

Houghton Lake Red Pines ERA Plan



**Michigan Department of Natural Resources
Forest Resources Division
Roscommon Forest Management Unit**



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Administrative Information:

- Houghton Lake Red Pines ERA (Ecological Reference Area)
- Roscommon Forest Management Unit (FMU); Upper Muskegon Management Unit (MA);
Compartment 23, portions of Stands 160 and 161
- Roscommon County; T22N R 3W Section 20
- Contact Information
 - Plan Writer: Dale Ekdorn, Forester, Roscommon FMU
 - Local Foresters and Biologists: Pat Mohny, Roscommon FMU, Unit Manager;
Mark Boersen, Roscommon FMU, Wildlife Biologist
- State of Michigan lands
- Existing infrastructure/facilities: None: except for forest two-tracks through and on
lands adjacent to the ERA

Conservation Values

- Houghton Lake Red Pines ERA includes the following natural communities:
 - Dry Northern Forest, EO_ID 3510, EO_Rank D – Poor estimated viability, and Last
Observed Date of 7/18/2016

- Houghton Lake Red Pines ERA is recognized for being a representative example of the G3/S3 ranked Dry Northern Forest natural community
- Dry northern forest is a pine- or pine-hardwood-dominated forest type that occurs on dry sandy sites lying mostly north of the climatic tension zone. This community occurs principally on sandy glacial outwash and sandy glacial lakeplains, and also commonly on sand ridges within peatlands on glacial outwash or glacial lakeplains. Two distinct variants are included within this community type, one dominated by jack pine (*Pinus banksiana*) or jack pine and hardwoods, and the other dominated by red pine (*P. resinosa*). Prior to European settlement, dry northern forest typically originated in the wake of catastrophic fire. Frequent, low-intensity ground fires maintained red pine systems by removing competing hardwoods.
- For more detailed information refer to the MNFI community abstract. http://mnfi.anr.msu.edu/abstracts/ecology/Dry_northern_forest.pdf
- Both red pine and jack pine dominated sites can contain minor components of northern pin oak. Jack pine dominated sites should include or be managed to promote scattered groups of super-canopy red and/or white pine. In both variants, other canopy species can be present only at low levels. These include white pine, paper birch, aspen, red oak, and red maple.
- ERAs should resemble pre-settlement forest conditions. This includes the presence of some larger diameter trees (as described above); a fire-maintained understory with conditions suitable for infrequent canopy fire; a relatively high native plant species density and diversity; and an unaltered (or mimicked) natural disturbance regime. This means a lack of evidence of grazing. In subsections where the remaining sites have been harvested, ERAs should be recovered from past harvests meaning the age of dominant jack pine should be greater than 70 years, while red pine should be greater than 100 years.
- Dry northern forest ERAs should be located in areas where they are the dominant community. These areas may also contain a mosaic of dry-mesic northern forest and barrens communities or be represented as small patches (1- 50 acres) within a mosaic of either of the above communities or within peatland ecosystems.
- Other High Conservation Values Present:
 - Houghton Lake Red Pines ERA includes ***attributes of regional (Great Lakes) importance***, including:
 - Old forests/mixed age stands that include trees >120 years old
 - Pine stands of natural origin
 - Houghton Lake Red Pines ERA has been designated as Type 1 Old Growth due to the age of the oldest pine species.
 - Currently, ERA portions of these stands have a 3A: “Conservation Values incompatible with harvest at this time” site condition placed on them making these portions currently “Unavailable” for commercial treatments.
- Other values in the area surrounding and within the ERA include:

- Recreation
 - Aesthetics/visual management
 - Timber products
- General Site Description (2016): Small pocket of red pine dominated dry northern forest occurring on flat to rolling sandy outwash plain. A 66.1cm red pine was cored and estimated to be 220 years old with excellent growth for the first 85 years. Examination of the corer suggests that there was likely a release around 180-190 years ago, possibly corresponding with a fire or windthrow event. Many of the canopy pines and oaks have fire scars on their boles indicating that ground fires have been an important disturbance factor within this forest. Scattered windthrow gaps and canopy snags (many with excellent wildlife cavities) occur within the forest. However, much of the coarse woody debris load is composed of logging slash. The soils are characterized by a shallow, acidic (pH 4.5) needle layer (2cm) over fine-medium textured acidic (pH 5.0-5.5) sands.
 - Description from Element Occurrence record for Houghton Lake Red Pines (2016): Canopy dominated by large DBH red pine with canopy associates including white oak, black oak, red oak, and white pine. Canopy closure ranges from 65-80% and canopy dominates typically range in DBH from 50-65 cm with some larger white pine and red oak reaching 70-80 cm. Subcanopy with scattered (25-35%) black oak, white oak, and white pine. Sparse understory layer (20-30%) with white pine, common witch-hazel, oak species, and red maple. Pine regeneration primarily composed of white pine with some red pine restricted to the margins of the forest and along the road. Low shrub layer is prevalent (50-70%) and is dominated by huckleberry and low sweet blueberry with oak species, white pine, and red maple. The ground cover is patchy to dense (50-70%) with characteristic species including bracken fern and Pennsylvania sedge dominant and common associates including Canada mayflower, wintergreen, cow-wheat, striped wintergreen, trailing arbutus, and starflower. Non-natives observed along the road margins include common St. John's wort, ox-eye daisy, and Canada bluegrass.

Threats Assessment

- Primary threats include fire suppression which results in failure of pine to regenerate and the in-growth of shade tolerant species which can lead to conversion to more mesic forest types.
- Secondary threats include in-growth of invasive species, trash dumping, firewood cutting, and deer herbivory which impedes pine regeneration (primarily white pine).
- One identified long-term threat is climate change which may push this natural community towards drier or more mesic cover types depending on the effects of the changing environment.

Management Goals

- Restoration and expansion (or at least buffering) of the dry northern forest community type as necessary, reduce fragmentation of this forest community.
- Maintain an absence of invasive species to the extent possible within the ERA boundary.
- Maintain a representation of native plants, indicator species, and rare species within the ERA
- Allow natural processes to occur (i.e. fire, windthrow, insect epidemics, etc.)

Management Objectives

- **NOTE: 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.**
- Identify invasive species type, location, and distribution AND prioritize areas within the ERA to treat for invasive species
- Enhance diversity of native plants in and adjacent to the ERA
- Allow blowdown, fire, and insect mortality to occur without salvage harvest
- Assess forest regeneration within the YOE and assess EO quality every 10-20 years

Management Actions

- Inventory and address invasive species within and adjacent to the ERA
- Write a MOU between all divisions to agree to let natural processes take place in the ERA (i.e. no timber salvage, fire suppression to be confined to adjacent stands, etc.)
- Write treatment prescriptions in the ERA which maintain the diversity of native species, prevent expansion of or reduce the hardwood under-story, and promote pine regeneration
- Close off vehicle access into the ERA using the PA288 protocol and physically close off access after closure approvals have been obtained.

Monitoring

- Natural Processes MOU written and approved
- Prescriptions written and approved
- Assess area for invasive species as needed
- Forest Roads through and adjacent to the ERA closed to conventional vehicles per PA 288 protocol and also physically closed on the ground

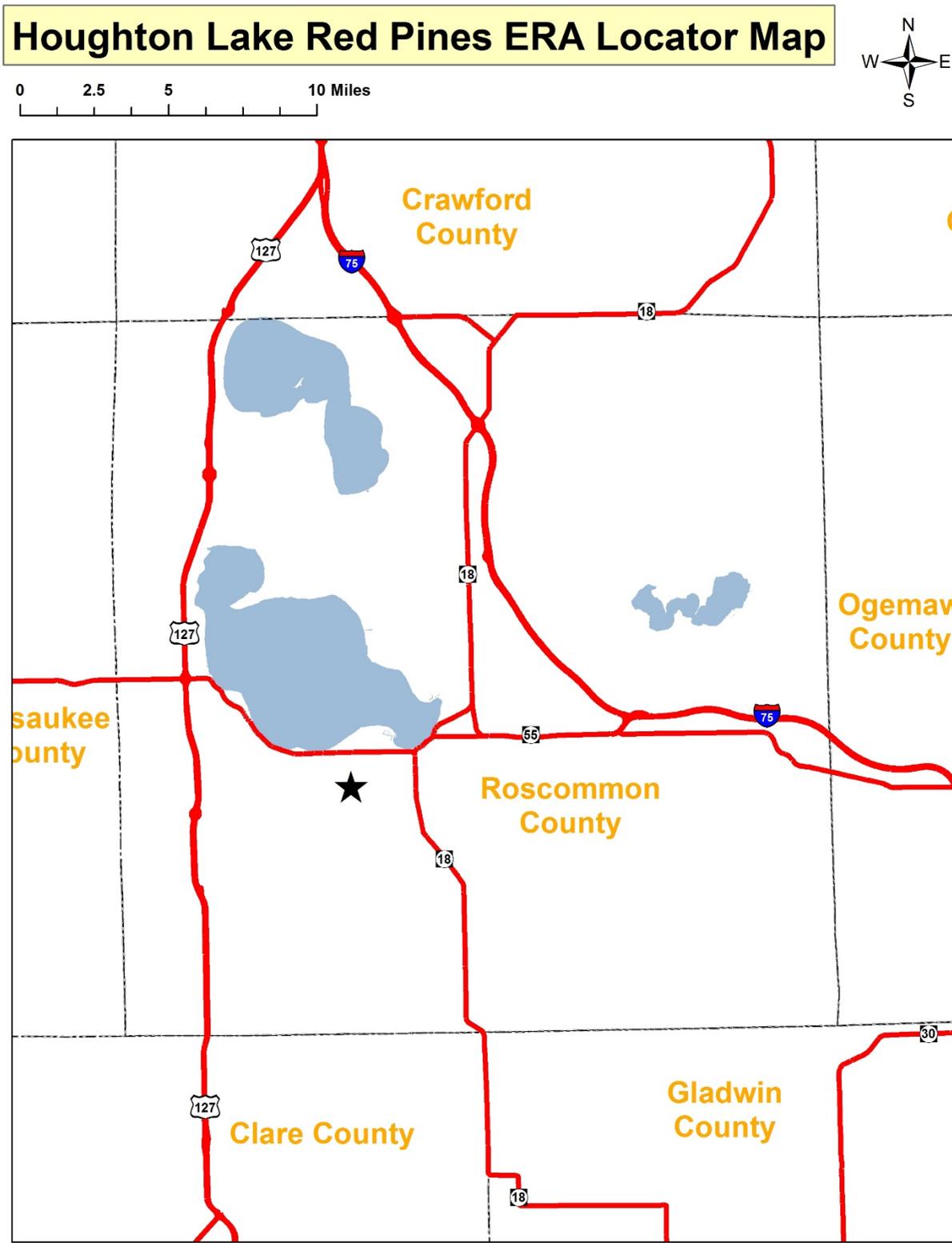
Table: Monitoring Houghton Lake Red Pines

Indicator	Current Status	Desired Future Status	Summary Assessment
Natural Processes MOU	None	Approved Plan	TBD
Treatment Rx's	OI Fieldwork On-going	Approved at 2022 YO E C.R.	10/01/2020
Invasive Species Inventory	Several Noted	Decrease in Invasive Species	TBD
Road Closure Proposal	None	Approved Proposal	10/01/2020
Roads Physically Closed	Open	Closed	TBD

Imagery

- ERA boundaries are derived from the underlying Natural Community EO boundary which are mapped using NatureServe standards. EO Boundaries are informed by vegetation and other site characteristics including soils, landform, and/or historic aerial imagery. As a result, it is not uncommon for EO/ERA boundaries to differ from forest inventory stand boundaries. If these differences result in potential conflicts with proposed forest activities, consult with the Forest Conservation and Certification Specialist to request a boundary evaluation by Michigan Natural Features Inventory.

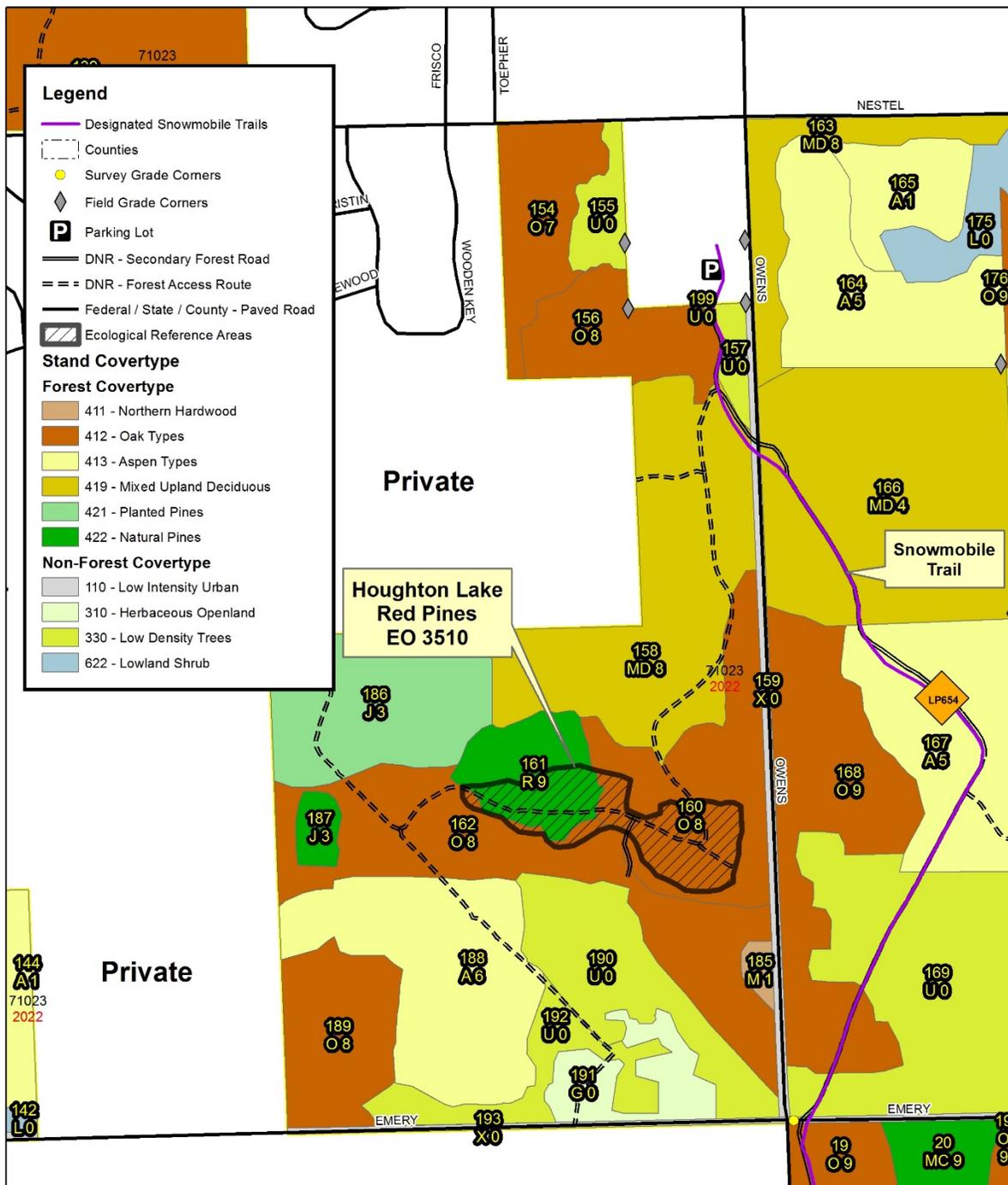
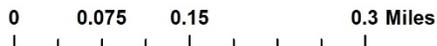
Site Location Map



D.Ekdom 10/16/2019

Site Map

Houghton Lake Red Pines ERA Site Map



D.Ekdom 10/16/2019

Photos

