

Appendix E

Draft Wildlife Management Plan

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Cc: [Scarzello, Michael](#); kevin.bernier@brookfieldrenewable.com; [Gibson, Jim](#)
Subject: For 30-day Review: Penobscot Mills Project - Draft Wildlife Management Plan
Date: Wednesday, July 16, 2025 12:16:00 PM
Attachments: [20250716 PMills Draft Wildlife Management Plan.pdf](#)

Dear Patrick, John and Mark,

Great Lakes Hydro America, LLC (GLHA) is the licensee of the Penobscot Mills Hydroelectric Project (FERC No. 2458) (Project), which is currently undergoing FERC relicensing. On September 30, 2024, GLHA filed the Final License Application with FERC for the Project, in which GLHA proposed to implement an updated Wildlife Management Plan for the 2,300-acre Wildlife Management Area at the Penobscot Mills Project.

On behalf of GLHA, attached for your 30-day review and comment is the Draft Wildlife Management Plan for the Project. This Plan is largely consistent with the existing Wildlife Management Plan that has been implemented at the Project under the existing FERC License.

GLHA respectfully requests that you provide any comments (or statement of no comments) on the attached plan within 30 days from receipt of this email (by Friday, August 15, 2025). That said, GLHA plans to file this draft plan with FERC on July 28, 2025 in response to FERC's Additional Information Requests. Therefore, if your comments are still pending on July 28, 2025, GLHA will indicate to FERC that agency review/comments are pending and an updated plan will be filed at a later date after receipt/resolution of agency comments.

Please let us know if you would like to schedule a conference call to discuss any questions or concerns you may have with this information.

On behalf of GLHA, thank you for your continued involvement with the relicensing of the Penobscot Mills Project.

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PENOBSCOT MILLS HYDROELECTRIC PROJECT
(FERC NO. 2458)

DRAFT WILDLIFE MANAGEMENT PLAN

GREAT LAKES HYDRO AMERICA, LLC
Millinocket, Maine

DRAFT

July 2025

PENOBSCOT MILLS HYDROELECTRIC PROJECT (FERC NO. 2458)
DRAFT WILDLIFE MANAGEMENT PLAN

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DRAFT Wildlife Management Plan

1.0 Introduction

Great Lakes Hydro America, LLC (“GLHA” or “Licensee”) is the Licensee of the Penobscot Mills Hydroelectric Project (Project) located on the West Branch of the Penobscot River (West Branch) and Millinocket Stream in Piscataquis and Penobscot Counties, Maine. The Project currently operates under a license issued by the Federal Energy Regulatory Commission (FERC) on October 22, 1996, which expires on September 30, 2026. GLHA is in the process of pursuing a new license from FERC for the continued operation of the Project.

Article 412 of the 1996 license required that GLHA develop and implement a Wildlife Management Plan for the 2,300-acre Wildlife Management Area surrounding the West Branch downstream of Stone Dam for the Penobscot Mills Project. Accordingly, a Wildlife Management Plan was filed with FERC in 1997 and approved by FERC in 1998. GLHA has implemented the Wildlife Management Plan at the Project since 1998.

As indicated in the Final License Application for the Project filed with FERC on September 30, 2024, GLHA proposes to continue to manage the 2,300-acre Wildlife Management Area surrounding the West Branch downstream of Stone Dam pursuant to this Wildlife Management Plan under the new license to be issued by FERC.

The Wildlife Management Area and the associated Management Plan were implemented per the 1996 license as a Protection, Mitigation, and Enhancement (PM&E) measure as an alternative to maintaining a habitat-based minimum flow in the West Branch downstream of the Stone Dam during the last relicensing. Although GLHA is proposing in the current relicensing to provide a year-round minimum flow of 200 cfs in the West Branch downstream of Stone Dam to promote aquatic habitat and angling opportunities, GLHA is also proposing to continue managing the 2,300 acre Wildlife Management Area for the continued benefits of enhanced habitat and diversity for wildlife. Additionally, continued management of the Wildlife Management Area will also mitigate for potential effects to botanical and wildlife species from vegetation management activities within the approximately 680 acres of land within the Projects’ transmission line corridors.

This Wildlife Management Plan outlines the wildlife enhancement and management efforts to protect and enhance upland, wetland, and riparian habitat diversity and value to wildlife in the 2,300-acre Wildlife Management Area.

2.0 Background

The Penobscot Mills Project consists of five developments: the Millinocket Lake Storage Development, North Twin Development, Millinocket Development, Dolby Development, and East Millinocket Development.

Pursuant to Article 412 of the Project's 1996 License, GLHA incorporated 2,300 acres of land surrounding the West Branch downstream of Stone Dam at the Millinocket Development into the Project boundary to be managed to enhance habitat diversity and value to wildlife.

Since 1998, GLHA has managed the Wildlife Management Area by providing wildlife enhancement and management efforts (e.g., forest management techniques, waterfowl nest boxes, belted kingfisher (*Megaceryle alcyon*) habitat, and maintenance of seeded roads for wildlife habitat) to the riparian and upland areas surrounding the West Branch downstream of Stone Dam as described below and shown on Figure 2-1:

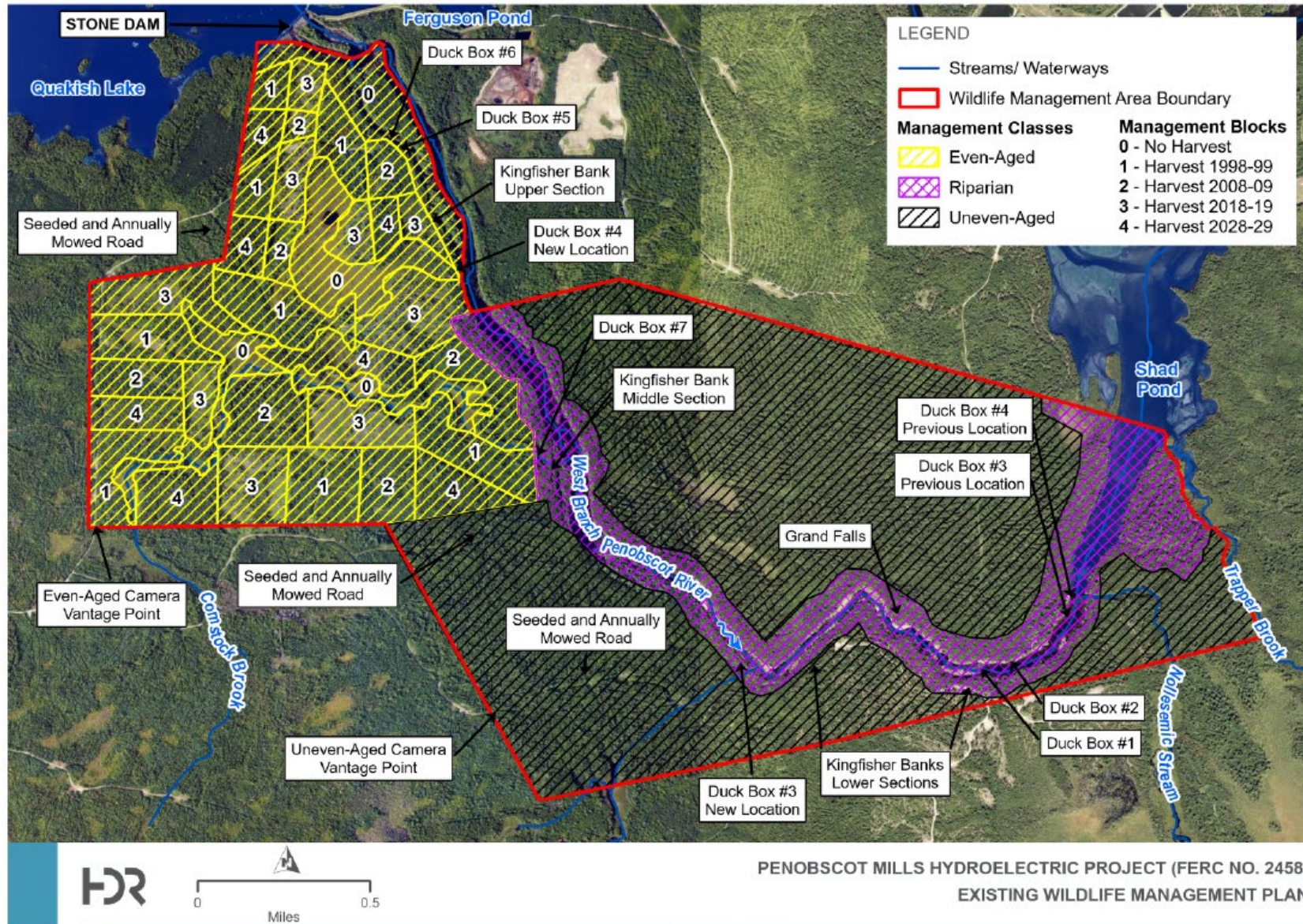
- Four eastern bluebird (*Sialia sialis*) boxes were deployed in the spring of 1999. The bluebird boxes were occasionally utilized by small mammals and tree swallows, but no use by bluebirds were observed. Two of the bluebird boxes were removed in 2006, and the other two boxes were removed in 2013.
- Four duck boxes were installed in 1998 (Box Nos. 1-4), two duck boxes were installed in 1999 (Box Nos. 5-6), and one duck box was installed in 2007 (Box No. 7). Monitoring indicated that the duck boxes were used periodically by waterfowl.
- Two kingfisher nest sites were established in the upper section in 1998-1999. One of the kingfisher nest sites was discontinued due to the presence of red oak (*Quercus rubra*) trees, which were thought to be better for wildlife. Monitoring and maintenance of the other kingfisher nest was discontinued after 2012 due to lack of use.

- One kingfisher nest site was established in the middle section in 1998-1999. Monitoring and maintenance of the kingfisher nest was discontinued in 2012 due to lack of use.
- Two kingfisher nest sites were established in the lower section in 1999-2000. Kingfisher activity was observed at one of the nest sites, but monitoring and maintenance of the other nest site was discontinued in 2012 due to lack of use.
- Timber harvesting was performed in the riparian area (greater than 100 feet from the West Branch) during the winters of 1999-2000 and 2020-2021.
- Timber harvesting (managed to maintain and increase the existing forest diversity) was performed in the upland areas within uneven and even-aged management areas.
 - Timber harvesting in the uneven-aged management block located south of the West Branch was performed in the winters of 1998-1999, 1999-2000, 2019-2020, and 2020-2021.
 - Timber harvesting in the uneven-aged management block located north of the West Branch was performed in the winters of 2003-2004, 2004-2005, and 2024-2025.
 - Timber harvesting in the even-aged management blocks numbered one were harvested in the winter of 1998-1999, in blocks numbered two in the winter of 2008-2009, and in blocks numbered three in the winter of 2018-2019 and 2019-2020. Blocks numbered four are scheduled to be harvested in the winter of 2028-2029.
- Although the zoned white-tailed deer (*Odocoileus virginianus*) wintering areas in the Wildlife Management Area were removed from zoned status, the recommended winter cover for deer (i.e., 50% of the softwood areas maintained in softwood trees at least 35 feet tall) was retained during the uneven-aged harvests.
- Three roads were created to access the uneven-aged and even-aged areas on the south side of the West Branch. In the spring of 1999, these roads were planted with herbaceous seed designed for wildlife. The roads were then limed, fertilized, and annually mowed to maintain them in a grassy or herbaceous state.

- Two roads were created to access the uneven-aged areas on the north side of the West Branch. In the spring of 2005, these roads were planted with herbaceous seed designed for wildlife. The roads were then limed, fertilized, and annually mowed to maintain them in a grassy or herbaceous state.

Pursuant to Article 412, GLHA filed with FERC 5-year reports summarizing management activities that had been conducted within the Wildlife Management Area, with the last report filed on February 12, 2018. Via order dated July 12, 2018, FERC indicated that the 5-year reports demonstrated that the wildlife management activities and measures were consistently in place, functioning as intended, and successfully fulfilled the objectives of the plan. The July 2018 FERC Order also indicated that management activities should continue through the term of the 1996 License, but that 5-year summary reports could be discontinued.

Figure 2-1. Wildlife Management Area – Measures Performed Under 1997 Plan



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3.0 Description of Wildlife Management Area

The 2,300-acre Wildlife Management Area is made up of a 4.5-mile-long stretch of the West Branch downstream of Stone Dam, the riparian area along this portion of the West Branch, and the upland area surrounding this portion of the West Branch. Additionally, there are three physically different areas within the Wildlife Management Area: the Upper, Middle, and Lower Sections (see Figure 2-1). The Upper Section extends about 1.5 miles downstream of Stone Dam and has a very low gradient and two distinct channels. The Middle Section extends about 2.3 miles downstream to Grand Falls and is more steep-sloped with heavily scoured substate. The Lower Section extends 0.7 mile downstream to the backwater portion of Shad Pond downstream of Grand Falls.

3.1 West Branch Downstream of Stone Dam

The West Branch downstream of Stone Dam (Millinocket Development) is a 4.5-mile-long reach that flows into Shad Pond. The reach receives inflow from various tributaries as well as from Quakish Lake, which in the summer is composed of warm limnetic surface water spill at Stone Dam (GLHA 2024a). Approximately 2.7 miles downstream of Stone Dam is Grand Falls, a natural falls and a barrier to upstream movement of warmwater species, sea run alosines (shad and river herring), and juvenile salmon (Great Northern Nekoosa Corporation [GNNC] 1991).

3.2 Wetland and Riparian Habitat

The stable low-flow and energy conditions have given rise to a very diversified and productive pattern of wetlands within the West Branch downstream of Stone Dam. This has been highly beneficial from the standpoint of wetland functions and values (GNNC 1991).

Seasonal flooding has not occurred with sufficient regularity to support typical floodplain community development (GNNC 1991). Hardwood shrubs immediately abut the shoreline and line the islands in the West Branch. Hardwood and mixed forests occur upland of the riparian shrubs. Shrubs also occur on sand and gravel bars in the main channel and in scattered areas within the side channel (GNNC 1991). The side channel consists of scattered pools and small narrow channels interspersed with shrubs, emergent wetland vegetation, and scattered trees. Shrubs, including speckled alder (*Alnus incana* ssp. *rugosa*) and willow (*Salix*), dominate the vegetation

(GNNC 1991). The trees are primarily red maple (*Acer rubrum*) and northern white cedar (*Thuja occidentalis*) (GNNC 1991).

Spring floods and lack of suitable substrates limit emergent vegetation to the most tolerant species and the most suitable locations (GNNC 1991). The most abundant herbaceous species include bluejoint grass (*Calamagrostis canadensis*), sedge (*Carex* spp.), tussock sedge (*Carex stricta*), broadleaf cattail (*Typha latifolia*), woodrush (*Luzula* spp.), bulrush (*Scirpus* spp.), rush (*Juncus* spp.), sphagnum (*Sphagnum* spp.), soft rush (*Juncus effusus*), fringed sedge (*Carex crinita*), and woolgrass (*Scirpus cyperinus*) (GNNC 1991). Most of these species are tolerant of inundation. Some are tolerant of swift water, while others are typical of disturbed areas. These plants survive the spring flooding possibly because they occur in sheltered areas, are interspersed with shrubs which may absorb the force of the floodwaters or have life forms during the time of flooding that hug the ground (GNNC 1991).

Alder thickets also occur in areas along the West Branch most frequently as discontinuous bands and in patches along the shorelines. These areas are composed mostly of speckled alder, which forms multiple-stemmed clusters that grow in uniform stands 12 to 15 feet tall. Scattered in lower abundances throughout the alder are red maple, willow and witherod (*Viburnum cassinoides*), with sweet gale (*Myrica gale*), white meadow sweet (*Spiraea alba* var. *latifolia*), and various sedges and grasses occurring in openings (GNNC 1991).

3.3 Upland Areas and Associated Habitat

To the south and west of the West Branch downstream of Stone Dam, the topography is generally flat, sloping only slightly to the channel; north and east of the West Branch, the terrain is steeper and upsloping from the channel toward Shack Hill. Much of the area to the west of the West Branch downstream of Stone Dam is mapped as woody wetlands. A relatively large black spruce (*Picea mariana*) bog occurs on the western side of the West Branch near the north end of the Wildlife Management Area (GLHA 2024b).

Softwood and mixed-wood types predominate on both sides of the West Branch in the Wildlife Management Area. The softwoods are generally dominated by red spruce (*Picea rubens*), balsam fir (*Abies balsamea*), eastern hemlock (*Tsuga canadensis*), northern white cedar, eastern white pine (*Pinus strobus*), and scattered American larch (*Larix laricina*). There are some hardwood

stands of both intolerant and tolerant species dominated by paper birch (*Betula papyrifera*), quaking aspen (*Populus tremuloides*), red maple, sugar maple (*Acer saccharum*), red oak, American beech (*Fagus grandifolia*), and yellow birch (*Betula alleghaniensis*) (GLHA 2024a).

4.0 Wildlife Management Plan Goals and Objectives

Similar to the Wildlife Management Plan approved by FERC in 1998, the objective of this plan is to continue to enhance the diversity, thereby the species richness, of the habitat surrounding the West Branch downstream of Stone Dam.

The goals of this plan are to:

- Maintain duck nesting boxes;
- Maintain several roads in herbaceous (grassy) condition for use by wildlife, including Monarch butterfly (*Danaus plexippus*, a federal candidate species);
- Conduct timber harvesting based on applicable timber harvesting regulations and wildlife protection and enhancement measures such as the following:
 - No harvesting within 100 feet of the West Branch except to release mast-producing species or enhance areas utilized by beaver (*Castor canadensis*);
 - Prior to harvesting, locate, map, and avoid vernal pools in accordance with the “Guidelines for Harvesting Around Vernal Pools;”
 - Conduct timber harvesting during the winter months outside of bat roosting season;
 - Maintain sufficient snags for cavity nesters;
 - Preserve existing older growth areas; and
 - Retain mast producing trees.

5.0 Wildlife Management Plan Measures

5.1 Waterfowl Nesting Boxes

GLHA will continue to maintain up to seven waterfowl nesting boxes along the West Branch from Stone Dam to Shad Pond based on the locations shown on Figure 5-1. The boxes are/will be installed on trees along the shoreline close to the water and at least 3 feet above the expected flood levels, but not more than 10 feet above the ground. The boxes are constructed from rough-cut lumber and have 3-5 inches of shavings in the bottom (see Attachment A for duck box design details). The nest boxes will be annually cleaned and maintained by GLHA personnel.

5.2 Herbaceous / Grassy Roads

GLHA will continue to maintain the previously created three roads on the south side of the West Branch and two roads on the north side (Figure 5-1) in an herbaceous/grassy state for use by wildlife, including the Monarch butterfly. The roads have been (and will be, if needed) seeded with a herbaceous seed. These roads will be limed and fertilized as needed and annually mowed to maintain them in an herbaceous/grassy state. The annual mowing will occur in the fall months for the protection of Monarch butterfly.

5.3 Timber Harvesting

Timber harvesting will continue to occur in certain portions of the Wildlife Management Area while incorporating the wildlife protection and enhancement measures defined in this Wildlife Management Plan and applicable timber harvesting regulations.

Vernal pools are isolated, temporarily flooded basins of freshwater without an inlet or outlet that has ponding for two months. Vernal pools serve as important habitat for a number of amphibians and invertebrate species. To be considered an important vernal pool, it must have obligate amphibian species present. Prior to the time of harvest, vernal pools will be located and mapped in the spring or early summer. Harvesting will be performed during the winter months and will avoid these mapped vernal pool areas in accordance with the “Guidelines for Harvesting Around Vernal Pools”¹ provided in Attachment B.

¹ The guidelines are adapted from *Forestry Habitat Management Guidelines for Vernal Pool Wildlife* (Calhoun and deMaynadier 2004) that is a cooperative publication of the University of Maine, Maine Audubon, Maine

A program of snag management will be instituted for areas of harvest. Several species of birds and mammals that are likely to be found in this area nest in cavities or hollow trees based on the following type and size of snag preferred:

- Wood duck (*Aix sponsa*) – live or dead, 20+ inches
- Hooded Merganser (*Lophodytes cucullatus*) – live or dead, 20 inches
- Little Brown Myotis (*Myotis lucifugus*) – hollow tree, 24+ inches
- Weasel (*Mustela* spp.) – hollow tree, 24+ inches
- Pileated woodpecker (*Dryocopus pileatus*) – live or dead, 20 inches

Previous surveys have shown snags to be relatively abundant in the Wildlife Management Area (especially in the riparian area along the West Branch), with the number of snags far exceeding the snag density required by cavity excavators in Maine. To ensure continued protection of these snags, future harvest plans will direct harvesting equipment operators to avoid snags whenever possible during upcoming timber harvests in the Wildlife Management Area.

The Wildlife Management Area is separated into the West Branch area, the riparian area, and the upland area with uneven-aged and even-aged management areas (Figure 5-1).

West Branch Habitat Management

The West Branch is separated into the upper, middle, and lower sections as shown on Figure 5-1. The upper, middle, and lower sections of the West Branch will be enhanced by riparian management ensuring that sufficient snags occur (as described above). In the upper section, forest harvesting along part of this section will be designed to enhance beaver habitat. In the middle and lower sections, forest harvesting will ensure that continuous cover trees exist to serve as a wildlife travel corridor.

Riparian Area Habitat Management

The riparian area extends 330 feet from the West Branch. No harvesting is allowed within 100 feet of the West Branch except to release mast-producing species or enhance an area utilized by beaver. Forest harvesting will be permitted in the remainder of the riparian area but is limited to 20 percent removal of trees over 4.6 inches in DBH at harvest intervals of not less than 20 years, unless forest conditions dictate (e.g., insect infestation, windthrow). Uneven-aged timber harvesting in the riparian area was last completed in the winters of 1999-2000 and 2020-2021 and is anticipated to occur again during the winter of 2040-2041.

Red oak, American beech, and eastern white pine are not to be harvested in the riparian area. Eastern white pine in the riparian area are to be retained for perch and/or potential nest trees for bald eagle (*Haliaeetus leucocephalus*) and osprey (*Pandion haliaetus*).

Soft mast is very important to various wildlife species. Areas that are presently producing soft mast will be managed to continue to produce mast (as further described in the Upland Area Habitat Management section below).

Snags will be maintained in the area as described above.

No new roads will be built within the riparian area.

Upland Area Habitat Management

The upland area is separated into management blocks based on existing forest types and natural features. The area will be managed to maintain and increase the existing forest diversity by using both even-aged and uneven-aged management systems throughout the area. Harvesting occurs in the upland area for uneven-aged (lower portion of the Wildlife Management Area) and even-aged (upper portion of the Wildlife Management Area) management blocks as further described below. The management plan will result in vertical diversity, which certain bird species respond favorably to, and will also increase wildlife diversity.

Uneven-Aged Management Area

There are two upland uneven-aged management blocks – one north and one south of the West Branch. Areas south of the West Branch were harvested in the winters of 1998-1999, 1999-2000,

2019-2020, and 2020-2021. Areas north of the West Branch were harvested in the winters of 2003-2004, 2004-2005, 2023-2024 and 2024-2025.

Uneven-aged harvests are designed to open up the stands creating new growth and a more even distribution of age classes, which creates greater vertical diversity of the forest stand for many wildlife species. The stand of eastern white pine in the southern part, which is also in the riparian area, will be managed for old growth (no harvest). Red oak and beech are important hard mast producing trees in this area. Red oak and beech will not be harvested in the entire area except in roads and skid trails. Silvicultural methods to favor red oak and beech will be performed at the time of harvest.

Soft mast is an important food source for wildlife. Areas that are producing soft mast and are persistent species, such as the *Viburnums spp.*, will be retained and managed. Those species that are less persistent and are present only as long as the successional stage is appropriate, like raspberries (*Rubus idaeus*), will not require special management. Any fruit trees will be released and managed. The location of these soft mast scrubs and trees will be recorded and mapped just prior to the time of harvest.

Slash will be allowed to remain on site or be returned to the site for woody debris habitat. Snags will be protected in the uneven-aged management blocks to provide habitat for wood duck, hooded merganser, pileated woodpecker, little brown myotis bats, and weasel as further described above.

The zoned, white-tailed deer wintering areas in the Wildlife Management Area were removed from zoned status. However, the recommended winter cover for deer (i.e., 50% of the softwood areas maintained in softwood trees at least 35 feet tall) has been and will be retained during the uneven-aged harvests.

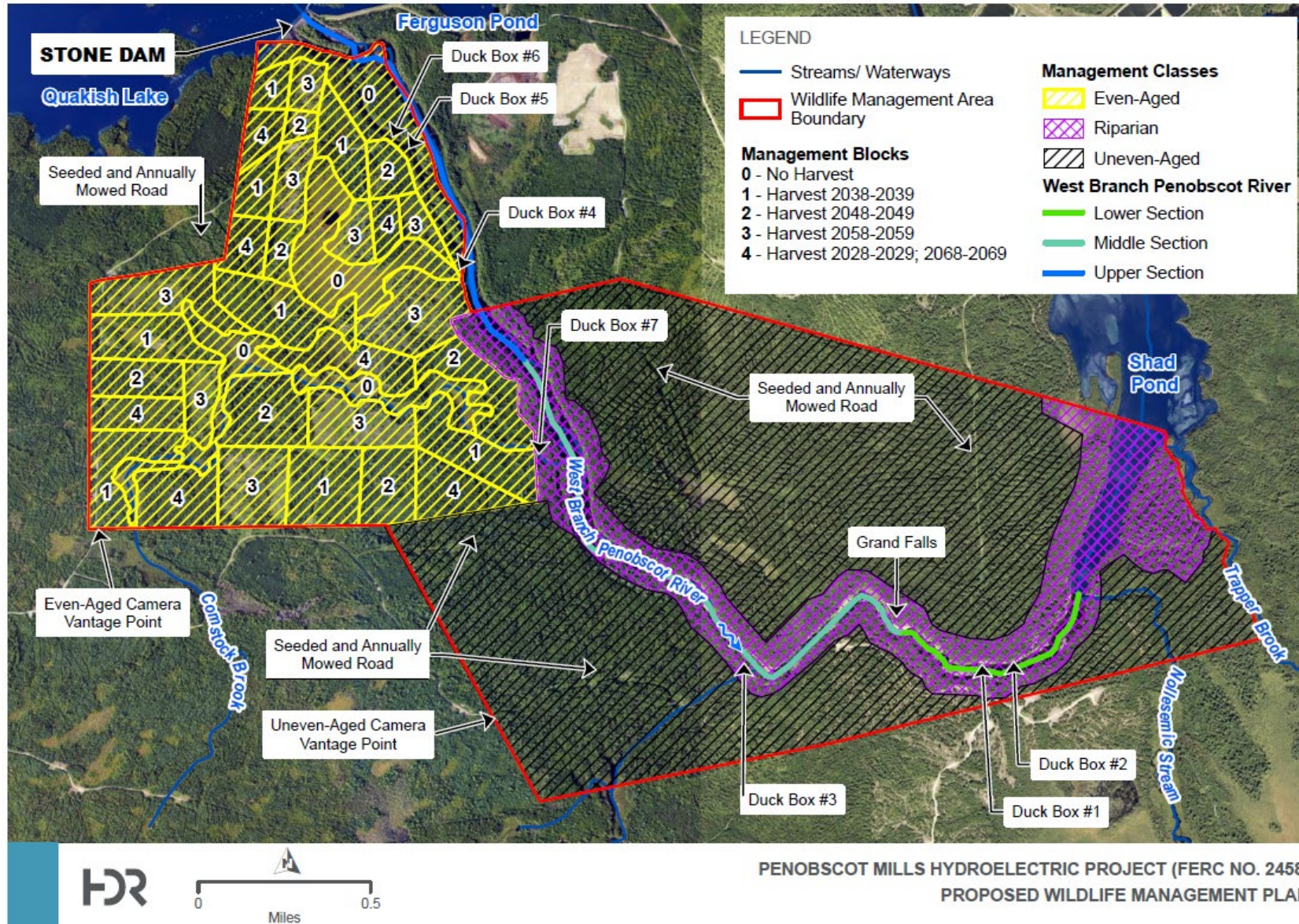
Even-Aged Management Area

The even-aged management area is located in the northwestern portion of the Wildlife Management Area (Figure 5-1). Comstock Brook, a tributary that flows into the West Branch, has a number of old beaver flowages along it. The objective of even-aged management is to regenerate aspen and other intolerant hardwoods to enhance wildlife habitat (including beaver and ruffed grouse [*Bonasa umbellus*]). By managing the area to entice beaver to re-establish flowages, a

number of vertebrates will be benefited: wood duck, American black duck (*Anas rubripes*), muskrat (*Ondatra zibethicus*), river otter (*Lontra canadensis*), mink (*Neogale vison*), and wading birds.

The even-aged management area is divided into blocks and numbered from zero to four. Blocks numbered zero are not harvested. Blocks numbered one were harvested in the winter of 1998-1999. Blocks numbered two were harvested in the winter of 2008-2009. Blocks numbered three were harvested in the winter of 2018-2019 and 2019-2020. Blocks numbered four are scheduled to be harvested in 2028-2029. Future harvests in blocks 1, 2, 3, and 4 are scheduled to occur 40 years after the previous harvest (i.e., 2039, 2049, 2059, 2069, respectively).

Figure 5-1. Wildlife Management Area – Proposed Measures



6.0 Potential Impacts/Benefits of Wildlife Management Plan

This Wildlife Management Plan proposes measures to be implemented over the term of the new license within the 2,300-acre Wildlife Management Area surrounding the West Branch downstream of Stone Dam. The area is managed to protect and enhance upland, wetland, and riparian habitat diversity and value to wildlife in this area as described below.

- Waterfowl will benefit from the continuation of the proposed duck nesting box program and snag/cavity management.
- Additional bird species and wildlife will benefit from the proposed snag/cavity management.
- Monarch butterfly will benefit from the areas maintained in herbaceous/grassy state and mowed in the fall months after the breeding season.
- Beavers will benefit from the management objectives intended to enhance food source and habitat for beaver, while numerous other species will benefit from the resulting beaver flowages and associated wetlands.
- Deer will benefit from the areas maintained for winter cover in the area previously zoned as a Deer Wintering Area and will benefit from the readily accessible supply of browse that results from winter harvesting.
- Impacts to bats will be avoided, as timber harvesting will occur during the winter months outside of the bat roosting season.
- Eagles and osprey will benefit from the measures in this plan that retain trees typically used by eagles and osprey. If bald eagles or osprey establish nests in the area, timber harvesting will not be conducted during the nesting period (March to August) within ¼ mile of the nest.
- Proposed measures in this plan are anticipated to benefit Canada lynx (*Lynx canadensis*) and their primary food source (snowshoe hare, *Lepus americanus*), and GLHA will follow

the Canada Lynx Habitat Management Guidelines for Maine (USFWS 2007)², as applicable, while managing lands within the Wildlife Management Area.

- Vernal pools will be mapped prior to and avoided during timber harvesting activities.

7.0 Consultation

GLHA will consult with MDIFW and USFWS at 5-year intervals (implemented from the date of FERC approval of the plan) and will evaluate any needed changes or adjustments to the Wildlife Management Plan. Any agreed-upon changes to the plan will be submitted to FERC for review and approval.

8.0 Literature Cited

Calhoun, A. J. K. and P. deMaynadier. 2004. Forestry Habitat Management Guidelines for Vernal Pool Wildlife. MCA Technical Paper No. 6, Metropolitan Conservation Alliance, Wildlife Conservation Society, Bronx, New York.

Great Lakes Hydro America, LLC (GLHA). 2024a. Ripogenus Hydroelectric Project (FERC No. 2572-133) and Penobscot Mills Hydroelectric Project (FERC No. 2458-247) Final License Application. Submitted to FERC September 30, 2024.

Great Lakes Hydro America, LLC (GLHA). 2024b. Terrestrial, Wildlife, and Botanical Resources Study Report. GLHA, FERC Nos. 2572 and 2458. Submitted to FERC April 24, 2023. Great Lakes Hydro America, LLC, Millinocket, ME.

Great Northern Nekoosa Corporation (GNNC). 1991. Penobscot Mills Project (FERC No.2458) Application for New License for Major Existing Dam. Great Northern Nekoosa Corporation, FERC No. 2458. Submitted to FERC December 17, 1991. FERC Accession No. 19911218-0074.

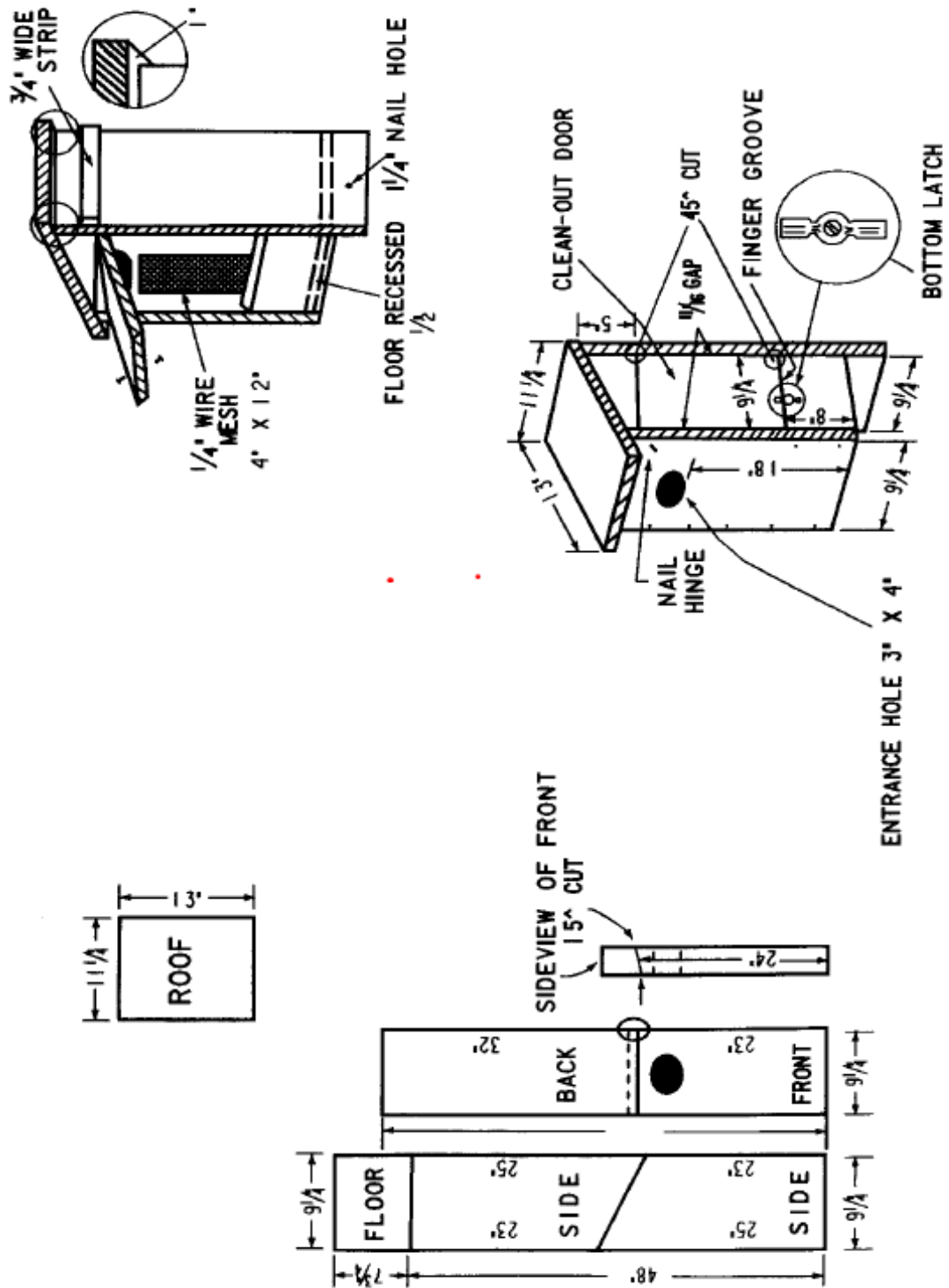
² Guidelines include the following: avoid paving dirt or gravel roads to avoid fragmenting potential lynx habitat with high traffic/speed roads; employ silviculture techniques that create, maintain, or prolong use of stands by high populations of snowshoe hares; maintain land in forest management and avoid development projects that occur across large areas; and retain coarse woody debris for denning sites.

United States Fish and Wildlife Service (USFWS). 2007. Canada Lynx Habitat Management Guidelines for Maine. U.S. Fish and Wildlife Service Maine Field Office, Old Town, Maine. 45 pp.

ATTACHMENT A

DUCK BOX DESIGN

DUCK BOX



ATTACHMENT B

GUIDELINES FOR HARVESTING AROUND VERNAL POOLS

GUIDELINES FOR HARVESTING AROUND VERNAL POOLS

The following guidelines are adapted from *Forestry Habitat Management Guidelines for Vernal Pool Wildlife* (Calhoun and deMaynadier 2004) that is a cooperative publication of the University of Maine, Maine Audubon, Maine Department of Inland Fisheries and Wildlife, Maine Department of Conservation, and the Wildlife Conservation Society.

Vernal pools are important habitat for some amphibians and invertebrates. Some species only breed in these ecosystems. Vernal pools are small (usually less than one acre), seasonal wetlands that lack perennial inlet or outlet streams and have no permanent fish populations. During the wettest seasons of the year – spring and often fall – vernal pools are small vegetated or unvegetated bodies of water, while in dry seasons they may only be recognizable as an isolated depression in the forest floor (Calhoun and deMaynadier 2004). Forestry is compatible with these areas as long as care is taken during harvest.

Vernal Pool and Its Depression

Maintain the integrity of the pool and its depression, vegetation, and ability to hold water.

- Keep heavy equipment out of the pool depression at all times of year.
- Prevent sedimentation into the pool.
- Keep slash out of the pool. If a top falls in the pool during breeding period (March to June), leave it.

Vernal Pool Protection Zone (100 feet around the pool)

Protect vernal pool and surrounding habitat by maintaining or encouraging a mostly closed canopy stand in a pole or greater size class that will provide shade, litter, and woody debris around the pool.

- Maintain a mostly closed forest canopy (minimum average of 75% canopy cover of trees a minimum of 20-30 feet tall, uniformly distributed).
- In understocked stands, consider delaying harvest activity until canopy cover has increased beyond the recommended minimum.

- Harvest only during completely frozen or completely dry soil conditions. Do not create ruts and minimize soil disturbance.
- Avoid road or landing construction. If roads or landings already exist, apply appropriate erosion control best management practices (BMPs) to protect water quality.
- Leave a supply of older or dying trees to serve as recruitment for coarse woody debris.
- Avoid disturbing fallen logs.
- Leave limbs and tops where felled.
- Avoid the use of chemicals.

Amphibian Life Zone (100-400 feet around the pool)

Provide some suitable upland habitat for pool-breeding amphibian populations by maintaining or encouraging a partially closed-canopy stand that offers shade, deep litter, and woody debris around the pool. Minimize disturbance to the forest floor.

- Maintain a minimum average of >50% canopy cover of trees 20-30 ft. tall, uniformly distributed.
- Avoid canopy harvest openings greater than 1 acre in size.
- If even-aged management is necessary, extended shelterwood or similar systems that involve continuous retention of some canopy component will help maintain suitable forest floor habitat.
- Maintain natural litter composition (avoid significant shifts in forest cover type).
- Avoid plantation silviculture in this zone.
- Maintain coarse-woody-debris, leave two/acre of older or dying trees to serve as recruitment for coarse woody debris.
- Avoid disturbing fallen logs.
- Leave limbs and tops where felled or return slash to the zone during whole-tree removal.
- Harvest only during completely frozen or completely dry soil conditions. Do not create ruts.
- Minimize soil compaction and scarification.
- Avoid road or landing construction. If roads or landings already exist, apply appropriate erosion control BMPs to protect water quality.

- Minimize the use of chemicals.

Literature Cited

Calhoun, A. J. K. and P. deMaynadier. 2004. Forestry Habitat Management Guidelines for Vernal Pool Wildlife. MCA Technical Paper No. 6, Metropolitan Conservation Alliance, Wildlife Conservation Society, Bronx, New York.