Michigan Department of Natural Resources, Forest, Mineral & Fire Management Division

HIGH CONSERVATION VALUE AREA (HCVA) AND ECOLOGICAL REFERENCE AREA (ERA) MANAGEMENT AND MONITORING FORMS PACKET

Portions of this information are exempt from Michigan's Freedom of Information Act, 1976 PA 442, MCL 15.243

BACKGROUND AND INSTRUCTIONS

Prior to using this packet material and forms please refer to Work Instruction 1.4 Biodiversity Management on State Forestlands and the Conservation Area Management Guidelines available on line at: http://www.michigan.gov/dnr/0,1607,7-153-30301_33360-144865--,00.html.

Identified HCVAs and ERAs will be managed to conserve, protect, maintain, and/or enhance their defined conservation objectives or values. The management methods used will vary depending on the objective and type of designation. On DNR-managed lands, Ecological Reference Areas may be protected through a variety of mechanisms (refer to Conservation Area Management Guidance). Management activities or prescriptions in Ecological Reference Areas are highly restricted to those that maintain or enhance the defined attributes and values and protect the immediate natural resource values or human health and safety.

This packet is for each High Conservation Value Area (HCVA) without an existing management plan and all Legally Dedicated State Natural Areas, Ecological Reference Areas (ERA), Critical Dunes and Coastal Environmental Areas on state forest land. Its purpose is to: 1.) document baseline information on each area and it's conservation values, threats, management goals and objectives, and 2.) to track changes in threats, when management activities are carried out, monitor if they are effective, and capture needed changes in management determined not to be effective.

Keep the original copies of these forms in the Compartment/Stand File within each FMU and send copies to respective DEQ and DNR program managers and the DNR, FMFM Forest Resource Management Section, Monitoring Specialist.

PART I: HCVA BASELINE INFORMATION, GOALS AND OBJECTIVES

- ☒ COMPLETE FOR EACH HCVA WITHOUT AN EXISTING MANAGEMENT PLAN
- ☒ PART I TO ACCOMPANY PART II

SECTION 1: SITE INFORMATION

A. HCVA TYPE
B. SITE, CONTACT AND ADMINISTRATIVE INFORMATION
C. OWNERSHIP INFORMATION
D. CONSERVATION PARTNERS
E. OTHER DOCUMENTS RELATED TO THIS HCVA

SECTION 2: CONSERVATION VALUES (TARGETS)

A. BIODIVERSITY VALUES
B. SOCIAL/ECONOMIC VALUES
C. INFRASTRUCTURE/FACILITIES VALUES

SECTION 3: CURRENT CONDITIONS (THREATS)

A. VALUE OR TARGET VIABILITY (POOR, FAIR, GOOD, VERY GOOD)
B. CURRENT PRIMARY THREATS

SECTION 4: MANAGEMENT GOALS AND OBJECTIVES

PART II: HCVA MONITORING

SECTION 5: COMPLIANCE MONITORING (WERE TASKS COMPLETED?)

SECTION 6: EFFECTIVENESS MONITORING AND RECOMMENDATIONS (HOW WELL DID MANAGEMENT WORK OR WERE OBJECTIVES ACHIEVED? WHAT ARE NEXT THE STEPS?)

SECTION 7: THREATS MONITORING FIELD FORM – STAND ALONE FORM (WHAT IS THE STATUS OF VALUES OR TARGETS?)

- ☐ MAY BE COMPLETED BY ANYONE FOR ANY HCVA
- ☐ OR PART OF MONITORING PACKET TO ACCOMPANY PART I AND PARTS II, SECTIONS 6, 7 AND PART III.

Helpful References:

Marqoluis, R. and N. Salafsky. 1998. Measures of Success. Island Press, Washington, DC.362 pp.

The Nature Conservancy. 2005. CAP (Conservation Action Planning) Toolkit - version 08-23-05. See 2007 overview at http//sites-conserveonline.org/dcs/projects/art10152.html and the workbook at http://www.conserveonline.org/2003/07/s/ConPrjMgmt_v4

PART I: HCVA BASELINE INFORMATION , GOALS AND OBJECTIVES

SECTION 1: SITE INFORMATION

A: HCV A TYPE – CHECK ALL THAT APPLY

- ☐ Critical Dune as defined by DEQ
- ☐ Legally Dedicated State Natural Area
- ☒ Ecological Reference Area: **Harlow Lake Mesic Northern Forest**
- ☐ Endangered Species Management Area
  - ☐ Kirtland Warbler
  - ☐ Piping Plover
  - ☐ Other:
- ☐ Environmental Area as defined by DEQ
- ☐ State Natural or Scenic River
- ☐ Quiet Area:
- ☒ Other: **Little Presque Isle State Forest Area Recreation Area**

SPECIAL CONSERVATION AREA (SCA) - LIST OTHER CATEGORIES BELOW

SCA – Part of the Echo/Harlow Lake Winter Deer Complex
SCA –Trout Streams – Harlow Creek, Bismark Creek and Nash Creeks adjacent or nearby
SCA - Stands 1-6, 14, 15, 16, 19, 20, 21, 23-32, 46-77 are either already recognized or proposed for Special Conservation Area designation through 2009 Year of Entry (YOE) Compartment Review based on a variety of considerations. Refer to stand comments in the MDNR 2009 YOE Gwinn Forest Management Compartment Review packet.
SCA/HCVA/ERA – Little Presque Isle Wooded Dune and Swale immediately adjacent to the Harlow Lake Mesic Northern Forest ERA (refer to draft LPI Wooded Dune and Swale ERA Management plan)
SCA –Little Presque Isle Proposed Natural and Wilderness Areas are adjacent (refer to draft LPI Wooded Dune and Swale)

B: SITE, CONTACT AND ADMINISTRATIVE INFORMATION

Site Name: **Harlow Lake Mesic Northern Forest**		Other Names : **Little Presque Isle Forest Recreation Area**	
Report Date **10/30/2007**	Forest Mgt Unit **Gwinn**	Compartment Number: **204 2009 YOE** Stand Number(s): **24, 25, 26, 28, 30, 31, 32, 52**	☐ Map Attached ☒ Shape File in OI/IFMAP GDSE **Draft until after Compartment Review** File Location/Name ; **FMU Ishpeming Office Compartment File and Lansing Office**
County(ies) **Marquette**		Township(s) Range(s) Section(s) ¼ Sec. Optional if mapped **T49NR25W Sections 19, 20 (on boarder of 19)** **T49NR26W Section 24 (on west boarder of 19)**	

Name of individual completing this form (first and last) ☒ Check if DNR Employee	Telephone	Email Address
Kim Herman, Monitoring Specialist, Forest, Mineral, Fire Management Division (FMFMD)	**(906) 786-2351, Escanaba**	**hermank@michigan.gov**
Dean Wilson, Forester	**(906) 485-1031 Ishpeming**	**wilsond@michigan.gov**
Terry MacFadden, Wildlife Biologist	**(906)228-6561 Marquette**	**mcfaddet@michigan.gov**
Brian Gunderman, Fisheries Biologist	**(906) 353-6651**	**gunderb@michigan.gov**
Additional contact information Name of individual providing information (first and last), if applicable	Telephone	Email Address
Bill Brondyke, FMU Manager, Gwinn	**(906)346-9201 Gwinn**	**brondykw@michigan.gov**
Mike Koss, Wildlife Ecologist	**(906)346-9201 Gwinn**	**kossm@michigan.gov**
Gerald Mohlman, Forester	**(906)346-9201 Gwinn**	**Mohlmang@michigan.gov**
Name of DNR/DEQ Program Contact if Applicable Forest Mineral Fire Management Division, Trails and Recreation Section • **Ron Yesney – Marquette OSC** • **Jim Radabaugh - Lansing**	Telephone **(906) 228-6561 Marquette** **(517) 373-1276 Lansing**	Email Address **yesneyr@michigan.gov** **RADABAUJ@michigan.gov**
☒ Volunteer (s) Number of Volunteers: **1** Name of Group: **Sierra Club** Contact Name: **David Allen**	Telephone **906-228-9453**	Email Address

☒ Volunteer (s) - Number of Volunteers: Name of Group**: North Country Trail Association** Contact Name: **Bill Menke, Regional Trail Coordinator, Great Lakes Region** **Maintains the trail for signage, Working on a couple of re-route alternatives**	Telephone **608-441-5610**	Email Address
☒ Volunteer (s) Number of Volunteers: **1** Name of Group: **n/a** Contact Name: **Daniel Hornbogen from Middle Island Point** **Walks and maintain trails**	Telephone **Not available**	Email Address

C: OWNERSHIP INFORMATION - CHECK ALL THAT APPLY AND INCLUDE NAME OF THE UNIT:

☒ State Forest Land: **Gwinn Forest Management Unit**	☐ State Game Area:
☐ State Park/Recreation Area:	☐ Other or Private Land (describe):

D: CONSERVATION PARTNERS – FILL IN ALL KNOWN PARTNERS

Name of Organization: **Sierra Club** Contact Name: **David Allen** Email Address Telephone **(906) 228-9453**	Name of Organization : **Plum Creek** Contact Name: **Jack Thomas – real-estate contact** Email Address: **Jack.Thomas@plumbcreek.com** Telephone: **786-1660 ext 2153** **Owns land adjacent to state land to the south. State trail system is linked to trails on Plumb Creek Land**.
Name of Organization **North Country Trail Association** Contact Name: **Bill Menke, Regional Trail Coordinator** Email Address: Telephone: **(608)441-5610**	Name of Organization: **The Nature Conservancy** Contact Name: **Lisa Niemi, UP Program Director** Email Address: **lniemi@tnc.org** Telephone: **906-225-0399 ext 14**
	Name of Organization: Little Presque Isle Advisory Committee Contact Name: Representatives from 26 Organizations **HISTORICAL INFO ONLY – No Longer Active**

E: OTHER DOCUMENTS RELATED TO THIS HCVA – CITATION AND LOCATION WHERE STORED

Albert, D.A. 1995. Regional landscape ecosystems of MI, MN, and WI: A working map and classification. North Central Forest Experiment Station. USDA - USFS. - Found on MNFI Website at http://web4.msue.msu.edu/mnfi/

Cohen, J. G. 2007a. Site summary for Harlow Lake Mesic Northern Forest EO Num 13. Michigan Natural Features Inventory, Lansing, MI 1 p.

Cohen, J. G. 2007b. Mesic northern forest plant species inventory for Harlow Lake EO-13-3138 June 12, 2007.

Cohen, J.G. 2000. Natural community abstract for mesic northern forest. Michigan Natural Features Inventory, Lansing, MI. 7 pp. Found on MNFI Website at http://web4.msue.msu.edu/mnfi/

Doepker, R. et al. 2001 Interim State Forest Management Guidelines to Emphasize Mesic Conifers in the Western Upper Peninsula, Michigan Department of Natural Resources.

Gunderman, B. 2007. ERA Management Gwinn Compt. 204 Wooded Dune and Swale. Email to K. Herman on fisheries status of Harlow, Bismark and Nash Creeks. July 16, 2007.

Johnson, Johnson and Roy, Inc. 1980. October. Little Presque Isle Recommended Management Plan, Grand Rapids, MI. 99 pp. – In Gwinn FMU files at Ishpeming Office.

Michigan Department of Natural Resources Escanaba River State Forest Interdisciplinary Planning Team. 1991. Escanaba River State Forest Comprehensive Resources Management Plan – Final Draft. Lansing, MI p.122 and 123.

Michigan Department of Natural Resources Escanaba River State Forest Interdisciplinary Planning Team. 1992? Amendment to the Escanaba River State Forest Plan Little Presque Isle State Forest Recreation Area. 9 pp. + map.

Michigan Natural Features Inventory Database Element Occurrence Record. 2007. Mesic Northern Forest EO Num 13 _Last Survey June 12, 2007

Michigan Department of Natural Resources. 2007. 2009 YOE Gwinn Forest Management Compartment Review packet on line at http://www.michigan.gov/dnr/0,1607,7-153-30301_30505_31025-66188--,00.html or the DNR Gwinn Field Office.

SECTION 2: CONSERVATION VALUES/TARGETS - CHECK ALL THAT APPLY

A: BIODIVERSITY VALUES

There are a number of ways to describe biodiversity values - check all that apply.

1. **Natural Communities** – Based on Michigan Natural Features Inventory Community Classification.

   GO to: http://web4.msue.msu.edu/mnfi/data/MNFI Natural Communities.pdf; http://web4.msue.msu.edu/mnfi/pub/abstracts.cfm

   Quality Rank comes from specific MNFI Element Occurrence Records (EOR) in the FMFM IFMAP Biodiversity Data Layer.

Chk Box	Community Name	State Rank	Global Rank	Quality Rank A,B,C,D	Chk Box	Community Name	State Rank	Global Rank	Quality Rank A,B,C,D
☐	Alvar [Alvar grassland]	S1	G2?		☐	*Lakeshore cliff*			
☐	*Bedrock glade*				☐	Basalt lakeshore cliff	S1	G3?	
☐	Basalt bedrock glade	S2	G3		☐	Sandstone lakeshore cliff	S2	G3	
☐	Igneous bedrock glade	S2	G3G4		☐	Volcanic conglomerate lakeshore cliff	S1	G3?	
☐	Limestone bedrock glade [Alvar glade]	S2	G2?		☒	**Mesic northern forest [Northern hardwood forest; Hemlock-hardwood forest]**	**S3**	**G4**	AB/**B**
☐	Sandstone bedrock glade	S2?	G3G4		☐	Mesic prairie	S1	G2	
☐	Volcanic conglomerate bedrock glade	S2	G3		☐	Mesic sand prairie	S1	G1?	
☐	*Bedrock lakeshore*				☐	Mesic southern forest [Southern hardwood forest]	S3	G3?	
☐	Basalt bedrock lakeshore	S2	G3		☐	Muskeg	S3	G4	
☐	Igneous bedrock lakeshore	S2	G?		☐	Northern bald [Krummholz ridgetop]	S1	GU	
☐	Limestone pavement lakeshore [Alvar pavement]	S2	G3		☐	Northern fen	S3	G3	
☐	Volcanic conglomerate bedrock lakeshore	S2	G3		☐	Northern shrub thicket	S5	G4	
☐	Bog	S4	G3		☐	Northern swamp	S3?	G4	
☐	Boreal forest	S3	GU		☐	Northern wet meadow	S4	G4	
☐	Bur oak plains	SX	G1		☐	Northern wet-mesic prairie	S1	GNR	
☐	Cave	S1	G4?		☐	Oak barrens	S1	G2?	
☐	*Cliff*				☐	Oak openings	S1	G1	
☐	Dry acid cliff	S2?	G4		☐	Oak-pine barrens	S2	G3	
☐	Dry non-acid cliff	S2	G4		☐	Open dunes	S3	G3	
☐	Moist acid cliff	S2	G4		☐	Patterned fen	S2	GU	
☐	Moist non-acid cliff	S2	G4		☐	Pine barrens	S2	G3	
☐	Coastal plain marsh	S2	G2		☐	Poor conifer swamp	S4	G4	
☐	Cobble beach [Cobble shore]	S3	G3?		☐	Poor fen	S3	G3	
☐	Dry northern forest [Pine forest]	S3	G3?		☐	Prairie fen	S3	G3	
☐	Dry sand prairie	S2	G3		☐	Relict conifer swamp	S3	G3	
☐	Dry southern forest [Oak forest]	S3	G4		☐	Rich conifer swamp	S3	G4	
☐	Dry-mesic northern forest [Pine-hardwood forest]	S3	G4		☐	Sand/gravel beach	S3	G3?	
☐	Dry-mesic southern forest [Oak-hardwood forest]	S3	G4		☐	Sinkhole	S2	G3G5	
☐	Emergent marsh	S4	GU		☐	Southern floodplain forest	S3	G3?	
☐	Great Lakes barrens	S2	G3		☐	Southern shrub-carr	S5	GU	
☐	Great Lakes marsh	S3	G2		☐	Southern swamp	S3	G3	
☐	Hardwood-conifer swamp	S3	G4		☐	Southern wet meadow	S3	G3?	
☐	Hillside prairie	S1	G3		☐	Submergent marsh	S4	GU	
☐	Inland salt marsh	S1	G1		☐	Wet prairie	S2	G3	
☐	Interdunal wetland	S2	G2?		☐	Wet-mesic prairie	S2	G2	
☐	Intermittent wetland [Boggy seepage wetland]	S3	G2		☐	Wooded dune and swale complex	S3	G3	
☐	Inundated shrub swamp	S3	GU		☐	Woodland prairie	S2	G3	
☐	Lakeplain mesic sand prairie	S1	G1						

Other information if known.

2. ☒ **Ecological Systems** .Check Applicable Regional Landscape Ecosystem (Section), Subsection, and Sub-subsection from Albert, Dennis A. 1995. Regional landscape ecosystems of Michigan, Minnesota, and Wisconsin: a working map and classification. Gen. Tech. Rep. NC-178. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station. 250 pp

Check all that apply	Name	Section Number	Subsection Number	Sub-subsection Number
☐	**Section VIII. Northern Lacustrine-Influenced Upper Michigan and Wisconsin**	8		
☐	Subsection VIII.1. Niagaran Escarpment and Lake Plain	8	1	
☐	Sub-subsection VIII.1.1. St. Ignace	8	1	8.1.1.
☐	Sub-subsection VIII.1.2. Rudyard	8	1	8.1.2.
☐	Sub-subsection VIII.1.3. Escanaba/Door Peninsula	8	1	8.1.3.
☐	Subsection VIII.2. Luce	8	2	
☐	Sub-subsection VIII.2.1. Seney Sand Lake Plain	8	2	8.2.1.
☐	Sub-subsection VIII.2.2. Grand Marais Sandy End Moraine and Outwash	8	2	8.2.2.
☐	Subsection VIII.3. Dickinson	8	3	
☐	Sub-subsection VIII.3.1. Northern lake Michigan (Hermanville) Till Plain	8	3	8.3.1.
☐	**Sub-subsection VIII.3.2. Gwinn**	8	3	8.3.2.
☐	Sub-subsection VIII.3.3. Deerton	8	3	8.3.3.
☒	**Section IX. Northern Continental Michigan, Wisconsin, and Minnesota**	9		
☐	Subsection IX.1. Spread Eagle-Dunbar Barrens	9	1	
☒	**Subsection IX.2. Michigamme Highland**	**9**	**2**	
☐	Subsection IX.3. Upper Wisconsin/Michigan Moraines	9	3	
☐	Sub-subsection IX.3.1. Brule and Paint Rivers	9	3	9.3.1.
☐	Sub-subsection IX.3.2. Winegar Moraine	9	3	9.3.2.
☐	Subsection IX.5. Lac Veaux Desert Outwash Plain	9	5	
☐	Subsection IX.6. Bergland	9	6	
☐	Sub-subsection IX.6.1. Gogebic-Penokee Iron Range	9	6	9.6.1.
☐	Sub-subsection IX.6.2. Ewen	9	6	9.6.2.
☐	Sub-subsection IX.6.3. Baraga	9	6	9.6.3.
☐	Subsection IX.7. Keweenaw	9	7	
☐	Sub-subsection IX.7.1. Gay	9	7	9.7.1.
☐	Sub-subsection IX.7.2. Calumet	9	7	9.7.2.
☐	Sub-subsection IX.7.3. Isle Royale	9	7	9.7.3.
☐	Subsection IX.8. Lake Superior Lake Plain	9	8	
☐	**Section VII. Northern Lacustrine-Influenced Lower Michigan**			
☐	Subsection VII.1. Arenac	7	1	7.1
☐	Sub-subsection VII.1.1. Standish	7	1	7.1.1
☐	Sub-subsection VII.1.2. Wiggins Lake	7	1	7.1.2
☐	**Subsection VII.2. Highplains**	**7**	**2**	**7.2**
☐	Sub-subsection VII.2.1. Cadillac	7	2	7.2.1
☐	**Sub-subsection VII.2.2. Grayling Outwash Plain**	**7**	**2**	**7.2.2**
☐	Sub-subsection VII.2.3. Vanderbilt Moraines	7	2	7.2.3
☐	Subsection VII.3. Newaygo Outwash Plain	7	3	7.3
☐	Subsection VII.4. Manistee	7	4	7.4
☐	Subsection VII.5. Leelanau and Grand Traverse Peninsula	7	5	7.5
☐	Sub-subsection VII.5.1. Williamsburg	7	5	7.5.1
☐	Sub-subsection VII.5.2. Traverse City	7	5	7.5.2
☐	Subsection VII.6. Presque Isle	7	6	7.6
☐	Sub-subsection VII.6.1. Onaway	7	6	7.6.1
☐	Sub-subsection VII.6.2. Stutsmanville	7	6	7.6.2
☐	Sub-subsection VII.6.3. Cheboygan	7	6	7.6.3
		7		

3. Ecological Systems

☒ **List name(s) of Ecosystems/Natural Communities (based on MNFI Community Classification):**

Mesic Northern Forest

Excerpted from Cohen 2000 and 2007:
The mesic northern forest is a broadly defined community type with numerous regional, physiographic and edaphic variations. The following tolerant trees can dominate or co-dominate the canopy of this community*: Acer saccharum* (Sugar maple), *Tsuga canadensis* (Eastern hemlock), *Fagus grandifolia* (American Beech) and *Betula alleghaniensis* (yellow birch). Other important components of the canopy include: *Tilia americana* (American basswood), *Pinus strobus* (white pine), *Quercus rubra* (Red oak), *Thuja occidentalis* (white cedar*), Acer rubrum* (red maple), *Betula papyrifera* (paper or white birch) and *Fraxinus americana* (white ash). Tree species associated with this community but most commonly found in the sub-canopy include: *Ostrya virginiana* (ironwood or hop-hornbeam), *Ulmus americana* (american elm) and *Abies balsamea* (balsam fir).

Regional Rank Justification: Widespread selective logging of white pine and hemlock at the end of the 19th century and the beginning of the 20th century followed by extensive slash fires greatly diminished the role of conifers as a wide-spread component of the mesic northern forest. In the Great Lakes region more than 99% of the mature hemlock-hardwood forest has been eliminated (Noss et al., 1995) and hemlock has been reduced from its former position as a regional dominant to where it now occupies only .5% of the landscape (Mladenoff and Stearns, 1993).

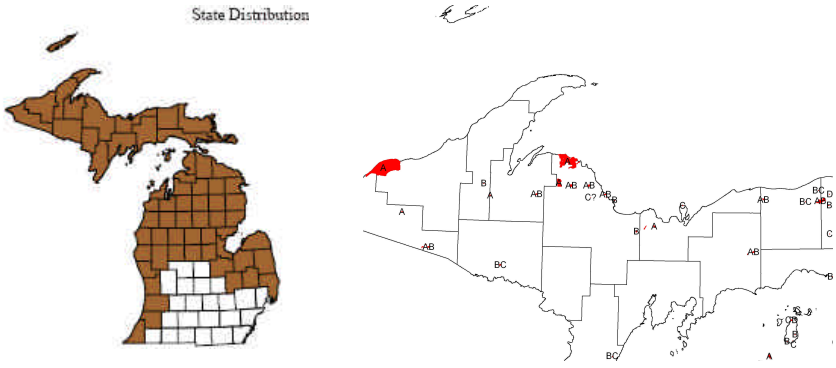
Remnants of northern hemlock-hardwood forests that were not impacted by logging are among the rarest vegetation types in the lake states, with just .6% remaining (Frelich and Reich, 1996). According to Noss et al. (1995), old growth eastern deciduous forest is among the 21 most endangered ecosystems in the United States. In Michigan, 5.8% of the northern hardwood commercial forest is old growth (Frelich, 1995). In the 1800s, approximately 32.0% (over 12 million acres) of Michigan was mesic northern forest (Comer et al., 1995). Just over .4% of mesic northern forest in pre European settlement condition remains in Michigan.

In 2000 there were 59 documented occurrences of the mesic northern forest community. Only eight of those occurrences, constituting just over 56,000 acres, are high quality representations of this type. The large tracts of primary old growth forest remaining in the Upper Peninsula are in the Porcupine Mountains (31,000 acres), the Sylvania Wilderness (17,950 acres) and the Huron Mountains (4000 acres). The Porcupine Mountains are within the Porcupine Mountain State Park and is a legally dedicated state wilderness. Sylvania Wilderness is part of the Ottawa National Forest and a dedicated Federal Wilderness area. The Huron Mountains is privately owned.

A review of the MNFI data base by Mark McKay in 2007 indicates 76 total occurrences statewide with 22 in the Western Upper Peninula (see distribution map below). Three of the 22 in the WUP occur on state forest land. The Harlow Lake site is the largest at 193 acres and is ranked highest in quality of these three.

Left Map
Distribution of Mesic Northern Forest in Michigan by County (Cohen 2000)

Right Map
Distribution of known high quality Mesic Northern forest in Michigan's Western Upper Peninsula (mapped by M. McKay from 2007 MNFI data)



From Cohen 2007a: Harlow Lake is ranked as a good quality (rank B) Mesic Northern Forest. It is an uneven-aged mesic northern forest with well-developed pit and mound topography and large diameter canopy and super canopy trees occurring on ground moraine of moderate to rugged topography. The closed canopy is dominated by hemlock with scattered super-canopy white pine and mixture of hardwoods including yellow birch, sugar maple, and red maple. The sub-canopy is dominated by hemlock as well. The tall shrub and sapling layer is sparse having been intensively browsed by wintering deer. Red maple and striped maple are prevalent in this layer and hemlock and white pine are noticeably absent/sparse. Thimbleberry is the overwhelming dominant of the low shrub layer while sugar maple, large-leaved aster and bracken fern dominate in the sparse ground cover. Wetter areas with loamy sand have denser vegetation. Areas of bedrock glade are characterized by an open and stunted canopy with white pine, red pine, and read oak and heavy lichen cover over the bedrock.

Harlow Lake
Mesic Northern Forest
Ecological Reference Area

Left – bedrock glade
Right – large hemlock in forest interior
(Photos by J. Cohen 2007)

☒ **Ecological processes –** *such as connectivity, hydrology, fire, wind events, flooding, pest and disease cycles;*
Describe: (Excerpted from Cohen 2000).The natural disturbance regime in northern mesic forests is dominated by wind (Frelich et al. 1993). In a study in the western Upper Peninsula, Frelich and Lorimer (1991) found that 60% of the canopy trees attained their canopy ascendance as the result of periodic small-gap formation. Catastrophic windthrow is an important yet infrequent component of the disturbance regime of the northern mesic forests. Investigating primary hemlock hardwood forests of the Upper Peninsula, Frelich and Lorimer (1991) estimated that the rotation period of wind disturbance which leveled greater than 60% of the wind disturbance which leveled greater than 60% of the canopy on a given site to be more than 1500 years. The principal mechanisms for large-scale windthrow are tornadoes and downbursts from thunderstorms. Evidence of charcoal in the forest floor and fire scars on canopy dominants indicates that stands dominated by hemlock in the overstory are often the result of crown fires (Hix and Barnes, 1984; Simpson et al., 1990). However, the infrequency of fire historically in northern mesic forests is manifest by the paucity of successional species in land survey evidence: less than 5% of the presettlement northern hardwood forest was composed of pioneer species (Frelich and Lorimer, 1991).

At the Harlow Lake northern mesic forest, windthrow and fire are the primary ecological processes driving species composition and structure although deer herbivory within the past several decades has had a major influence on species composition and structure (i.e., virtually eliminating hemlock regeneration). (Cohen 1007a)

☒ **Underlying environmental features –** *such as soils, geology, topography, headwaters*:
Granitic boulders and exposed bedrock throughout site which includes igneous bedrock glade in the southwestern portion. Numerous intermittent streams occur throughout the site. Depressions and draws are characterized by mucky and loamy soils. Soils are primarily acidic sands of medium texture with wetter areas characterized by loamy sands. Glacial till with small pebbles are throughout the soil profile. The needle duff was 4 - 6cm deep over (pH 4.5) the O horizon. (Cohen 1007a)

☒ **Environmental gradients –** *such as elevation, precipitation, temperature*;
Describe: Harlow Lake mesic northern forest occurs on ground moraine of moderate to rugged topography with variable slope and aspect . This site is adjacent to Lake Superior which moderates the local climate. (Cohen 1007a).

☒ **Species and/or community structure –** *using during migration, during different life stages, or gradual species turnover across environmental gradients*.
Describe:
The forest is uneven-aged mesic northern forest with well-developed pit and mound topography and large diameter canopy and super canopy trees. The forest as inventoried by Cohen (2007b) supports 60 native plant species in the following categories: 18 trees (29%), 7 shrubs (11%), 19 forbs (31%), 11 ferns (18%) with the remaining grasses and sedges. The native Floristic Quality Index (FQI) was 34. Two non-native forbs (weedy wildflowers) were noted – marsh thistle *Cirsium palustre* and common speedwell *Veronica officinalis*.

Echo/Harlow Lake Winter Deer Complex has been a deer yard since the 1930's, deer migrate from northern Marquette County during winter and is second in importance to the Huron Mountains deer yard. It is heavily populated during winter, deer use wooded dune and swale as well as hemlock stands.

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☒ **Nested large and small natural communities linked by functional or restorable ecosystems:**
Describe: see discussion below.

☒ **High quality natural communities nearby:**
Describe:

- **Little Presque Isle (LPI) Wooded Dune and Swale Ecological Reference Area (refer to the 2007 LPI Wooded Dune and Swale ERA management plan). 2009 YOE Compartment 204 Stands**
- **Several stands adjacent to the Harlow Lake Mesic Northern Forest ERA are proposed as Special Conservation Areas in Compartment 204 for the 2009 YOE Compartment Review for a variety of ecological reasons including riparian zones, braided waterway (ie. Stand 15), actual or potential old growth of a variety of forest types (ie. Stand 15), winter deer complex, rock outcrops (ie Stands 27-30, 32) and water. Refer to stand comments in 2009 YOE Gwinn Forest Management Compartment Review packet . All stands coded as SCA's include Stands 1-6, 14, 15, 16, 19, 20, 21, 23-32, 38-40, 46-77**

☐ **Large Block Size:**
General Shape and Acres:

4. **Species Assemblages** – List types of species assemblage targets.

☒ **Major groupings of species** - share common natural processes or have similar conservation requirements (e.g., freshwater mussels, forest-interior birds, essential pollinators).

Forest interior birds utilize the northern mesic forest on both sides of the road including the wooded dune and swale. The mesic northern forest is significant to song birds that key in on super canopy conifers especially blackburnian warbler.

☐ **Globally significant species aggregations (e.g. migratory shorebird aggregation).**

5. **Species** - List types of species by common and scientific name.:
☒ Focal species - keystone, wide-ranging (regional), providing linkages between ecosystems, and umbrella species.

Species: Deer are there consistently throughout the winter as part of the deer wintering complex.

American Pine Marten and Fisher occurs around Harlow Lake and is indicator species for mesic northern hardwoods,.

☐ **Globally imperiled or state endangered or threatened native species** - *Ranked G1, G2, G3 by NatureServe, and S1, S2 by MNFI, state and/or federally listed or proposed for listing as Threatened or Endangered (MI and U.S.), and on the IUCN Red List (International).*

Species:

☐ **Species of Special Concern - Due to vulnerability, declining trends, disjunct distributions, or endemic status; Ranked S3 by MNFI**

Species:

☐ **Other species of greatest conservation need - Identified as part of Michigan's Wildlife Action Plan due to declining populations or other characteristics that may make them vulnerable.**

Species

B: KNOWN SOCIAL/ECONOMIC VALUES

- ☒ Archaeological: **– historical Native Am. use is cited**
- ☒ Historical:
- ☒ Recreational:
  - ☒ Camping : **dispersed on W side not in ERA, LPI Cabins on Harlow Lake – Cabin 6 in ERA**
  - ☐ Canoeing/Kayaking
  - ☒ Fishing: **steelhead and brook trout**
  - ☒ Hiking/Backpacking: **North Country Trail and extensive network (Mead Trail), song bird trail east of highway not in ERA – for birding.**
  - ☒ Hunting and Trapping
  - ☒ Photography
  - ☒ Scenic: **Vistas of Harlow Lake and Lake Superior from rocky balds**
  - ☒ Water (lake, river, stream**): Harlow Creek, Harlow Lake**
  - ☒ Wildlife Viewing: **Bird Watching**
  - ☐ Cross Country Skiing:
  - ☐ ORV Riding and Snowmobiling:
  - ☒ Other: **Mountain Biking throughout whole ERA**
- ☒ Restorative/Spiritual
- ☐ Traditional Use/Gathering

C: EXISTING INFRASTRUCTURE/FACILITIES:

- ☐ American Disability Accessibility (ADA) Considerations
- ☒ Boat Launch(es): **non motorized at Harlow Lake, not in ERA**
- ☐ Bridge(s**):**
- ☒ Campground(s): **Rustic cabins nearby on Harlow Lake**
- ☐ Interpretive Displays:
- ☐ Marked boundaries
- ☒ Parking lot(s): **nearby on Harlow Lake and across Co. Road 550 at Little Presque Isle Pt.**
- ☐ Posted use rules
- ☒ Scenic Overviews: **vistas from rocky balds – not developed**
- ☐ Toilet(s)
- ☒ Trails/Boardwalks: **several existing recreational trails**
- ☐ Other:

SECTION 3: CURRENT CONDITIONS

D. CURRENT STATUS/VIABILITY OF CONSERVATION VALUE/TARGET (FROM TNC CAP TOOL KIT)

STATUS DEFINITIONS – POOR - IMMINENT LOSS, FAIR – VULNERABLE, GOOD – MINIMUM INTEGRITY, VERY GOOD - OPTIMAL INTEGRITY

LIST CONSERVATION VALUE/TARGET FROM SECTION 2 – A, B OR C	LIST CATEGORY OF SIZE, CONDITION, OR LANDSCAPE CONTEXT	LIST KEY ATTRIBUTE	LIST INDICATOR	LIST CURRENT STATUS POOR, FAIR, GOOD, OR VERY GOOD
MESIC NORTHERN FOREST	CONDITION LANDSCAPE CONTEXT	FUNCTIONAL NATURAL PROCESSES • FIRE • WIND THROW NON-FRAGMENTED FOREST	1. UNEVEN-AGED CANOPY AND SUPER-CANOPY 2. LARGE DIAMETER HEMLOCK AND WHITE PINE. 3. WELL-DEVELOPED PIT AND MOUND TOPOGRAPHY. 4. COARSE WOODY DEBRIS. 5. LOW TRAIL DENSITY	GOOD
WINTER DEER COMPLEX	CONDITION LANDSCAPE CONTEXT	THERMAL COVER	CONIFER OVERSTORY	VERY GOOD
PASSIVE RECREATION ▪ MULTIPLE USE TRAILS ▪ LITTLE PRESQUE ISLE FOREST RECREATION AREA	CONDITION AND LENGTH OF TRAILS	MAINTAINED ESTABLISHED TRAILS	EFFECTS OF OVERUSE MINIMAL EROSION NO NEW TRAILS	GOOD
PASSIVE RECREATION ▪ LITTLE PRESQUE ISLE FOREST RECREATION AREA	LANDSCAPE CONTEXT QUALITY OF EXPERIENCE FOR A VARIETY OF PASSIVE USES	SCENIC PHYSICAL AND ECOLOGICAL FEATURES	OLD GROWTH FOREST SCENIC VISTAS LAKES AND STREAMS	VERY GOOD
EDUCATIONAL	LOCATION AND ACCESS PROXIMITY TO URBAN AREA, UNIVERSITY AND SHOOLS	HISTORICAL AREA UNIQUE ECOSYSTEMS WILDLIFE	CONTINUED LOCAL USE	GOOD
ADJACENT HIGH QUALITY TROUT STREAMS HARLOW, BISMARK, AND NASH CREEKS	CONDITION	BANK STABILITY CANOPY COVER	1. EROSION (MINIMAL) 2. SUBSTRATE 3. WATER TEMPERATURE 4. LARGE WOODY DEBRIS IN STREAM CHANNEL	UNKNOWN FOR NASH AND HARLOW CREEKS GOOD FOR BISMARK CREEK

E. : INITIAL PRIMARY THREATS ASSESSMENT TO ESTABLISH BASELINE CONDITION
CHECK ALL THAT THERE IS ACTUAL EVIDENCE FOR AND DESCRIBE THE EVIDENCE BRIEFLY AND/OR ATTACH PHOTOS
DO THIS INITIALLY FROM AERIAL PHOTOS, LOCAL KNOWLEDGE, AND EXISTING DATA FOLLOWED BY A SITE VISIT.

A. Habitat Conversion & Degradation – Complete or substantial **loss or damage** to natural habitats.

☐ Altered Fire Regime -*suppression or increase in fire frequency and/or intensity outside of its natural range of variation*:

☐ Altered Hydrologic Regime Changing water flow patterns outside their natural range of variation *(surface water diversion, groundwater pumping, dam operations*
☐ Commercial & Industrial Development: *factories, stand-alone shopping centers, office parks, train yards, docks, ship yards, airports, landfills)*
☐ Farms & Plantations Agricultural operations - *commercial farms, industrial plantations, feed lots, aquaculture*
☐ Housing & Urban Development Expansion of cities, towns, settlements, non-housing development - *urban areas, suburbs, villages, homes, shopping areas, offices, schools, hospitals*
☐ Military Activities Actions by formal or paramilitary forces *(military bases, defoliation, munitions testing* :
☐ Natural System Modifications Actions that convert or degrade habitat to "managing" natural systems for human welfare - *dam construction, land reclamation, wetland filling, rip-rap along shoreline, levees and dikes*
☐ Recreation Areas Recreation sites with a substantial footprint *ski areas, golf courses, resorts, county parks*
☐ Other:

B. Transportation Infrastructure – Long narrow corridors **altering, fragmenting, and disturbing** natural habitat and species, including soil erosion/sedimentation, and providing routes for invasive or problematic species.

Cohen 2007a this ERA is relatively unfragmented. Roads and Trails are noted for documentation and as points of access for people and possible invasive plant species.

☐ Flight Paths :
☐ Railroads:
☒ Roads and Trails: **County Road 550 provides easy recreational access and increases uses. Harlow Creek Road provides access to Harlow Lake and runs between the LPI Wooded Dune and Swale ERA and the Harlow Lake Mesic Northern Forest ERA.**
☐ Shipping Lanes:
☐ Trails:
☐ Utility Lines.
☐ Stream Crossings - *culverts, bridges* :
☐ Other:

C. Energy & Mining – Production of non-biological resources **having negative impacts** to conservation values.
☒ Mining – *Exploring, developing, and producing*. **State owns surface only**
☐ Oil & Gas Drilling
☐ Renewable Energy – *Exploring, developing, and producing.*

D. Biological Resource Harvesting –Over or under consumption of "wild" resources **resulting in loss** of conservation values.
☐ Gathering – *Harvesting plants, fungi, and other non-timber/non-animal products for commercial, recreation, or subsistence purposes*.

☐ Grazing
☐ Hunting, Trapping & Fishing
☐ Timber Harvesting:

E. Recreation & Research – Non-consumptive uses of biological resources **resulting in damage** to natural resources**.**

☒ Human-Powered Recreation – *mountain bikes, hikers, backpackers, cross-country skiers, rock climbers, canoeists, kayakers, hang-gliders, birdwatchers, photographers*
High Potential for off road mountain bike use in this area.
☐ Motor-Powered Recreation - *Traveling outside of established transport corridors: off-road vehicles, motorcycles, motorboats, jet-skis, snowmobiles, ultra-light planes.*
☐ Scientific Research – *Ecosystem manipulations*

F. Pollution – Introduction of exotic and/or excess materials from point and non-point sources with **evidence of resource damage**.

- ☐ Chemicals & Toxins
- ☐ Greenhouse Gasses –*CO_2, methane*
- ☐ Light Pollution
- ☐ Noise Pollution
- ☐ Nutrient Loads
- ☐ Radioactive Materials
- ☐ Salt/Brine
- ☐ Solid Waste – *garbage, litter*
- ☐ Thermal Pollution
- ☐ Waste & Residual Materials – *dredge spoil, water treatment residuals, slash, mine tailings, excess sediment loads.*

G. Invasive & Other Problematic Species & Genes – Aquatic or terrestrial non-native and native species or genetic materials that have or are predicted to have harmful effects on biodiversity following their introduction, spread and/or increase in abundance.

List species, extent of infestation and fill out Forest Health Form.

- ☐ Introduced Genetic Material
- ☒ Invasive Species**: Potential occurs for Spotted knapweed to invade from County Road 550 if additional road development occurs (Cohen 1007a)**
- ☒ Problematic Native Species**: Deer concentrate in the winter and browse forest regeneration and the herbaceous layer (Cohen 2007).**
- ☐ Hybrid Species

H. Climate Change – Evidence of impacts from long-term changes linked to global warming and other climate issues.

- ☐ Climate Variability – Intensification and/or alteration of normal weather patterns - *droughts, high wind or rain event.*
- ☐ Habitat Shifting & Alteration

I. Other

SECTION 4: RECOMMENDED MANAGEMENT GOALS AND ACTIVITIES
LIST GOAL(S), FOR EACH VALUE, RELATED THREAT ABATEMENT, MAINTENANCE OR ENHANCEMENT NEEDS IDENTIFIED IN SECTIONS 2 AND 3

CHECK ALL GOAL CATEGORIES THAT APPLY

- ☒ **NATURAL COMMUNITY MAINTENANCE OR ENHANCEMENT GOALS**
- ☒ **ECOLOGICAL SYSTEMS MAINTENANCE OR ENHANCEMENT GOALS**
- ☒ **SPECIES MAINTENANCE OR ENHANCEMENT GOALS**
- ☐ **SPECIES RESTORATION GOALS**
- ☐ **SOCIAL ECONOMIC GOALS**
- ☒ **INFRASTRUCTURE/FACILITIES GOALS**
- ☒ **ADMINISTRATIVE GOALS– PROTECTION STATUS; CAPACITY BUILDING; FUNDING, VOLUNTEERS**

GOAL # AND DESCRIPTION FROM SECTIONS 2 AND 3

Goal 1: Maintain Mesic Northern Forest Community by maintaining natural processes of fire, wind throw, and disease.

Objective 1: ICC to develop a wildfire response plan.

Task 1: Utilize minimum impact suppression techniques utilizing natural fire breaks.

Objective 2: Maintain the current dynamic between the thermal cover provided by the hemlock and the ground flora (see Goal 4)

Objective 3: No timber removal within the ERA.

Objective 4: Monitor for invasive species.

Goal 2 : Maintain recreational and traditional use opportunities compatible with ERA biodiversity values.

Objective 1: Keep and maintain existing trails and do not develop new trails to minimize fragmentation of ERA.

Objective 2: Monitor area for over use impacts. Ie. illegal, new trails.

Task 1: Be proactive, contact and work with local mountain bike organizations to minimize impacts from potential new trail development.

Goal 3: Protect existing and identify additional high quality mesic northern forests on public and private lands for regional biodiversity conservation. Additionally, encourage restoration of mesic conifers, particularly hemlock and white pine, on public and private lands. This may over time (100 years +), provide additional dispersed deer wintering areas and help to reduce browsing pressure on regenerating trees and herbs.

Objective 1: Work with conservation organizations to seek voluntary protection of known high quality mesic northern forest sites on private lands.

Objective 2: Survey for new occurrences of high quality northern mesic forest.

Objective 3: Restore mesic conifers to northern hardwood cover types on public and private land.

Task 1: Continue implementing the WUP mesic conifer initiative in the interim until a new forest plan is developed.

Task 2: Implement mesic conifer restoration on private lands through existing state private land programs: the Land Owner Incentive Program (LIP) and Forest Stewardship.

Goal 4: Assess the needs for access sites, parking lot and signage in conjunction with the Little Presque Isle Recreation Area

Goal 5: Maintain current level of protection status through continued SCA/ HCVA/ERA status.

Objective 1: Continue to enforce land use rules.

Objective 2: Maintain relationships with local volunteers and conservation partners.

Objective 2: Explore purchase of severed mineral rights.