

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.

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-serveonline.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: HCVA TYPE – CHECK ALL THAT APPLY

- | | |
|---|---|
| <input type="checkbox"/> Critical Dune as defined by DEQ | <input type="checkbox"/> Environmental Area as defined by DEQ |
| <input type="checkbox"/> Legally Dedicated State Natural Area | <input type="checkbox"/> State Natural or Scenic River |
| <input checked="" type="checkbox"/> Ecological Reference Area | <input type="checkbox"/> Quiet Area: |
| <input type="checkbox"/> Endangered Species Management Area | <input type="checkbox"/> Other: |
| <input type="checkbox"/> Kirtland Warbler | |
| <input type="checkbox"/> Piping Plover | |
| <input type="checkbox"/> Other: | |

SPECIAL CONSERVATION AREA - LIST OTHER CATEGORIES BELOW

B: SITE, CONTACT AND ADMINISTRATIVE INFORMATION

Site Name: Sage Lake Cedar Swamp		Other Names: These names refer to the surrounding area including Avery Hills Complex, Sage Lakes, Sage Lake Flooding		
ReportDate (mm/dd/yyyy) September 24, 2007	Forest Mgt Unit Atlanta	Compartment Number(s) 12	Stand Number(s) 26, 127	<input checked="" type="checkbox"/> Map Attached <input type="checkbox"/> Shape File in OI/IFMAP GDSE File Location/Name
County(ies) Montmorency		Township(s) Optional if mapped 29N	Range(s) Optional if mapped 2E	Section(s) ¼ Sec. Optional if mapped 22, 23, 24, 25, 26, 27
Name of individual completing this form (first and last) <input checked="" type="checkbox"/> Check if DNR Employee Robert Theiner, Forest Technician, Atlanta Field Office Kim Herman, Monitoring Specialist Mineral, Fire Management Division,		Telephone (989) 785-4251 (906) 786-2351	Email Address theinerr@michigan.gov hermank@michigan.gov	
Additional contact information Name of individual providing information (first and last), if applicable Keith Kintigh, Wildlife Ecologist, Gaylord OSC Tim Cwalinski, Fisheries Biologist, Gaylord OSC Harold Miller, Fisheries Technician Supervisor, Gaylord OSC Paige Perry, Recreation Specialist, Gaylord OSC Joshua Cohen, Ecologist, Michigan Natural Features Inventory		Telephone (989) 732-3541 (989) 732-3541 (989) 732-3541 (989) 732-3541 (517) 373-4911	Email Address kintighk@michigan.gov cwalinst@michigan.gov millerhe@michigan.gov perryapa@michigan.gov cohenjo@michigan.gov	
Name of DNR/DEQ Program Contact if Applicable MI Dept. of Environmental Quality, Land and Water Management Division, Jim Pawloski, Dam Safety Inspector, Gaylord, MI MI DNR Parks Recreation, Gary Ellenwood, Newberry, MI		Telephone (989) 731-9420 (906) 293-5151	Email Address pawlowkj@michigan.gov ellenwog@michigan.gov	
<input type="checkbox"/> 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:

- | | |
|--|--|
| <input checked="" type="checkbox"/> State Forest Land: | <input type="checkbox"/> State Game Area: |
| <input type="checkbox"/> State Park/Recreation Area: | <input type="checkbox"/> Other or Private Land (describe): |

D: CONSERVATION PARTNERS – FILL IN ALL KNOWN PARTNERS

(INDIVIDUALS OR ENTITIES WITH A SPECIFIC INTEREST IN THE MANAGEMENT OF THESE AREAS)

Conservation Partner Name of Organization: Montmorency Conservation Club Contact Name: Tom Carlson Email Address Telephone () (Wildlife and Fish)	Name of Organization: Michigan Natural Areas Council Contact Name: Phyllis Higman Email Address: higmanp@michigan.go Telephone (517) 373-6983
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Conservation Partner Name of Organization: Trout Unlimited Contact Name: Email Address Telephone ()	Name of Organization: Michigan Natural Features Inventory Michigan State University Extension Contact Name: Joshua Cohen, Conservation Scientist - Ecologist Email Address: cohenj@michigan.gov Telephone (517) 373-4911
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E: OTHER DOCUMENTS RELATED TO THIS HCVA – CITATION AND LOCATION WHERE STORED

Albert, D. 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

Cwalinski, T.A., N.A. Godby, Jr., and A.J. Nuhfer. 2006. Thunder Bay River Assessment. Michigan Department of Natural Resources, Fisheries Special Report 37 Ann Arbor. MI 112 pp. plus Appendices
Found on line at http://www.michigandnr.com/PUBLICATIONS/PDFS/ifr/ifrlibra/special/reports/sr37/SR37_text.pdf

Lee, Y 2002. Special animal abstract for *Appalachina sayanus* (spike-lip crater). Michigan Natural Features Inventory. Lansing, MI. 4 pp.

Kost, M. A. 2002. Natural community abstract for rich conifer swamp. Michigan Natural Features Inventory, Lansing, MI 9 pp. Found on line at http://web4.msue.msu.edu/mnfi/abstracts/ecology/Rich_conifer_swamp.pdf

Michigan Department of Environmental Quality, Land and Water Management Division, Dam Safety Inspection Report 2006 Dam ID # 353 Sage Lake Dam - includes Operation and Management Recommendations and provides the dam maintenance schedule. Copy in the MNDR Fisheries Divisions Files, Gaylord OSC and DEQ Gaylord Office

Michigan Department of Natural Resources, Fisheries Division Sage Lake Dam Emergency Action Plan. 1997.
Copy in MDNR, Fisheries Division files, Gaylord OSC and DEQ Gaylord Office

Cohen, J. 2006. Michigan Natural Features Inventory (MNFI) Element Occurrence Record - Rich Conifer Swamp EO Num 51. MNFI Database accessed September 2007, Michigan State University Extension, Lansing, MI. Available with permission from MNFI, Lansing, MI.

Cohen, J. 2007. Draft - Sage Lake Cedar Swamp site summary. Michigan Natural Features Inventory, Michigan State University Extension, Lansing, MI 1 p. Copy in FMFM ERA Files, Escanaba, MI

DRAFT

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

A: BIODIVERSITY VALUES

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

• **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
<input type="checkbox"/>	Alvar [Alvar grassland]	S1	G2?		<input type="checkbox"/>	Lakeshore cliff			
<input type="checkbox"/>	Bedrock glade				<input type="checkbox"/>	Basalt lakeshore cliff	S1	G3?	
<input type="checkbox"/>	Basalt bedrock glade	S2	G3		<input type="checkbox"/>	Sandstone lakeshore cliff	S2	G3	
<input type="checkbox"/>	Igneous bedrock glade	S2	G3G4		<input type="checkbox"/>	Volcanic conglomerate lakeshore cliff	S1	G3?	
<input type="checkbox"/>	Limestone bedrock glade [Alvar glade]	S2	G2?		<input type="checkbox"/>	Mesic northern forest [Northern hardwood forest; Hemlock-hardwood forest]	S3	G4	
<input type="checkbox"/>	Sandstone bedrock glade	S2?	G3G4		<input type="checkbox"/>	Mesic prairie	S1	G2	
<input type="checkbox"/>	Volcanic conglomerate bedrock glade	S2	G3		<input type="checkbox"/>	Mesic sand prairie	S1	G1?	
<input type="checkbox"/>	Bedrock lakeshore				<input type="checkbox"/>	Mesic southern forest [Southern hardwood forest]	S3	G3?	
<input type="checkbox"/>	Basalt bedrock lakeshore	S2	G3		<input type="checkbox"/>	Muskeg	S3	G4	
<input type="checkbox"/>	Igneous bedrock lakeshore	S2	G?		<input type="checkbox"/>	Northern bald [Krummholz ridgetop]	S1	GU	
<input type="checkbox"/>	Limestone pavement lakeshore [Alvar pavement]	S2	G3		<input type="checkbox"/>	Northern fen	S3	G3	
<input type="checkbox"/>	Volcanic conglomerate bedrock lakeshore	S2	G3		<input type="checkbox"/>	Northern shrub thicket	S5	G4	
<input type="checkbox"/>	Bog	S4	G3		<input type="checkbox"/>	Northern swamp	S3?	G4	
<input type="checkbox"/>	Boreal forest	S3	GU		<input type="checkbox"/>	Northern wet meadow	S4	G4	
<input type="checkbox"/>	Bur oak plains	SX	G1		<input type="checkbox"/>	Northern wet-mesic prairie	S1	GNR	
<input type="checkbox"/>	Cave	S1	G4?		<input type="checkbox"/>	Oak barrens	S1	G2?	
<input type="checkbox"/>	Cliff				<input type="checkbox"/>	Oak openings	S1	G1	
<input type="checkbox"/>	Dry acid cliff	S2?	G4		<input type="checkbox"/>	Oak-pine barrens	S2	G3	
<input type="checkbox"/>	Dry non-acid cliff	S2	G4		<input type="checkbox"/>	Open dunes	S3	G3	
<input type="checkbox"/>	Moist acid cliff	S2	G4		<input type="checkbox"/>	Patterned fen	S2	GU	
<input type="checkbox"/>	Moist non-acid cliff	S2	G4		<input type="checkbox"/>	Pine barrens	S2	G3	
<input type="checkbox"/>	Coastal plain marsh	S2	G2		<input type="checkbox"/>	Poor conifer swamp	S4	G4	
<input type="checkbox"/>	Cobble beach [Cobble shore]	S3	G3?		<input type="checkbox"/>	Poor fen	S3	G3	
<input type="checkbox"/>	Dry northern forest [Pine forest]	S3	G3?		<input type="checkbox"/>	Prairie fen	S3	G3	
<input type="checkbox"/>	Dry sand prairie	S2	G3		<input type="checkbox"/>	Relict conifer swamp	S3	G3	
<input type="checkbox"/>	Dry southern forest [Oak forest]	S3	G4		<input checked="" type="checkbox"/>	Rich conifer swamp	S3	G4	BC
<input type="checkbox"/>	Dry-mesic northern forest [Pine-hardwood forest]	S3	G4		<input type="checkbox"/>	Sand/gravel beach	S3	G3?	
<input type="checkbox"/>	Dry-mesic southern forest [Oak-hardwood forest]	S3	G4		<input type="checkbox"/>	Sinkhole	S2	G3G5	
<input type="checkbox"/>	Emergent marsh	S4	GU		<input type="checkbox"/>	Southern floodplain forest	S3	G3?	
<input type="checkbox"/>	Great Lakes barrens	S2	G3		<input type="checkbox"/>	Southern shrub-carr	S5	GU	
<input type="checkbox"/>	Great Lakes marsh	S3	G2		<input type="checkbox"/>	Southern swamp	S3	G3	
<input type="checkbox"/>	Hardwood-conifer swamp	S3	G4		<input type="checkbox"/>	Southern wet meadow	S3	G3?	
<input type="checkbox"/>	Hillside prairie	S1	G3		<input type="checkbox"/>	Submergent marsh	S4	GU	
<input type="checkbox"/>	Inland salt marsh	S1	G1		<input type="checkbox"/>	Wet prairie	S2	G3	
<input type="checkbox"/>	Interdunal wetland	S2	G2?		<input type="checkbox"/>	Wet-mesic prairie	S2	G2	
<input type="checkbox"/>	Intermittent wetland [Boggy seepage wetland]	S3	G2		<input type="checkbox"/>	Wooded dune and swale complex	S3	G3	
<input type="checkbox"/>	Inundated shrub swamp	S3	GU		<input type="checkbox"/>	Woodland prairie	S2	G3	
<input type="checkbox"/>	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
<input type="checkbox"/>	Section VIII. Northern Lacustrine-Influenced Upper Michigan and Wisconsin	8		
<input type="checkbox"/>	Subsection VIII.1. Niagaran Escarpment and Lake Plain	8	1	
<input type="checkbox"/>	Sub-subsection VIII.1.1. St. Ignace	8	1	8.1.1.
<input type="checkbox"/>	Sub-subsection VIII.1.2. Rudyard	8	1	8.1.2.
<input type="checkbox"/>	Sub-subsection VIII.1.3. Escanaba/Door Peninsula	8	1	8.1.3.
<input type="checkbox"/>	Subsection VIII.2. Luce	8	2	
<input type="checkbox"/>	Sub-subsection VIII.2.1. Seney Sand Lake Plain	8	2	8.2.1.
<input type="checkbox"/>	Sub-subsection VIII.2.2. Grand Marais Sandy End Moraine and Outwash	8	2	8.2.2.
<input type="checkbox"/>	Subsection VIII.3. Dickinson	8	3	
<input type="checkbox"/>	Sub-subsection VIII.3.1. Northern lake Michigan (Hermanville) Till Plain	8	3	8.3.1.
<input type="checkbox"/>	Sub-subsection VIII.3.2. Gwinn	8	3	8.3.2.
<input type="checkbox"/>	Sub-subsection VIII.3.3. Deerton	8	3	8.3.3.
<input type="checkbox"/>	Section IX. Northern Continental Michigan, Wisconsin, and Minnesota	9		
<input type="checkbox"/>	Subsection IX.1. Spread Eagle-Dunbar Barrrens	9	1	
<input type="checkbox"/>	Subsection IX.2. Michigamme Highland	9	2	
<input type="checkbox"/>	Subsection IX.3. Upper Wisconsin/Michigan Moraines	9	3	
<input type="checkbox"/>	Sub-subsection IX.3.1. Brule and Paint Rivers	9	3	9.3.1.
<input type="checkbox"/>	Sub-subsection IX.3.2. Winegar Moraine	9	3	9.3.2.
<input type="checkbox"/>	Subsection IX.5. Lac Veaux Desert Outwash Plain	9	5	
<input type="checkbox"/>	Subsection IX.6. Bergland	9	6	
<input type="checkbox"/>	Sub-subsection IX.6.1. Gogebic-Penokee Iron Range	9	6	9.6.1.
<input type="checkbox"/>	Sub-subsection IX.6.2. Ewen	9	6	9.6.2.
<input type="checkbox"/>	Sub-subsection IX.6.3. Baraga	9	6	9.6.3.
<input type="checkbox"/>	Subsection IX.7. Keweenaw	9	7	
<input type="checkbox"/>	Sub-subsection IX.7.1. Gay	9	7	9.7.1.
<input type="checkbox"/>	Sub-subsection IX.7.2. Calumet	9	7	9.7.2.
<input type="checkbox"/>	Sub-subsection IX.7.3. Isle Royale	9	7	9.7.3.
<input type="checkbox"/>	Subsection IX.8. Lake Superior Lake Plain	9	8	
<input checked="" type="checkbox"/>	Section VII. Northern Lacustrine-Influenced Lower Michigan			
<input type="checkbox"/>	Subsection VII.1. Arenac	7	1	7.1
<input type="checkbox"/>	Sub-subsection VII.1.1. Standish	7	1	7.1.1
<input type="checkbox"/>	Sub-subsection VII.1.2. Wiggins Lake	7	1	7.1.2
<input checked="" type="checkbox"/>	Subsection VII.2. Highplains	7	2	7.2
<input type="checkbox"/>	Sub-subsection VII.2.1. Cadillac	7	2	7.2.1
<input type="checkbox"/>	Sub-subsection VII.2.2. Grayling Outwash Plain	7	2	7.2.2
<input checked="" type="checkbox"/>	Sub-subsection VII.2.3. Vanderbilt Moraines	7	2	7.2.3
<input type="checkbox"/>	Subsection VII.3. Newaygo Outwash Plain	7	3	7.3
<input type="checkbox"/>	Subsection VII.4. Manistee	7	4	7.4
<input type="checkbox"/>	Subsection VII.5. Leelanau and Grand Traverse Peninsula	7	5	7.5
<input type="checkbox"/>	Sub-subsection VII.5.1. Williamsburg	7	5	7.5.1
<input type="checkbox"/>	Sub-subsection VII.5.2. Traverse City	7	5	7.5.2
<input type="checkbox"/>	Subsection VII.6. Presque Isle	7	6	7.6
<input type="checkbox"/>	Sub-subsection VII.6.1. Onaway	7	6	7.6.1
<input type="checkbox"/>	Sub-subsection VII.6.2. Stutsmanville	7	6	7.6.2
<input type="checkbox"/>	Sub-subsection VII.6.3. Cheboygan	7	6	7.6.3
		7		

and also contributes to high species diversity (over 80 species noted). Sphagnum moss dominates the ground cover with large leaf aster *Aster macrophyllus*, gold thread *Coptis trifolia*, and horsetail *Equisetum* prevalent. (Cohen, J. 2007)

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

Describe: Stands of older white pine, oak, red pine and various age classes of aspen dominate the uplands surrounding this ERA. Historically fire was the dominant disturbance regime in the surrounding uplands and dry and dry-mesic northern forest occurred.

High quality natural communities nearby:

Describe:

**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: The Sage Lake wetland complex is one of several headwater swamps utilized by black bear in the Sage Creek/Hunt Creek headwater complex within the Thunder Bay outwash plain. Beaver and muskrat utilize the flooding (Sage Lake).

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: Historical loon records – listed as threatened in MI and bald eagle records are associated with Sage Lake and surrounding uplands.

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

Species:

A rare snail (Special Concern) spike-lipped crater *Appalachina sayanus* record is known from a 1997 survey. It is one of 13 sites in Michigan (Lee 2002).

Blandings turtle (Special Concern) was noted in the 2005 Fisheries Survey of Sage Lake.

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

C: EXISTING INFRASTRUCTURE/FACILITIES:

- Archaeological – potential in upland near lake
- Historical: Example of old growth red pine
- Recreational:
 - Camping :
 - Canoeing/Kayaking
 - Fishing: Sage Lake warm water fishery, bluegill and bass
 - Hiking/Backpacking:
 - Hunting: deer, bobcat, waterfowl, black bear
 - Trapping: beaver, muskrat, bobcat
 - Photography
 - Scenic – views from upland ridges down to the ERA, within the ERA and from Sage Lake
 - Water (lake, river, stream): Sage Lake
 - Wildlife Viewing: eagles
 - Cross Country Skiing
 - Other : Snowmobile and ORV trail adjacent to ERA
- Restorative/Spiritual
- Traditional Use/Gathering

- 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: Boat Access site and outhouse on east side of lake is not associated directly with ERA.

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
RICH CONIFER SWAMP	LANDSCAPE CONTEXT CONDITION	NORTHERN WHITE CEDAR DIVERSE CONSERVATIVE FLORA	1. CLOSED CANOPY OLD GROWTH (>100 YR OLD) 2. CEDAR REGENERATION 3. FLORISTIC QUALITY	1. GOOD 2. POOR 3. GOOD
HEADWATERS TO SAGE CREEK/HUNT CREEK AND PART OF THUNDER BAY RIVER	LANDSCAPE CONTEXT	GROUND WATER RECHARGE	1. LACK OF EROSION 2. VEGETATED SLOPES 3. VIABLE RICH CONIFER SWAMP	1. FAIR 2. FAIR 3. GOOD
RECREATION/SCENIC	LANDSCAPE CONTEXT CONDITION	SCENIC VIEWS ADJACENT TRAILS	1. NO EROSION ON ADJACENT TRAILS 2. NO ILLEGAL TRAILS RCS	1. FAIR 2. FAIR
SPIKE-LIP CRATER	POPULATION CONDITION	HABITAT SNAIL PRESENCE	1. HIGH QUALITY HABITAT 2. NUMBER OF SNAILS OR SHELLS	1. GOOD 2. CURRENTLY UNKNOWN
BLACK BEAR	SIZE CONDITION	WINTER DENNING AND SPRING FORAGE	1. TIP AND MOUND TOPOGRAPHY	1. 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:*
Fires historically occurred in adjacent surrounding uplands.
 - Altered Hydrologic Regime Changing water flow patterns outside their natural range of variation (*surface water diversion, groundwater pumping, dam operations*):
A dam was constructed at the outlet of Sage Lake in 1960 to create a wildlife flooding connecting a series of smaller and deeper pools at the time called Sage Lakes. The dam maintains the water level with high water events managed via an emergency spill way .
 - 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.
- Flight Paths :
 - Railroads :
 - Roads and Trails : Sage Lake County Road maintenance causes minimal disturbance about two times per year.
 - Shipping Lanes :
 - Trails: Illegal ORV trails occur in the northwest part of the ERA.
 - Utility Lines .
 - Stream Crossings - *culverts, bridges* : Sage Road County Road maintenance at Sage Lake in let stream cross.
 - Other:
-
- C. Energy & Mining** – Production of non-biological resources **having negative impacts** to conservation values .
- Mining – *Exploring, developing, and producing.*
 - Oil & Gas Drilling:
Gas well pads are in adjacent in outlying areas near the SCA . The pads have invasive exotic species that could spread into the ERA.
 - 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: MNFI 2006 survey noted shooting lanes were cut within the ERA.
 - 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*
 - Motor-Powered Recreation - *Traveling outside of established transport corridors: off-road vehicles, motorcycles, motorboats, jet-skis, snowmobiles, ultra-light planes.*
Some illegal ORV use causing erosion and rutting in parts of the ERA.
 - 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 – *CO₂, 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 :
Autumn Olive, Spotted knapweed in adjacent uplands particularly on nearby gas pads.
- Problematic Native Species :
Deer herbivory noted causing lack of cedar regeneration within the ERA.
- 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;

A portion of the rich conifer swamp is on private property which is used seasonally for fall hunting and summer recreation. Based on aerial photos there is a gas pad and ponds in uplands and there may be trails into ERA. Since the land is private, a survey can not confirm.

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 good quality Sage Lake Cedar Swamp and improve its quality over time.

Objective 1: Manage the upland to protect and maintain the hydrology of ERA.

Task 1: Create and maintain a two chain non-development and no cut - buffer around entire ERA.

Task 2: Recode Stands in 2009 YOE: (12, 13, 53, 54*, 111, 128*, 129, 226, 228*) to become a Special Conservation Area to provide a buffer and protect the biodiversity values within the ERA. The SCA will be a non-development, with no cutting unless for natural community restoration purposes. This change is compatible as stands have limiting factors for being too wet. In the upland, Oak, Pine and Aspen Stands 54, 128, 228 have steep topography and access problems. In those stands there should be a focus on uneven aged management and dry mesic conifer restoration.

Objective 2: Manage lake water level to minimize impacts from flooding on cedars and still maintain fishing opportunities in Sage Lake.

Task 1: Continue scheduled DEQ dam inspections.

Task 2: MDNR Fisheries Division continue annual maintenance of the dam and emergency spill way.

Task 3: Monitor cedar die off along lake margins and if it becomes significant consider decreasing flooding effects by controlling the lake level.

Goal 2: Manage over the long term for regeneration of northern white cedar within the ERA.

Objective 1: Maintain old growth cedar within the ERA.

Objective 2: Utilize natural processes to regenerate cedar.

Task 1: No cutting will be allowed within the ERA, unless for future restoration purposes.

Objective 2: Minimize impacts of deer herbivory on cedar regeneration and herbaceous flora over the long term

Task 1: Recognize the Avery Hills importance to hunting (grouse/woodcock) recreation while continuing to give consideration to enhancing and allowing dry-mesic conifer restoration by leaving natural pine and minimizing early successional habitat adjacent to and nearby the ERA.

Goal 3: Monitor within the Sage Lake Cedar Swamp ERA for Invasive Plant Species

Task 1: Develop a control plan in adjacent uplands specifically for autumn olive.

Task 2: Monitor ERA for spot invasions of autumn olive and other invasive plants in surrounding wetlands and the Sage Lake Cedar Swamp.

Goal 4: Maintain ERA as foot traffic only area.

Objective 1: Restore damage from erosion due to illegal and legal ORV.

Task 1: Locate and block illegal access to Sage Lake from existing trails and roads.

Task 2: Complete resource damage reports and seek funding to restore slopes.

Task 3: Monitor for continued damage.

Objective 2: Maintain Sage Lake County Road to minimize impact at wetland crossing.

Objective 3: Work with Law Enforcement Division to enforce land use rules within ERA (illegal shooting lanes observed within the ERA).

Goal 5: Develop a Wild Fire Response Plan for the ERA

Task 1: Utilize minimum impact suppression techniques in response to fire control, fire is part of the natural disturbance regime in this natural community.

Goal 6: Determine sufficient level of protection based on priorities within Statewide Biodiversity Planning Process and Eco-regional Plan Development.

Task 1: In the short term, contact land owner to inform of him/her site significance and work **cooperatively to bring** private land into generally more compatible management. Explore a possible conservation easement or purchase by DNR if the parcel were to become available for sale (willing seller only).