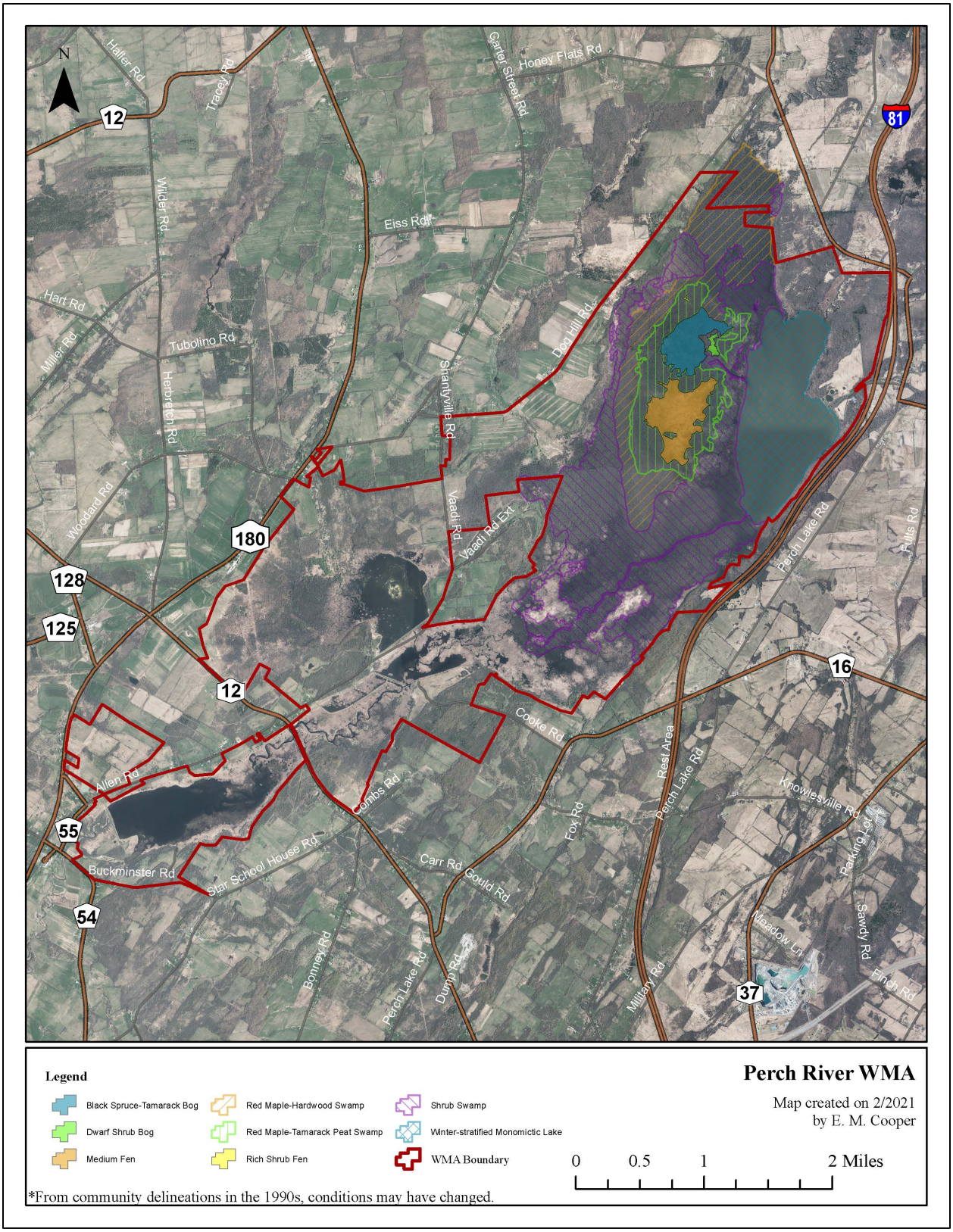

FIGURE 2. Eight significant ecological communities are on Perch River WMA. Data is from the NY Natural Heritage Program.

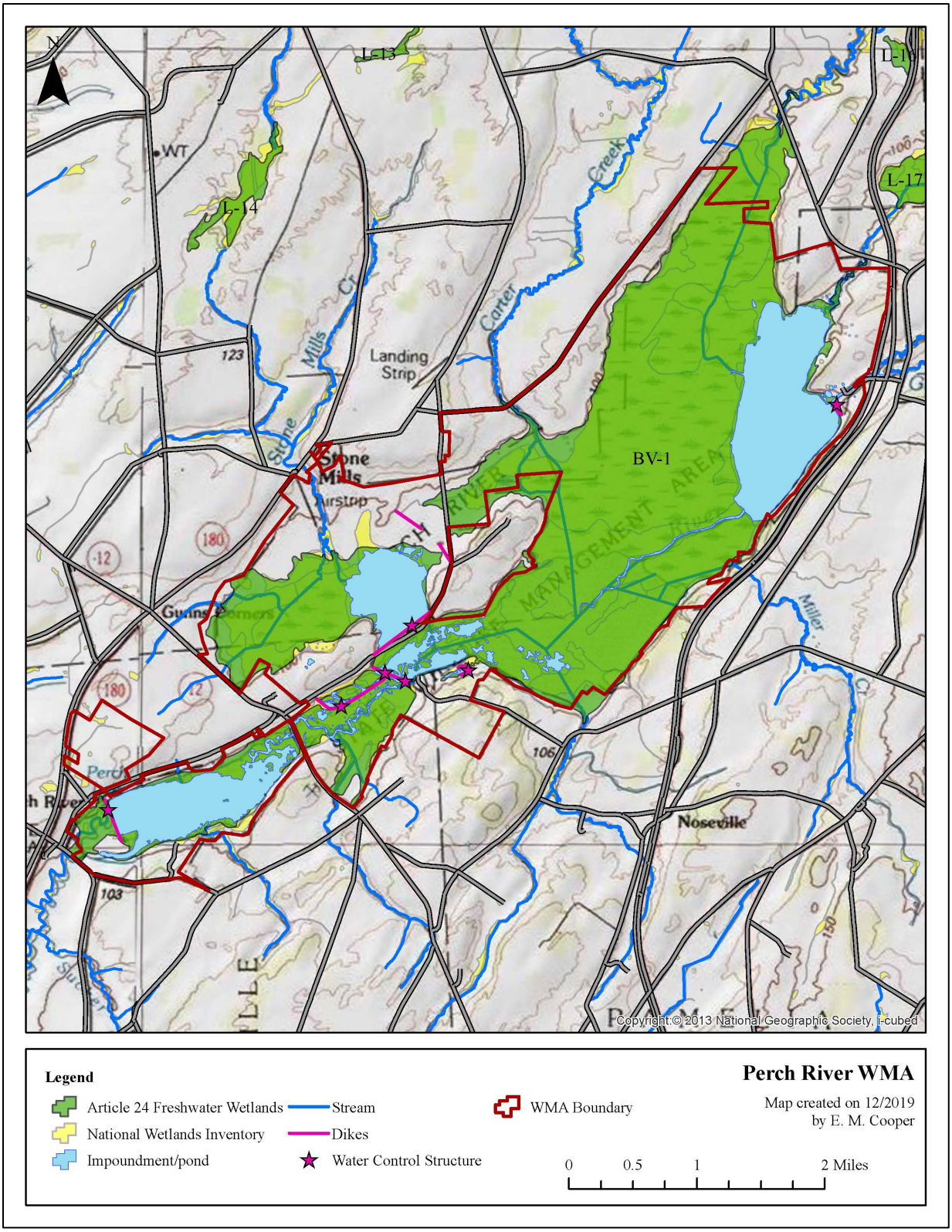

FIGURE 3. Wetlands, open water, and streams of Perch River WMA. Note: Wetland boundaries are not exact and may not be used for regulatory purposes without a current delineation.

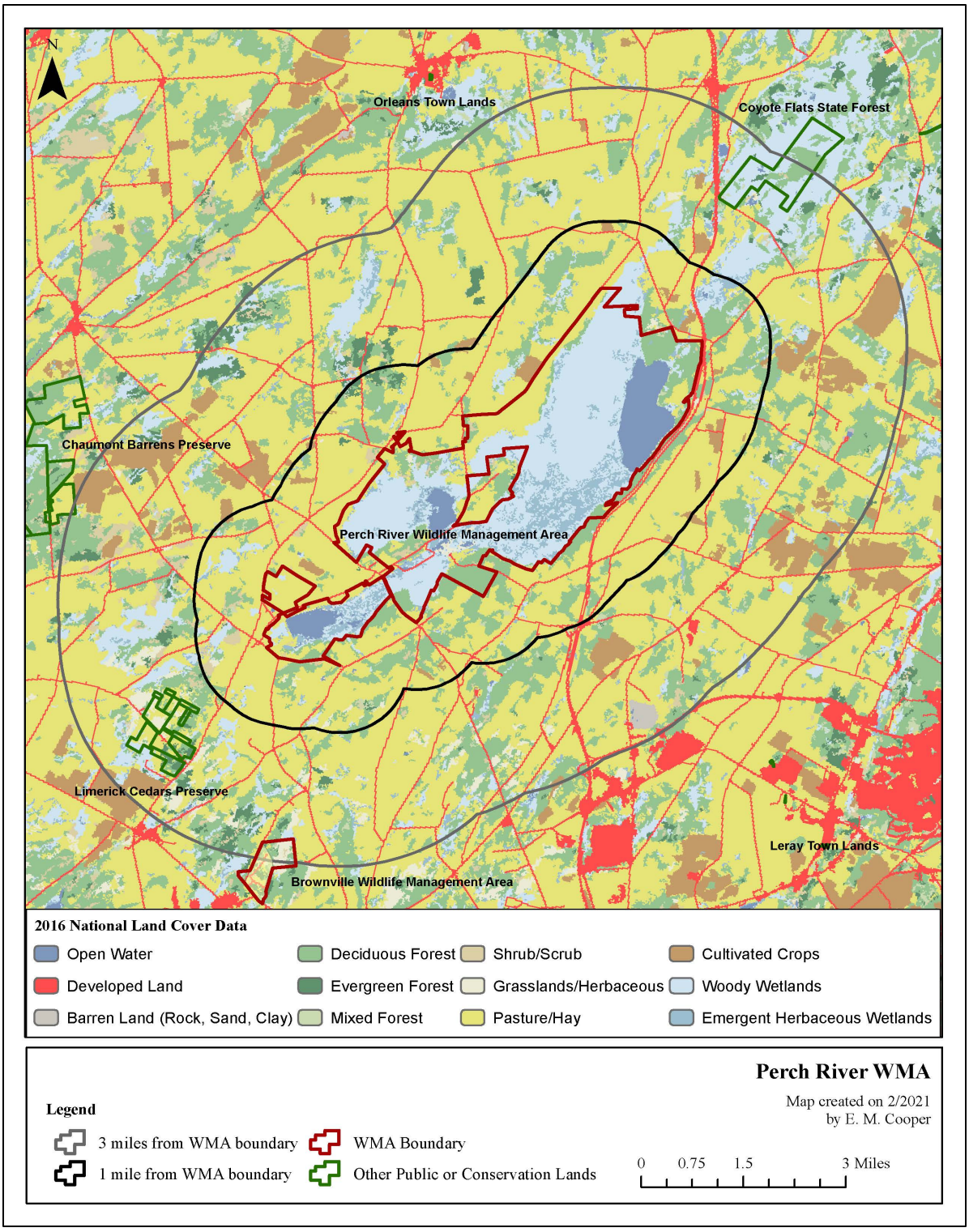

FIGURE 4. Land cover types and conservation lands in the landscape surrounding Perch River WMA. Conservation lands are from the NY Protected Areas Database available online at http://www.nypad.org/. Land cover types are from the 2016 National Land Cover Data (NLCD) and differ from the habitat types used in the WMA habitat inventory. NLCD definitions are available online at https://www.mrlc.gov/data/legends/national-land-cover-database-2019-nlcd2019-legend.

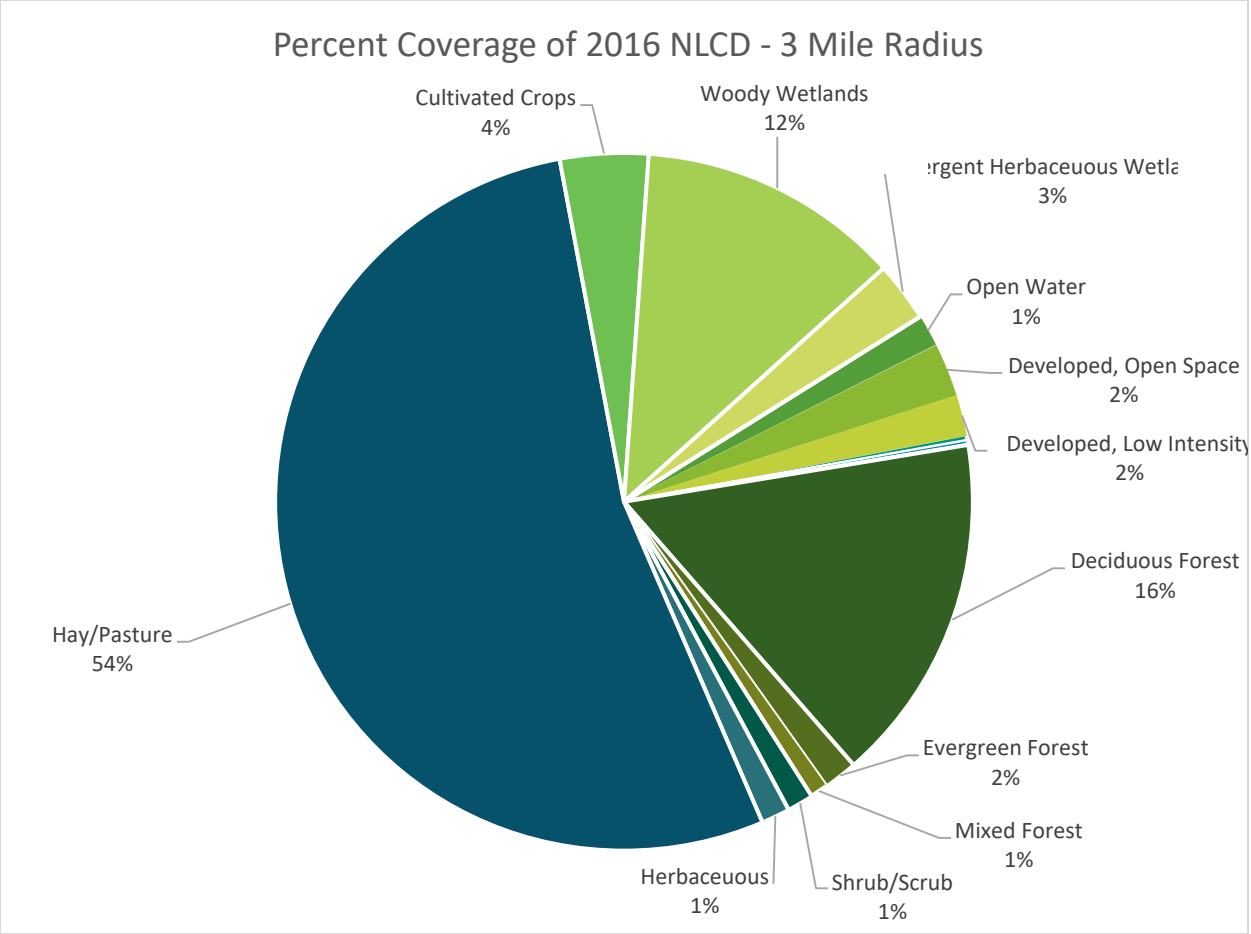

FIGURE 5. Percent cover of land cover types within three miles of Perch River WMA.

Land cover types are from the 2016 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-2019-nlcd2019-legend

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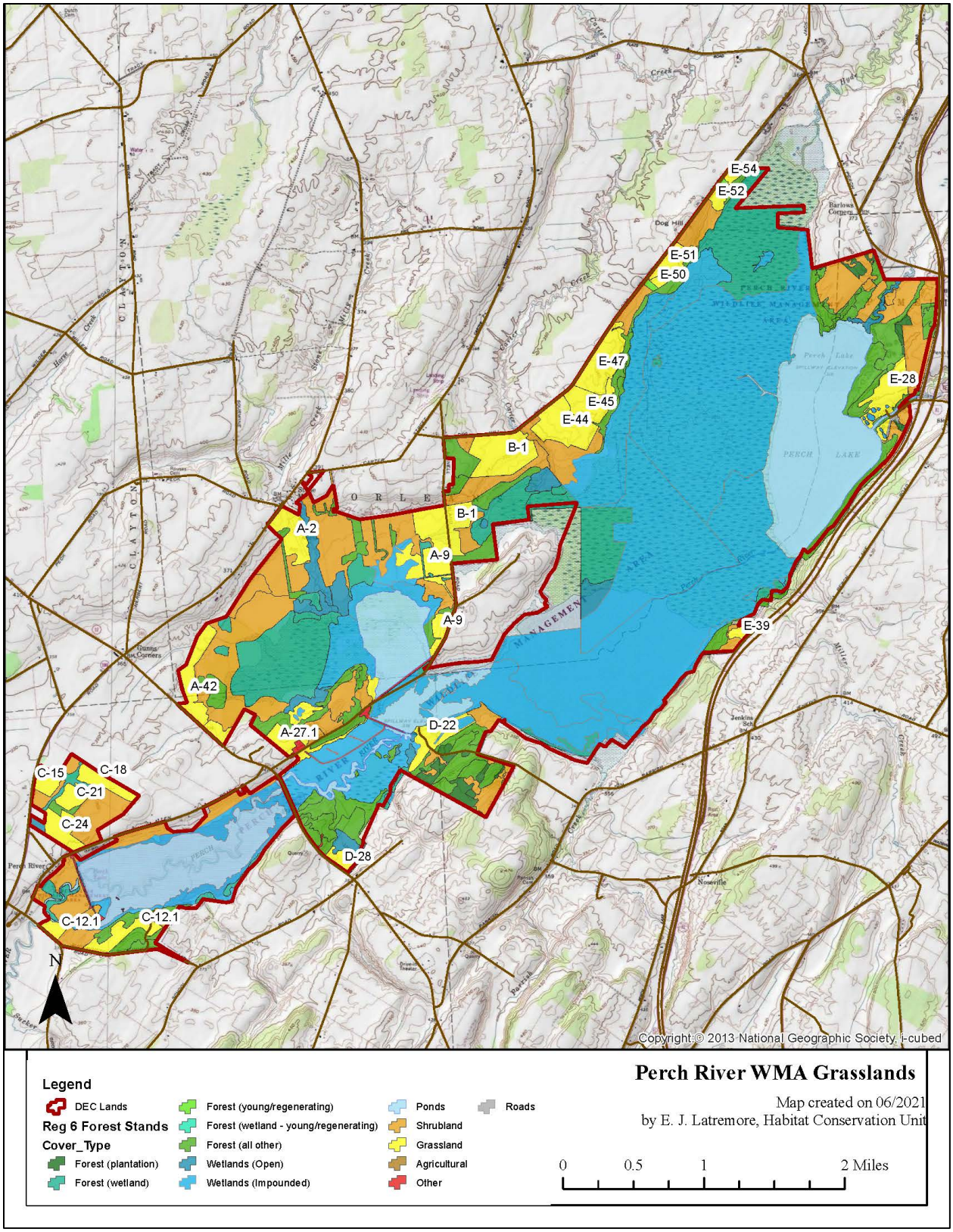


FIGURE 6. Grassland location(s) of proposed management on Perch River WMA. Numbers indicate the grassland stand numbers from habitat inventory.

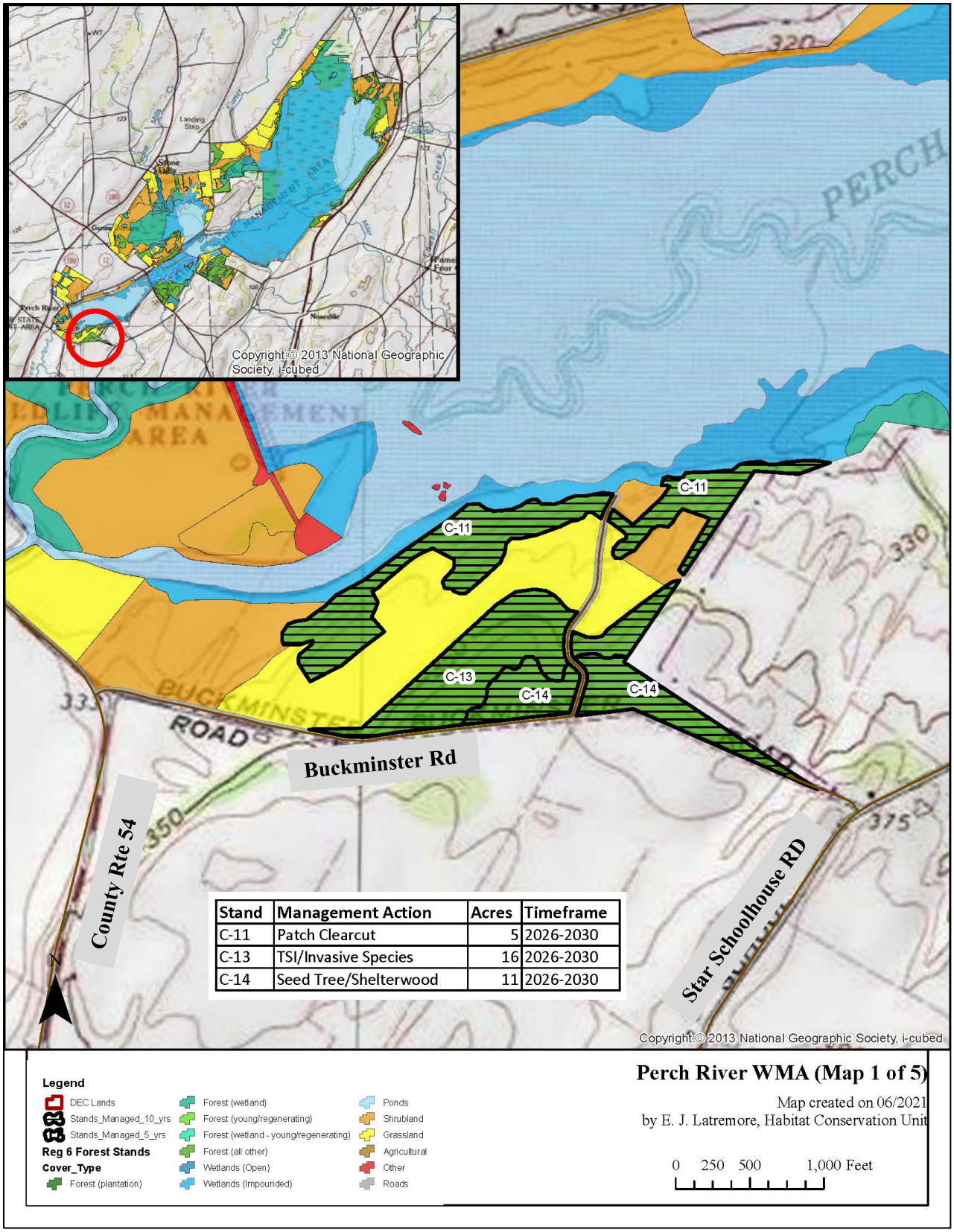


FIGURE 7. Habitat types and location(s) of proposed management on Perch River WMA. Numbers indicate the stand number from habitat inventory.

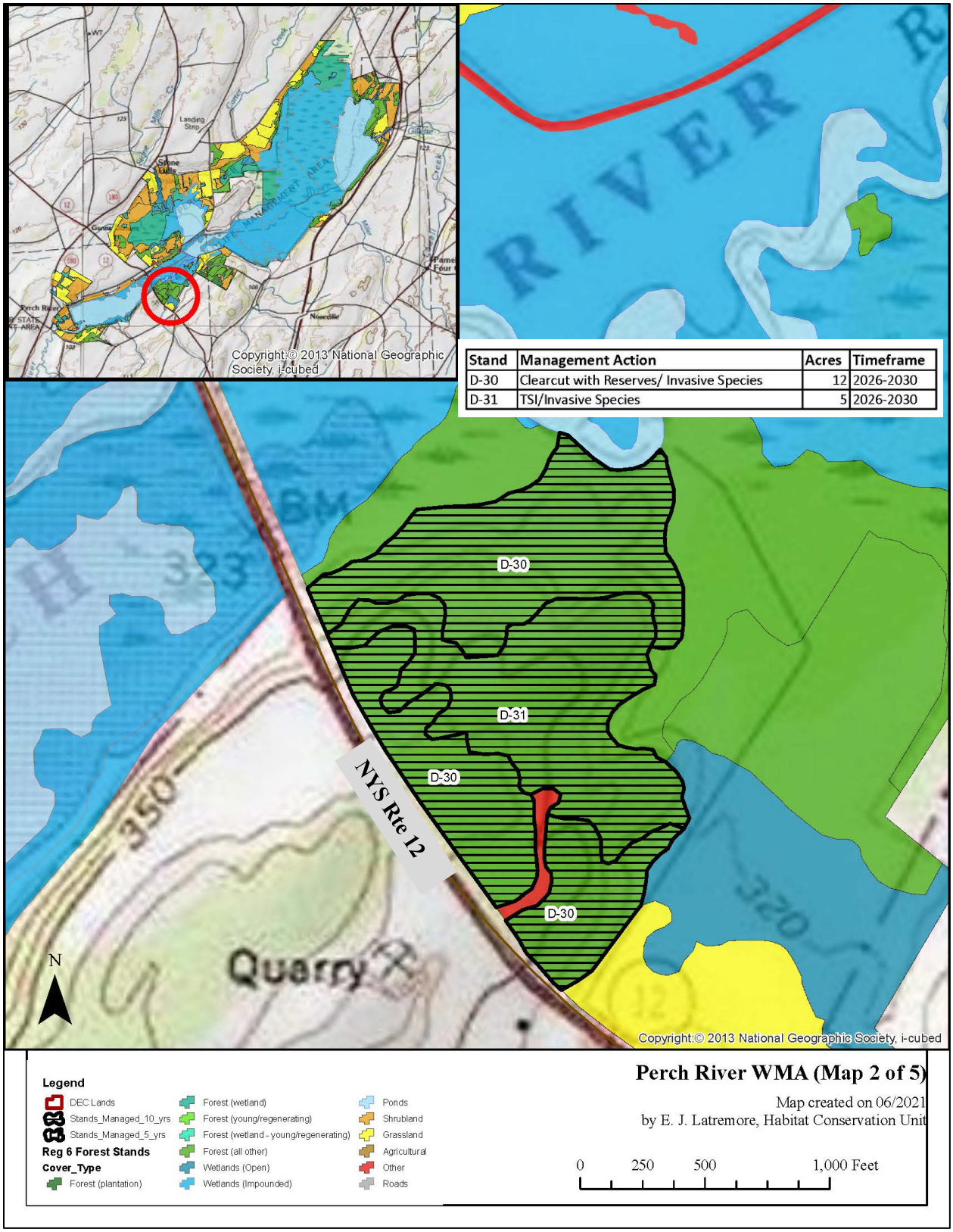


FIGURE 8. Habitat types and location(s) of proposed management on Perch River WMA. Numbers indicate the stand number from habitat inventory.

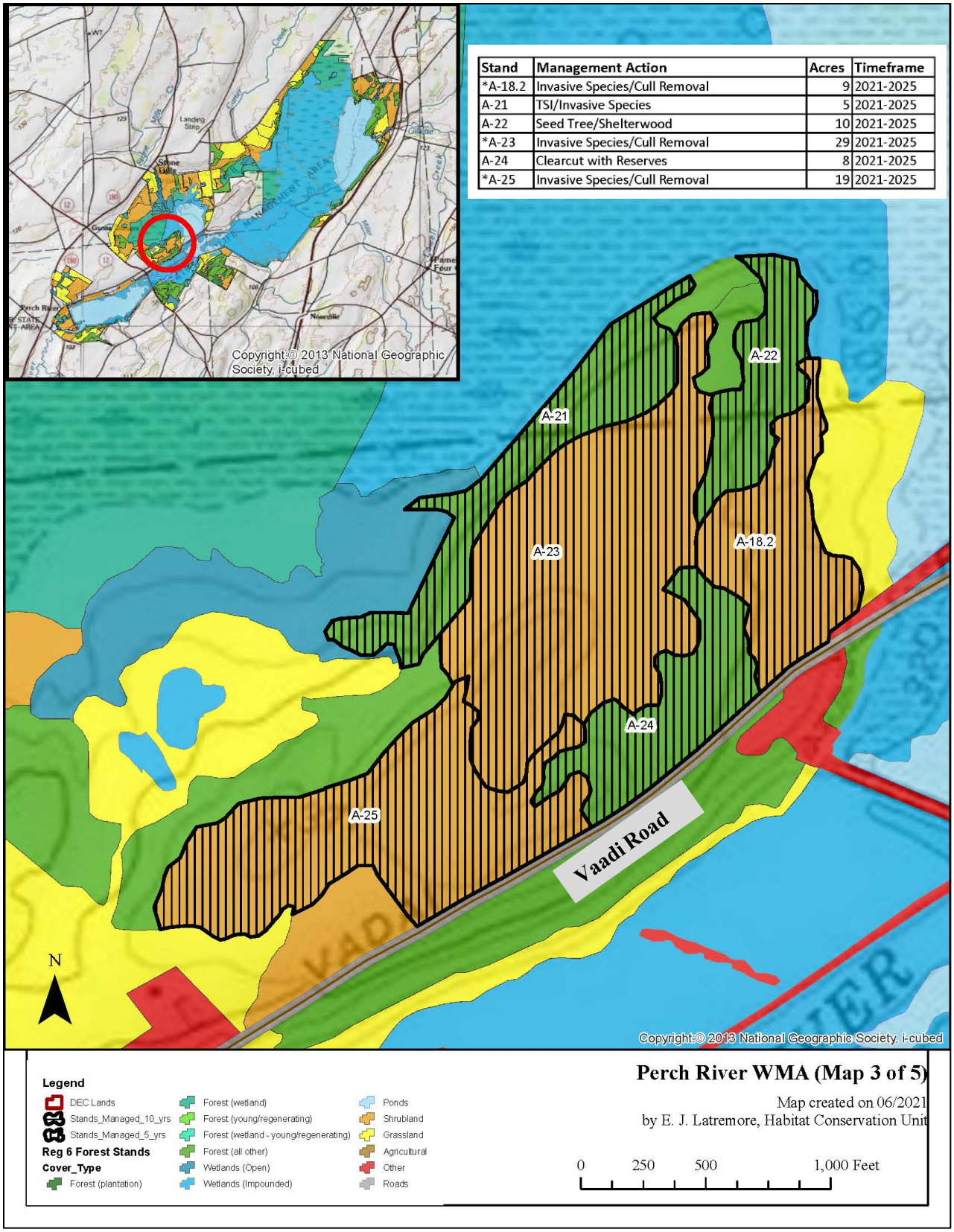


FIGURE 9. Habitat types and location(s) of proposed management on Perch River WMA. Numbers indicate the stand number from habitat inventory.

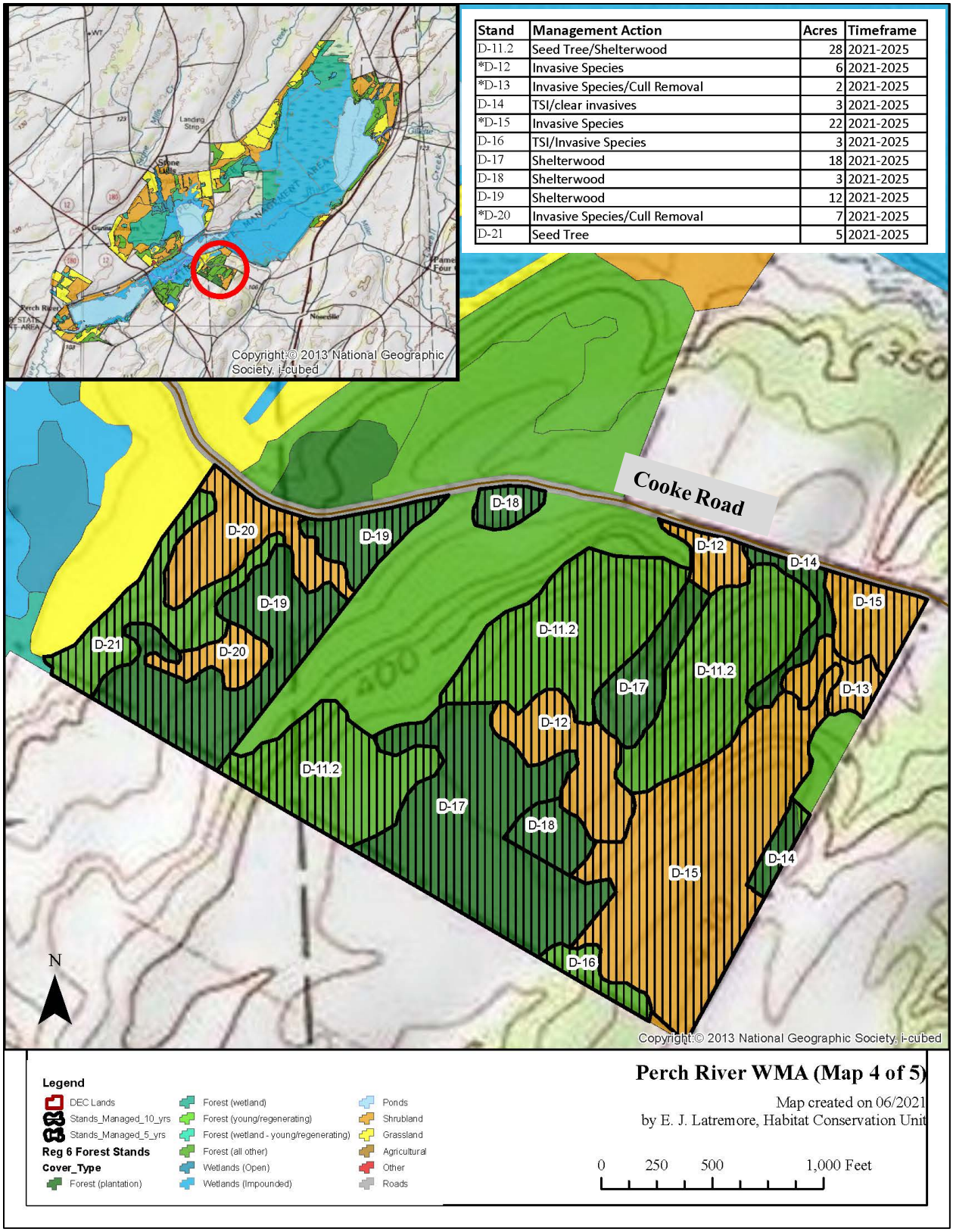
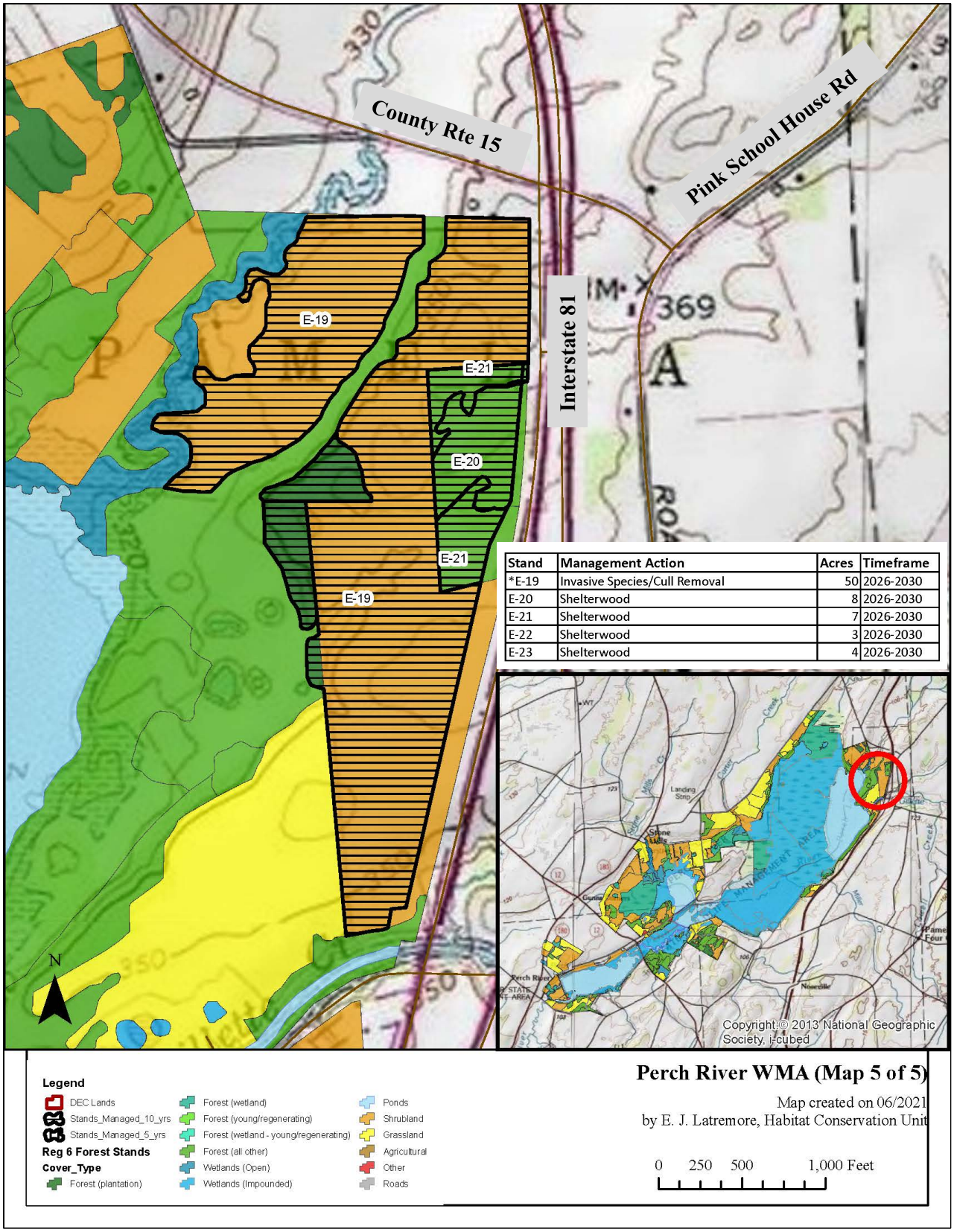


FIGURE 10. Habitat types and location(s) of proposed management on Perch River WMA. Numbers indicate the stand number from habitat inventory.



Stand	Management Action	Acres	Timeframe
*E-19	Invasive Species/Cull Removal	50	2026-2030
E-20	Shelterwood	8	2026-2030
E-21	Shelterwood	7	2026-2030
E-22	Shelterwood	3	2026-2030
E-23	Shelterwood	4	2026-2030

FIGURE 11. Habitat types and location(s) of proposed management on Perch River WMA. Numbers indicate the stand number from habitat inventory.

IV. APPENDICES

APPENDIX A: DEFINITIONS

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

State Rank of Significant Ecological Communities:

S1 = Typically 5 or fewer occurrences, very few remaining individuals, acres, or miles of stream, or some factor of its biology making it especially vulnerable in New York State.
S2 = Typically 6 to 20 occurrences, few remaining individuals, acres, or miles of stream, or factors demonstrably making it very vulnerable in New York State.
S3 = Typically 21 to 100 occurrences, limited acreage, or miles of stream in New York State.
S4 = Apparently secure in New York State.
S5 = Demonstrably secure in New York State.
SH = Historically known from New York State, but not seen in the past 15 years.
SX = Apparently extirpated from New York State.

SE = Exotic, not native to New York State.
SR = State report only, no verified specimens known from New York State.
SU = Status unknown.
(Edinger et al. 2002. Ecological Communities of New York State, Appendix A)

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

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

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

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

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

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

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

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

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

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

APPENDIX B. STATEMENT OF CONFORMITY WITH SEQRA

This plan identifies habitat management activities to be conducted on the Wildlife Management Area. These activities were analyzed in the 1979 *Programmatic Environmental Impact Statement on Habitat Management Activities of the Department of Environmental Conservation; Division of Fish and Wildlife* (PEIS), as updated and amended in 2017 by the *Supplemental Final Environmental Impact Statement* (SFEIS).[23] 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).[24]

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.

[23] Available online at https://www.dec.ny.gov/regulations/28693.html.
[24] Available online at https://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:

PRO 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.