

# Seney Poor Conifer Swamp and Rich Tamarack Swamp ERA Plan

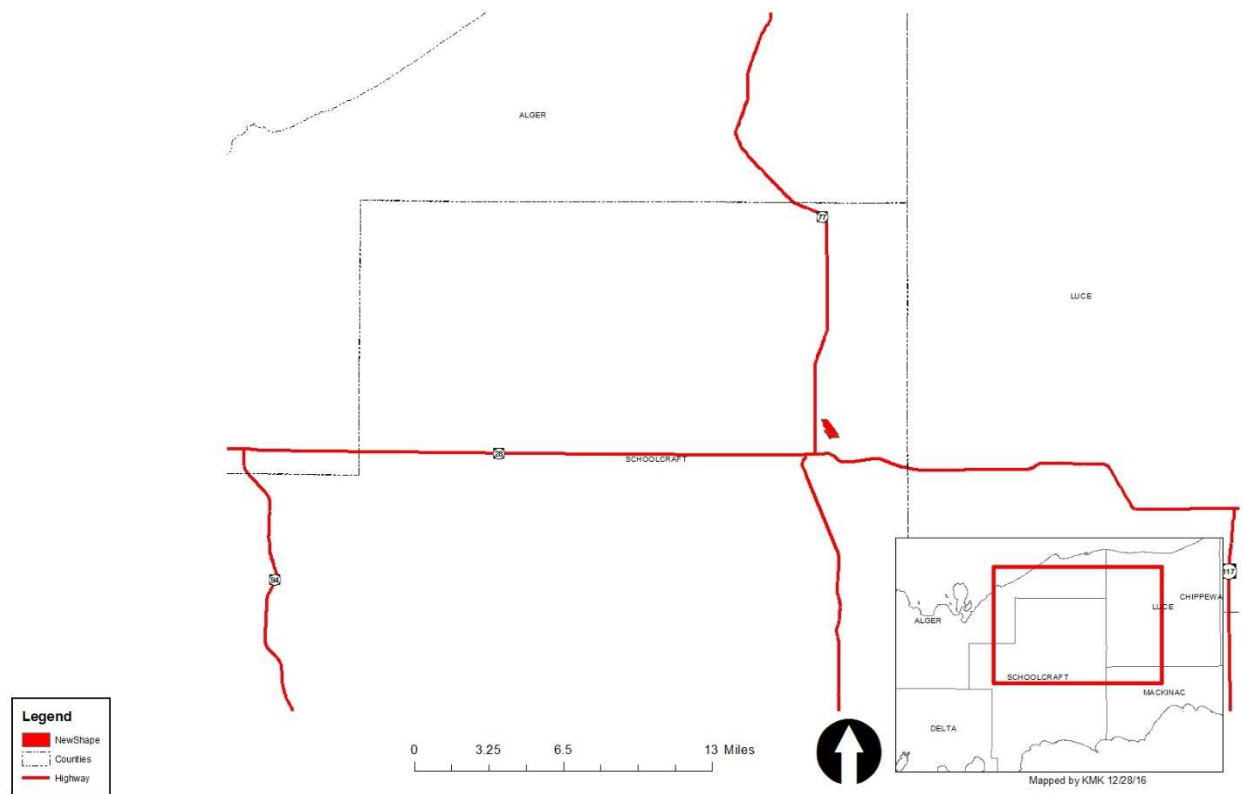


Figure 1. Seney Poor Conifer Swamp and Rich Tamarack Swamp ERA plan locator map.

## Administrative Information:

- The Seney Poor Conifer Swamp and Rich Tamarack Swamp ERA Plan contains two ERAs; one Poor Conifer Swamp ERA, and one Rich Tamarack Swamp ERA.
- These ERA's are located on State Forest land in the Shingleton FMU, in Schoolcraft County, in compartment 113.
- The East Branch Fox River Poor Conifer Swamp ERA and the East Branch Fox River Rich Tamarack Swamp ERA are within the Fox River Complex Management Area (MA).
- Schoolcraft County, Seney Township, T46N R13W sections 21 and 28.
- Primary plan author: Kristen Matson, Forest Resources Division (FRD) EUP Inventory and Planning Specialist; contributors and reviewers include Sherry MacKinnon, Wildlife Division (WLD) Wildlife Ecologist; Keith Kintigh, FRD Forest Certification and



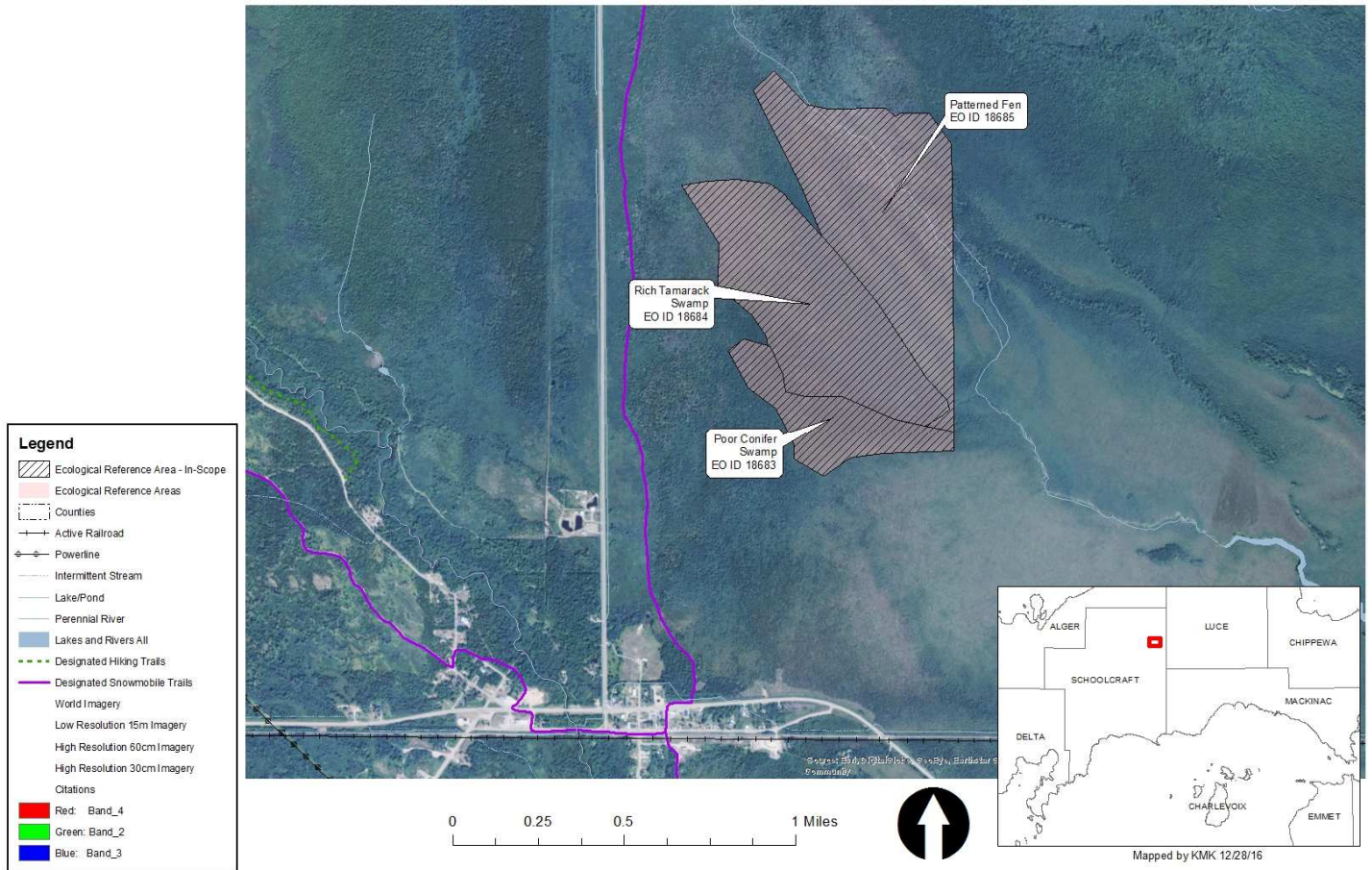


Figure 3. Seney Poor Conifer Swamp and Rich Tamarack Swamp ERA Imagery with EO ID labels. (Patterned Fen ERA is in the Shingleton Patterned Fen ERA plan.)

### Conservation Values

There are two ERAs in two different natural communities in this area:

#### **1. Poor Conifer Swamp community (G4 S4):**

Poor conifer swamp is an ombrotrophic forested peatland characterized by acidic, saturated peat, and the prevalence of tamarack and black spruce trees, *Sphagnum* mosses, and ericaceous shrubs predominantly in northern Michigan, but also occasionally in southern Michigan. The community occurs in depressions in glacial outwash and sandy glacial lakeplains and in kettles on pitted outwash and depressions on moraines. Fire occurs naturally during drought periods. Windthrow, beaver flooding, and insect defoliation are also important disturbance factors influencing species composition and structure.

**East Branch Fox River, EO\_ID: 18683**, LASTOBS: 2011-08-25, 57 acres.

This Poor Conifer Swamp was ranked B, good estimated viability. The poor conifer swamp occurs approximately 1-mile NE of Seney. It is a small to moderate-sized, fairly high quality, poor conifer swamp situated in a large peatland complex that includes high quality examples of several other peatland natural communities. It is at the northern margin of a large open muskeg and the southern margin of a water track supporting rich conifer swamp.

This occurrence is situated in a broad post-glacial drainage channel developed on an extensive peat deposit on outwash over lacustrine sands. The poor conifer swamp occurs on deep (>36"), extremely acid to very strongly acid (pH=4.5-5.0) sphagnum and mixed sphagnum-wood peats, carpeted by a blanket of sphagnum mosses. Vegetative structure ranges from open canopy swamp forest with a patchy sub-canopy and tall shrub layer and large, well-developed ericaceous shrubs on pronounced hummocks, to closed-canopy black spruce swamp with an open understory, scattered ericaceous shrubs (primarily Michigan holly and wild-raisin) in canopy gaps; these shrubs are rooted below the sphagnum layer in hemic mixed peat. Historic wildfire, likely associated with logging activity and passing rail cars, periodically ignited the muskeg south of this occurrence, and may have periodically impacted the poor conifer swamp. The original extent of the swamp, especially west of the mapped area, may have been altered by historic land-clearing activities near M-77. No invasive species were noted in the occurrence.



Figure 4. Poor conifer swamp. Photo by Joshua G. Cohen.

## 2. Rich Tamarack Swamp community (G4 S3):

Rich tamarack swamp is a groundwater-influenced, minerotrophic, forested wetland dominated by tamarack (*Larix laricina*) that occurs on deep organic soils (i.e., peat and muck) predominantly in southern Michigan. The canopy of high-quality rich tamarack swamps is dominated by tamarack, with only a minor presence of red maple. The shrub layer is very dense and diverse, containing as many as 28 species as listed in the MNFI abstract.

**East Branch Fox River, EO\_ID: 18684**, LASTOBS: 2011-08-25, 158 acres.

At the time of the last survey in 2011, this Rich Tamarack Swamp was rated A, excellent estimated viability. All of the following site information is based on that 2011 survey. Since that time, larch casebearer and Eastern Larch beetle came through this area and the majority of the canopy trees have died, along with all other nearby tamarack trees. Currently, there is sparse larch regeneration in this stand. When this ERA is re-surveyed, this section of the plan will be updated.

The rich tamarack swamp occurs approximately 1.1 miles NE of Seney, at the northern margin of a large open muskeg and adjacent poor conifer swamp. It is a fairly large, high quality rich tamarack swamp embedded within a large peatland complex that supports numerous other high quality natural communities, including patterned fen, poor conifer swamp, and muskeg.

This occurrence supports a scattered to closed canopy of Eastern larch (*Larix laricina*), associated with Red maple (*Acer rubrum*). The tall shrub layer is generally dense, comprised of leaning, intertwining trunks and branches, built up over an extensive root mat on seasonally inundated peat soils. Alder (*Alnus rugosa*) and Michigan holly (*Ilex verticillata*) are dominant, associated with Viburnum, red osier dogwood (*Cornus stolonifera*), and bog birch (*Betula pumila*). Low shrubs include blueberry (*Baccinium myrtilloides*), dwarf raspberry (*Rubus pubescens*), marsh cinquefoil (*Potentilla palustris*), bog St. John's wort (*Triadenum fraseri*), bogbean (*Menyanthes trifoliata*), wrinkleleaf goldenrod (*Solidago rugosa*), and starflower (*Trientalis borealis*). Tree DBH (in inches): Larix lar 3.5, 4.3, 5.6, 9.1 (apx. 159 rings), 8.9, 7.5 (apx. 121 rings), 6.5, 5.2, 4.3.

The rich tamarack swamp occupies a broad post-glacial drainage channel on the southwestern flank of a patterned fen complex, developed on an extensive peat deposit on outwash over lacustrine sands. The rich tamarack swamp supports a scattered to closed canopy of tamarack (primarily), associated with red maple.

The tall shrub layer is generally dense, comprised of leaning, intertwining trunks and branches, built up over an extensive root mat on seasonally inundated peat soils. The ground layer is dense to patchy, with heath shrubs on hummocks and graminoids, ferns, and forbs on both hummocks and depressions. Soils are loose, medium acid to neutral (pH=6.0-7.0) sapric and hemic woody peats developed above and below a thick root mat comprised primarily of alder and Michigan holly.

The rich tamarack swamp is influenced by lateral flow of groundwater adjacent to an open fen water track, and is likely seasonally inundated, with woody species largely rooted on hummocks and higher areas of the root mat that support sufficient aeration for growth. Patchy windthrow is important on the structurally weak peat soils, creating a patchy canopy that is often densely filled with tall shrubs. Sphagnum mosses are patchy on hummocks and at the bases of woody trunks, creating a locally acidic substrate.

All stages of forest development (early seral to old-growth) are present. Ant mounds are locally abundant. To the south, the community transitions to black spruce swamp and muskeg in areas of progressively restricted groundwater influence. No disturbances were noted, although the western portion of the occurrence may have been impacted by historic logging and land-clearing activities near M-77. A more thorough inventory is recommended to determine conditions throughout the occurrence, especially in the northwestern portion of the mapped area, as the only area assessed on the ground was the vicinity of a transect from the poor conifer swamp and muskeg south of the occurrence to the patterned fen north of the occurrence. No invasive plants were noted in the rich tamarack swamp.

#### High Conservation Value (HCV) Attributes:

The East Branch Fox River landscape, in general, is largely an intact and functional landscape. It is part of a large landscape level forest with minimal road density and management activity.

The rich tamarack swamp and poor conifer swamp ERAs are adjacent to a patterned fen ERA (Shingleton Patterned Fen ERA plan). The patterned fen ERA contains the East Branch of the Fox River, which is a cold water stream and high priority trout stream High Conservation Value Area (HCVA). MNFI has identified a scrub bog natural community to the south and east of the ERAs. Dwarf raspberry (state endangered) was identified in the adjacent patterned fen ERA.

## Threats Assessment

### Poor conifer swamp:

Threats to poor conifer swamps include changes in hydrologic quality and quantity, exclusion of periodic fire disturbance, and invasive species. Peatland systems are sensitive to changes in water chemistry and water levels. Roads passing through peatlands can cause dramatic changes including conversion to more minerotrophic open wetlands in flooded areas and increased forest productivity where drying results from blocked drainage. The installation and maintenance of culverts under roads passing through peatlands can avert flooding and drying.

Monitoring to detect and implementing control measures for invasive species are critical to the long-term viability of poor conifer swamp. Particularly aggressive invasive species that may threaten the diversity and community structure include glossy buckthorn (*Rhamnus frangula*), narrow-leaved cat-tail (*Typha angustifolia*), hybrid cat-tail (*Typha xglauca*), reed canary grass (*Phalaris arundinacea*), and reed (*Phragmites australis*). At present, most invasive species appear to be restricted to the margins of the poor conifer swamps, where they occur in moats or ditches along roads and trails that border the community

### Rich Tamarack Swamp:

Threats to rich tamarack swamps include residential development, fire suppression, degraded hydrology, red maple encroachment, and invasive species. Active management may include the control and removal of invasive species. Invasive species that reduce species diversity and alter community structure include glossy buckthorn (*Rhamnus frangula*), multiflora rose (*Rosa multiflora*), purple loosestrife (*Lythrum salicaria*), narrow-leaved cat-tail (*Typha angustifolia*), hybrid cat-tail (*Typha xglauca*), reed (*Phragmites australis*), reed canary grass (*Phalaris arundinacea*), and European marsh thistle (*Cirsium palustre*), the latter species mostly restricted to northern Michigan at present.

Glossy buckthorn is probably the greatest threat to rich tamarack swamps as it is capable of completely dominating the shrub and ground layers. Removing glossy buckthorn can be accomplished with cutting, accompanied by herbicide application and by using spot-burning to eliminate seedlings. Regular monitoring for invasive species

followed by prompt and sustained control efforts will help protect the ecological integrity of rich tamarack swamp and other adjacent natural communities.

### General Management of ERAs

ERAs will generally not be managed for timber harvest. Management activities or prescriptions in Ecological Reference Areas are limited to low impact activities compatible with the defined attributes and values of the community type, except under the following circumstances:

- i. Harvesting activities where necessary to restore or recreate conditions to meet the objectives of the ERA, or to mitigate conditions that interfere with achieving the ERA objectives. In this regard, forest management activities (including timber harvest) may be used to create and maintain conditions that emulate an intact, mature forest or other successional phases that may be under-represented in the landscape.
- ii. Road building only where it is documented that it will contribute to minimizing the overall environmental impacts within the FMU and will not jeopardize the purpose for which the ERA was designated.
- iii. Existing and new land use activities should be evaluated in the context of whether they detract from achieving the desired future conditions of the natural community for which the ERA was designated. The acceptability of land use activities within DNR administered ERAs will be evaluated using severity, scope, and irreversibility criteria, as established in DNR IC4199, Guidance for Land Use Activities within DNR Administered Ecological Reference Areas.
- iv. Threats such as fire, natural or exotic pests or pathogens may warrant other management measures.
- v. Harvesting and other management activities in presently accessible areas located within the peripheral boundary of an ERA that are NOT the natural community of focus and which may or may not be typed as a separate stand or forest type (e.g. an upland island of previously managed aspen within a bog complex) may be prescribed for treatments, contingent upon a determination of no anticipated direct or indirect adverse impact to the defined attributes and values of natural community for which the ERA was designated. The FRD Biodiversity Conservation Program leader shall be consulted regarding the determination of any direct or indirect adverse impact.



vi. Land management activities immediately adjacent to an ERA should consider any anticipated direct or indirect adverse impact to the defined attributes and values of natural community for which the ERA was designated. Management will be adaptive. ERAs will be monitored to determine if implemented management activities are moving the natural communities forward, or maintaining them at their desired future condition. The network of ERAs will be evaluated every five years for their contribution to the overall goal of biodiversity conservation. This review cycle will allow for the potential addition or subtraction of lands from an ERA, designation of new ERAs, or removal of the ERA planning designation.

### Management Goals

#### For both Poor Conifer Swamp and Rich Tamarack Swamp:

- Restoration of and/or expansion of the ERA where applicable.
- Invasive Species: Ideally, the best goal would be to eliminate invasive species (or maintain an absence of invasive species), but in some areas, that may not be possible and a goal that recognizes this may be necessary.
- The ERA has representation of native plants, indicator species, and rare species
- Reduce Fragmentation.
- Reduce other Threats (alteration of hydrology, ORV use, conflicting land uses, etc.).
- Allow natural processes to occur.

### Management Objectives

The following Management Objectives describe the measures necessary to ensure the maintenance and/or enhancement of the ERA site or sites. Objectives and associated actions will be prioritized and implemented based upon available resources.

#### For both Poor Conifer Swamp and Rich Tamarack Swamp:

- Identify and prioritize critical areas within the ERA to treat for invasive species.
- High diversity of native plants is desirable.
- Allow blowdown/windthrow and insect mortality to occur without salvage harvest.
- Determine if there are impacts to hydrological system.
- Assess forest regeneration within the planning period.
  - For Rich Tamarack Swamp: if red maple is becoming common in the overstory reduce it and consider introducing fire to the system.
- Assess EO quality every 10-20 years.

- Work with adaptation specialist to determine threats associated with climate change.

### Management Actions

Suggested actions or series of actions that would help to achieve the above objectives.

M= Maintenance action, R= Restoration action)

#### For both Poor Conifer Swamp and Rich Tamarack Swamp:

- If current data/knowledge are not available regarding the management goals, actions may address needed assessments (i.e. surveys may be needed). (M, R)
- Remove invasive plants using appropriate control methods for that particular species (hand-pull, herbicide, prescribed burning). (M, R)
- Reintroduction of missing associated native plant species (both canopy and ground flora) using local genotypes. (R)
- Minimal Impact Suppression Tactic (MIST) practices should be used for wildfire response when practical and commensurate with values at risk. (M, R)
- Close illegal roads and trails. (M, R)
- Install culverts if necessary to restore natural hydrological flow. (R)
- Follow BMP Riparian Zone Management (RMZ) guidelines related to lake, stream, pond or open water wetlands, which require a minimum zone width of 100 feet. Proposed activity including timber management within RMZs adjacent to ERAs should be evaluated on a case-by-case basis and are/may be acceptable where there is minimal risk of soil disturbance and sedimentation, and minimal risk of negatively impacting ERA quality.
- Follow BMP guidance for fens, bogs, and other rare wetland types. Harvest activity immediately adjacent to fens, bogs, and other rare wetlands may encounter weak soils that are highly susceptible to rutting. When timber harvesting occurs adjacent to these features, ground and vegetation disturbance within the wetland area should be avoided. To prevent sedimentation or excessive nutrient delivery into a rare wetland, timber harvests should be avoided along slopes immediately above and leading into a rare wetland [2018 BMP Manual pg. 16].
- Work with LED to increase patrols for illegal ORV activity and enforce state land use rules. (M, R)
- Work with MNFI and other experts to update EO inventory. (M, R)
- Update plan with additional knowledge as it becomes available. (M)

#### For Rich tamarack swamp:

- Identify vectors of invasive species and reduce their introduction to the site (M, R)
- Where tamarack regeneration is found to be inadequate: (R)

- Reduce red maple by girdling in conjunction with herbicide application
- Selectively remove red maple from adjacent stands and consider introducing fire into the surrounding landscape.

Monitoring

Monitoring approaches and indicators appropriate for the natural community and in line with the objectives and management actions suggested, including appropriate frequency and timing considerations. (Unless otherwise specified, monitoring is expected to occur once every 10-year inventory cycle.)

Metric	Current Status	Desired Future Status	Assessment
Representative and rare species – species occurrences	Baseline EO Records; updated when EO's are updated	No decreases	TBD
Changes in EO rank	See above	No decrease	TBD
Populations of invasive species – number and scope of species	Severity unknown; treatments should be monitored appropriately; detection monitoring opportunistically or every five years' maximum	Eliminated/fewer occurrences	TBD
Illegal ORV activity – number of new instances and number of citations issued	Moderate; monitored via patrols, reports or opportunistically	Eliminated/fewer occurrences	TBD

Additional Resources:

MNFI Natural Community Abstracts: <http://mnfi.anr.msu.edu/pub/abstracts.cfm#Communities>

Michigan Department of Natural Resources Forest Certification Work Instruction 1.4:

[http://www.michigan.gov/documents/dnr/WI\\_1.4BiodMgt\\_320943\\_7.pdf](http://www.michigan.gov/documents/dnr/WI_1.4BiodMgt_320943_7.pdf)