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: **Mulligan Cliffs dry non-acid cliff**
- ☐ Endangered Species Management Area
  - ☐ Kirtland Warbler
  - ☐ Piping Plover
  - ☐ Other:
- ☐ Environmental Area as defined by DEQ
- ☒ State Natural or Scenic River (proposed Natural Area)
- ☐ Quiet Area:
- ☐ Other:

SPECIAL CONSERVATION AREA - LIST OTHER CATEGORIES BELOW

Special Conservation Area – true old growth
Proposed State Natural Area – Rocking Chair Lakes Natural Area
Trout Lakes – Type D (refer to Michigan Department of Natural Resources. 2006 – 2008. Michigan Inland Trout and Salmon Guide)
Trout Stream – Type 1 (refer to Michigan Department of Natural Resources. 2006 – 2008. Michigan Inland Trout and Salmon Guide)
Nested within the larger Michigamme Highlands Priority Conservation Area - The Nature Conservancy

B: SITE, CONTACT AND ADMINISTRATIVE INFORMATION

Site Name: **Mulligan Cliffs**			Other Names: **Rocking Chair Lakes Natural Area** **Mulligan Creek**
ReportDate **10/18/2007**	Forest Mgt Unit **Gwinn**	Compartment Number(s) (Stand Number(s) **2009 YOE Compartment 304 Stands 3, 6** **Proposed Natural Area Boundary Compartment 304, Stands 1- 10 SCA Boundary includes all of Compartment 304**	☒ Map Attached ☒ Shape File in OI/IFMAP GDSE File Location/Name
County(ies) **Marquette**		Township(s) Range(s) Section(s) ¼ Sec. Optional if mapped **T 49N, R28W, Sections 10 and 3*** **T 50N, R28W, Section 34*** **(*ERA extends onto private land in these sections)**	

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, FMFMD	**(906) 485-1031 Ishpeming**	**wilsond@michigan.gov**
Terry MacFadden, Wildlife Biologist, Wildlife Division	**(906) 228-6561 Gwinn/Marquette**	**mcfaddet@michigan.gov**
Brian Gunderman, Fisheries Biologist, Fisheries Division	**(906)353-6651 Baraga**	**gunderb@michigan.gov**
Additional contact information Name of individual providing information (first and last), if applicable. **William Brondyke, Gwinn FMU Manager, FMFM** **Mike Koss, Wildlife Ecologist**	Telephone **(906) 346-9201** **(906) 346-9201**	Email Address **brondykw@michigan.gov** **kossm@michigan.gov**
Name of DNR/DEQ Program Contact if Applicable **Wildlife Division, State Natural Areas Program Patrick Lederle, Supervisor, Research and Technology Section**	Telephone **(517) 373-1263**	Email Address **lederlep@michigan.gov**
☐ Volunteer (s) Number of Volunteers: Name of Group: Contact Name:	Telephone ( )	Email Address

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

☒ State Forest Land: **Gwinn Forest Management Unit**
☐ State Park/Recreation Area:
☐ State Game Area:
☒ Other or Private Land (describe):
Section 3: Barton English, Longyear Realty Corp., Mart Swenson & Charles Gross CFR
Section 10: Great Kashube Co. and Worth
Section 34: Kost, Longyear Realty Corp.

D: CONSERVATION PARTNERS – FILL IN ALL KNOWN PARTNERS

Name of Organization: **The Nature Conservancy**
Contact Name: **Lisa Niemi, UP Program Director**
Email Address: **LNIEMI@TNC.ORG**
Telephone: **906-225-0399 ext 14**
For Michigamme Highlands Strategies: working forest easements and landscape management, identifying and improving areas of sedimentation with local conservation organizations, land protection by acquisition or easements; Targeted results: build upon existing protected areas, pursue additional easements and land acquisitions.

Name of Organization: **Mart Swenson & Charles Gross C.F.R.**
Contact Name:
Email Address
Telephone ( )
Private lands enrolled under the Commercial Forestry Act allow public access for hunting and fishing.

Name of Organization
Contact Name:
Email Address
Telephone ( )

Name of Organization
Contact Name:
Email Address
Telephone ( )

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

Albert D. A., J. Cohen, J. Cooper, D. Cuthrell, R. Goforth, M. Penskar, H. Enander. 2001. Natural Areas Report for 1996 – 2000. Michigan Natural Features Inventory Report Number 2001-08, Michigan State University Extension. (Michigan Natural Features Inventory publication file)

Cohen, J. 2007. Site Summary for Mulligan Cliffs Element Occurrence (EO NUM) 6 - Surveyed July 18, 2007. Michigan Natural Features Inventory, Michigan State University 2 pages

Michigan Department of Natural Resources. 2006 – 2008. Michigan Inland Trout and Salmon Guide. Lansing, MI 45 pp.

Michigan Natural Features Inventory Element Occurrence Record Dry Non-acid Cliff EO NUM 6. Last Observed Date 1983 (Accessed October 2007)

Michigan Natural Features Inventory. 2007. Rare Species Explorer (Web Application). Results for *Draba arabisans* Rock Whitlow-grass. Available online at http://web4.msue.msu.edu/mnfi/explorer [Accessed Oct 22, 2007]

Michigan Department of Natural Resources. 1987. Michigan Wilderness and Natural Areas Advisory Board Area Nomination Form. (DNR Natural Area Program Files)

The Nature Conservancy. 2007. Michigamme Highlands Priority Conservation Area Conservation Profile and Map. http://www.nature.org/wherewework/northamerica/greatlakes/resources/art11461.html
http://www.nature.org/wherewework/northamerica/greatlakes/resources/art11461.html

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
☐	Alvar [Alvar grassland]	S1	G2?	
☐	*Bedrock glade*			
☐	Basalt bedrock glade	S2	G3	
☐	Igneous bedrock glade	S2	G3G4	
☐	Limestone bedrock glade [Alvar glade]	S2	G2?	
☐	Sandstone bedrock glade	S2?	G3G4	
☐	Volcanic conglomerate bedrock glade	S2	G3	
☐	*Bedrock lakeshore*			
☐	Basalt bedrock lakeshore	S2	G3	
☐	Igneous bedrock lakeshore	S2	G?	
☐	Limestone pavement lakeshore [Alvar pavement]	S2	G3	
☐	Volcanic conglomerate bedrock lakeshore	S2	G3	
☐	Bog	S4	G3	
☐	Boreal forest	S3	GU	
☐	Bur oak plains	SX	G1	
☐	Cave	S1	G4?	
☐	*Cliff*			
☐	Dry acid cliff	S2?	G4	
☒	**Dry non-acid cliff**	**S2**	**G4**	**A**
☐	Moist acid cliff	S2	G4	
☐	Moist non-acid cliff	S2	G4	
☐	Coastal plain marsh	S2	G2	
☐	Cobble beach [Cobble shore]	S3	G3?	
☐	Dry northern forest [Pine forest]	S3	G3?	
☐	Dry sand prairie	S2	G3	
☐	Dry southern forest [Oak forest]	S3	G4	
☒	**Dry-mesic northern forest [Pine -hardwood forest]**	**S3**	**G4**	**(AB/B)**
☐	Dry-mesic southern forest [Oak-hardwood forest]	S3	G4	
☐	Emergent marsh	S4	GU	
☐	Great Lakes barrens	S2	G3	
☐	Great Lakes marsh	S3	G2	
☐	Hardwood-conifer swamp	S3	G4	
☐	Hillside prairie	S1	G3	
☐	Inland salt marsh	S1	G1	
☐	Interdunal wetland	S2	G2?	
☐	Intermittent wetland [Boggy seepage wetland]	S3	G2	
☐	Inundated shrub swamp	S3	GU	
☐	Lakeplain mesic sand prairie	S1	G1	
☐	*Lakeshore cliff*			
☐	Basalt lakeshore cliff	S1	G3?	
☐	Sandstone lakeshore cliff	S2	G3	
☐	Volcanic conglomerate lakeshore cliff	S1	G3?	
☒	**Mesic northern forest [Northern hardwood forest; Hemlock-hardwood forest]**	**S3**	**G4**	**Not ranked**
☐	Mesic prairie	S1	G2	
☐	Mesic sand prairie	S1	G1?	
☐	Mesic southern forest [Southern hardwood forest]	S3	G3?	
☐	Muskeg	S3	G4	
☐	Northern bald [Krummholz ridgetop]	S1	GU	
☐	Northern fen	S3	G3	
☐	Northern shrub thicket	S5	G4	
☐	Northern swamp	S3?	G4	
☐	Northern wet meadow	S4	G4	
☐	Northern wet-mesic prairie	S1	GNR	
☐	Oak barrens	S1	G2?	
☐	Oak openings	S1	G1	
☐	Oak-pine barrens	S2	G3	
☐	Open dunes	S3	G3	
☐	Patterned fen	S2	GU	
☐	Pine barrens	S2	G3	
☐	Poor conifer swamp	S4	G4	
☐	Poor fen	S3	G3	
☐	Prairie fen	S3	G3	
☐	Relict conifer swamp	S3	G3	
☐	Rich conifer swamp	S3	G4	
☐	Sand/gravel beach	S3	G3?	
☐	Sinkhole	S2	G3G5	
☐	Southern floodplain forest	S3	G3?	
☐	Southern shrub-carr	S5	GU	
☐	Southern swamp	S3	G3	
☐	Southern wet meadow	S3	G3?	
☐	Submergent marsh	S4	GU	
☐	Wet prairie	S2	G3	
☐	Wet-mesic prairie	S2	G2	
☐	Wooded dune and swale complex	S3	G3	
☐	Woodland prairie	S2	G3	

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):**

Dry Non-acid Cliff:

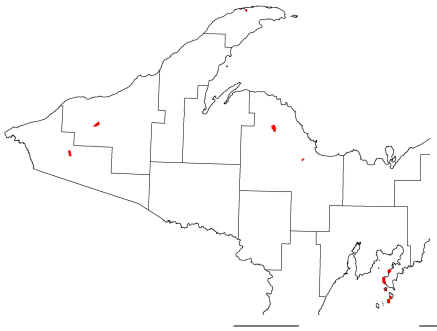
Excerpted from Albert 2007. Overview: The cliffs are vertical or near-vertical exposures of bedrock which typically support less than 25% vascular plant coverage, although some rock surfaces can be densely covered with lichens, mosses, and liverworts. Almost all cliffs, with the exception of small areas of calcareous sandstone cliff along Lake Huron and the Grand River, occur in the Upper Peninsula of Michigan, where large bedrock exposures are numerous.

Landscape Context: Vertical bedrock exposures occur in association with most bedrock types, but non-acid cliffs are most commonly associated with limestone, dolomite (or dolostone), volcanic basalts, lavas, or conglomerates, and with some sandstones. Most of Michigan's cliffs occur within a forested landscape, with trees occupying the summit and the base of the cliff. Forested talus is found at the base of some cliffs, especially the large volcanic cliffs of the Keweenaw Peninsula. Scattered small trees, especially northern white-cedars (*Thuja occidentalis*) commonly grow in joints and crevices on the cliff face.

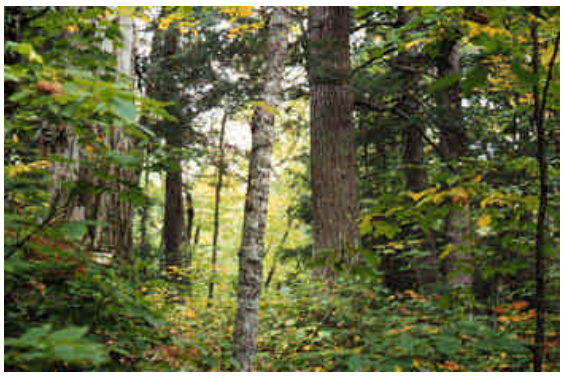
Number of Occurrences known Statewide: 12

Number of Occurrences known in WUP Ecoregion: 6

Number on State Land: 1



Dry Non-acid Cliffs in Michigan's Western Upper Peninsula
(MNFI database 2007) Mapped by M. MacKay



Forest photo by Dennis Albert
Rocking Chair Falls by Cramer from MDRN Website

From the Mulligan Cliffs Site Report from Cohen 2007 and Albert et al. 2001

Mulligan Cliffs is a high quality (rank A) dry non-acid cliff natural community represented by a long stretch of virtually pristine cliffs with complex ecological zonation and high species diversity patterned by unhindered natural processes of rock slide, windthrow, and fire. The site occurs in part within Rocking Chair Lakes Natural Area which remains relatively unperturbed by human disturbance with high-quality lakes, mesic northern forest and dry-mesic northern forest immediately adjacent to the cliffs. (Cohen 2007). The upland forests were dominated with northern hardwood forests, with concentrations of mature red oak, white pine, red pine, and hemlock where the soils were thin, ie., on parts of the cliff faces and on the exposed or thin-soiled bedrock knobs. The forests could generally be characterized as old-growth northern hardwood forests, with many small stands of mature and old-growth white pine and hemlock (Albert et al 2001). Red oak were less concentrated, occurring as individuals or groups within the conifer or hardwood dominated stands. The greater landscape remains unfragmented forest with low road densities. Human disturbance within site limited to cutting for fire wood, minor foot traffic, and small hut/blind. Non-native species are non-threatening weeds which have not affected the species composition and structure. Within the surrounding landscape, invasive species (spotted knapweed and common St. John's wort) are confined to road corridors to the west. These cliff survey already identified significant rare plants.

☒ **Ecological processes –** *such as connectivity, hydrology, fire, wind events, flooding, pest and disease cycles;*
Describe: At Mulligan Cliffs complex ecological zonation and high species diversity is patterned by unhindered natural processes of rock slide, windthrow, and fire (Cohen, 2007)

☒ **Underlying environmental features –** *such as soils, geology, topography, headwaters*;
Describe: Albert (2007) notes in general, for dry-non acid cliffs, exposure to erosion and dry conditions result in little soil development or accumulation. Moisture is a limiting factor for vegetation growth, except in crevices, where root growth provides both organic materials and some accumulation of soils. Aspect results in variability of site moisture conditions. North- and east-facing cliffs are typically moister than south- and west-facing cliffs, both because of reduced wind and reduced direct exposure to the sun. Moisture can be locally present on cliff faces due to ground water or surface flow across the cliff surface.

☒ **Environmental gradients –** *such as elevation, precipitation, temperature*;
Describe: Steep cliffs above and between Mulligan Creek and Rocking Chair Lakes

☐ **Species and/or community structure –** *using during migration, during different life stages, or gradual species turnover across environmental gradients*.
Describe:
.

☐ **Nested large and small natural communities linked by functional or restorable ecosystems**:
Describe:

☒ **High quality natural communities nearby:**
Describe:
High quality mesic northern forest and dry-mesic northern forest immediately adjacent to cliffs (Cohen 2007), C ranked mesic northern forest near Island Lake in Section 3.

High Quality Inland Lakes: Michigan Natural Features Inventory Natural Area Survey Dennis Albert and Rueben Goforth (Albert et al 2001) remarked on the pristine, remoteness and undeveloped nature of Rocking Chair Lakes. Rocking Chair Lakes (North and South), Island Lake and Lakes 2, 3, and 8 could all be characterized by extremely low levels of human activity, with sediments and vegetation characteristic of these softwater lakes intact. The report recommended the boundaries of the proposed natural area be revised to include several additional lakes to the north and south, including Island Lake and Lakes 2, 3, and 8.

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☐ **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).

☐ **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:

☒ **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:

Pine drops - *Pterospera andromodea*, listed as threatened in Michigan in 2007 was found on the top of the escarpment in dry-mesic northern forest and also in a forested portion of talus slope just east of the southernmost Rocking Chair Lake.

☐ **Species of Special Concern - Due to vulnerability, declining trends, disjunct distributions, or endemic**

status; Ranked S3 by MNFI

Species: see note above.

Rock Whitlow-grass *Draba arabisans* with a occurrence Rank B (good viability) observed in 1983 and verified in 2007 to be growing along the base of the cliff face in shaded and mossy areas through out (Cohen, 2007). The occurrence rank may be much higher as the habitat extends for miles, but was not surveyed.

☐ **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:
- ☒ Recreational:
  - ☒ Camping:
  - ☐ Canoeing/Kayaking
  - ☒ Fishing: **Walk in trout fishery - Rocking Chair Lakes, Island Lake nearby annually stocked with brook trout**
  - ☒ Hiking/Backpacking:
  - ☒ Hunting
  - ☒ Photography
  - ☒ Scenic: **Very**
  - ☒ Water (lake, river, stream): **Rocking Chair Lakes and Mulligan Creek**
  - ☒ Wildlife Viewing
  - ☐ Cross Country Skiing
  - ☐ Other
- ☒ Restorative/Spiritual
- ☐ Traditional Use/Gathering

C: EXISTING INFRASTRUCTURE/FACILITIES:

- ☐ American Disability Accessibility (ADA) Considerations
- ☐ Boat Launch(es)
- ☐ Bridge(s):
- ☐ Campground(s):
- ☐ Interpretive Displays:
- ☐ Marked boundaries
- ☐ Parking lot(s):
- ☐ Posted use rules
- ☐ Scenic Overviews
- ☐ Toilet(s)
- ☐ Trails/Boardwalks
- ☐ 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
DRY NON-ACID CLIFF	LANDSCAPE CONTEXT CONDITION	ROCK SLIDES WINDTHROW FIRE	COMPLEX ECOLOGICAL ZONATION HIGH SPECIES DIVERSITY	VERY GOOD
DRY MESIC NORTHERN FOREST	LANDSCAPE CONTEXT CONDITION	WINDTHROW FIRE	NON FRAGMENTATION FOREST STRUCTURE RED, WHITE PINE, RED OAK RESULTING FROM NATURAL DISTURBANCES	VERY GOOD
MESIC NORTHERN FOREST	LANDSCAPE CONTEXT CONDITION	WINDTHROW (PATCH DYNAMICS)	NON-FRAGMENTATION HEMLOCK, SUGAR MAPLE RED OAK, YELLOW BIRCH	VERY GOOD
ROCK WHITLOW-GRASS PINE DROPS	CONDITION	MAINTENANCE OF CLIFF HABITAT NATURAL DISTURBANCE PROCESSES	PRESENCE OF EXTANT AND REPRODUCING (FLOWERING AND FRUITING PLANTS)	VERY GOOD GOOD
SOFT WATER LAKES	LANDSCAPE CONTEXT CONDITION	REMOTE AND RELATIVELY UNDISTURBED LOCATION	HIGH QUALITY UNDISTURBED AQUATIC PLANT INVERTEBRATE COMMUNITY	VERY GOOD
UNIQUE RECREATION	LANDSCAPE CONTEXT UNIQUE IN THE MIDWEST REGION FOR FISHING EXPERIENCE	REMOTE WILDERNESS SETTING TROUT LAKES (ROCKING CHAIR LAKES, ISLAND LAKE) TROUT STREAM (MULLIGAN CREEK)	SCENIC VISTAS • UNDISTURBED ROCK OUTCROPS • MOTOR LESS, ROADLESS, TRAIL-LESS • UNDISTURBED RIPARIAN VEGETATION UNIQUE WALK IN FISHERY	VERY GOOD VERY GOOD

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 of 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: **The Nature Conservancy (2007) cites the potential for second home development on private lands that would contribute to forest fragmentation.**

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.

☐ Flight Paths :

☐ Railroads :

☒ Roads and Trails : **The potential for further road development was identified as a threat by The Nature Conservancy (2007) and its stake holders.**

☐ Shipping Lanes :

☐ Trails : .

☐ Utility Lines.

☐ Stream Crossings - *culverts, bridges* :

☒ Other: **Sedimentation into rivers via roads was identified as a stressor by The Nature Conservancy (2007).**

C. Energy & Mining – Production of non-biological resources **having negative impacts** to conservation values.

☒ Mining – *Exploring, developing, and producing*. **A mineral lease application is under review. Also identified as a stressor by The Nature Conservancy (2007) by The Nature Conservancy and its stake holders.**

☐ 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: **Not actually "threatening" ERA though there localized impacts near the lakes due to camping.**

☒ Timber Harvesting: **Non- sustainable forest practices on private lands were identified as a stressor by The Nature Conservancy (2007) and its stakeholders**.

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*

☐ Motor-Powered Recreation - *Traveling outside of established transport corridors: off-road vehicles, motorcycles, motorboats, jet-skis, snowmobiles, ultra-light planes.*

☐ Scientific Research – *Ecosystem manipulations*

☒ Other: **The Nature Conservancy (2007) cites the potential for increased recreation that would contribute to forest fragmentation or other damage to natural resources.**

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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**:**

- ☐ Problematic Native Species:
- ☐ 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

Campers have been cutting firewood and there is a blind/hut along the river in Section 10. Logging in the vicinity could increase the seed source for non-native weeds that could be bird or wind dispersed onto the site. (Cohen 2007)

SECTION 4: RECOMMENDED MANAGEMENT GOALS AND ACTIVITIES

LIST GOAL(S), FOR EACH VALUE, RELATED THREAT ABATEMENT, MAINTENANCE OR ENHANCEMENT NEED 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 high quality Dry Non-acid Cliff community, associated rare species and adjacent high quality natural communities.

Objective1: Maintain forested buffer to minimize the threat of invasion by non-native species maintain non-fragmented forested community.

Task 1: Maintain no timber harvest or salvage in Compartment 304, T49 N, R 28W, Section 10.

Objective 2: Allow natural processes to operate unhindered.

Task 1: Use natural fires breaks and suppress fire utilizing minimum impact suppression techniques.

Goal 2: Maintain unique recreation experience in larger landscape context.

Objective 1: Monitor recreation uses on cliff and lakes to minimize impacts.

Task 1: Enforce state land use rules.

Objective 2: Maintain roadless, trail-less features of the landscape.

Goal 3: Pursue long term, permanent protection by legal dedication as state natural area.

Natural Area status as provided under Public Act 451 of 1994 Part 351 WILDERNESS AND NATURAL AREAS Sec. 35105. prohibits the following activities:

- "Removing, cutting, picking, or otherwise altering vegetation, except as necessary for appropriate public access, the preservation or restoration of a plant or wildlife species, or the documentation of scientific values and with written consent of the MDNR", or for an easement
- Exploration or extraction of minerals
- A commercial enterprise, utility or permanent road
- Any use of mechanical transport (includes bicycles and motorboats), except when necessary for an emergency - this is a misdemeanor offense
- Use of motorized equipment, except for MDNR approved management

Objective 1: Include original proposed natural area boundaries encompassing inland lakes and mesic northern forest communities.

Objective 2: Pursue acquisition of private parcels or conservation easement with assistance from land conservancies.

Objective 3: Recommend natural community and rare species surveys beyond state forest land to establish ecological boundaries of all associated high quality associated natural communities and rare species.