

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.

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 the 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: 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: Lovell's Bog		Other Names		
ReportDate (mm/dd/yyyy) 09/12/2007	Forest Mgt Unit Grayling	Compartment Number(s) 266 267	Stand Number(s) 41,42 40	<input type="checkbox"/> Map Attached <input checked="" type="checkbox"/> Shape File in OI/IFMAP GDSE File Location/Name: FMFM RAU
County(ies) Crawford		Township(s) Optional if mapped T28N	Range(s) Optional if mapped R2W	Section(s) ¼ Sec. Optional if mapped 14 SW1/4 and 23 NW1/4
Name of individual completing this form (first and last) <input checked="" type="checkbox"/> Check if DNR Employee Kim Herman, Monitoring Specialist, Forest, Mineral, Fire Mgmt. With Richard Hausler, FMFM		Telephone (906) 786-2351 ext 132		Email Address hermank@michigan.gov
Additional contact information Name of individual providing information (first and last), if applicable Susan Thiel, Manager, Grayling Forest Management Unit, 1955 N. I-75 BL, Grayling, MI 49738 Elaine Carlson, Wildlife Biologist, Mio Field Office Brad Slaughter, Ecologist, Michigan Natural Features Inventory		Telephone (989)348-6371 ext 7440 (989) 826-3211 (517) (517) 241-4178		Email Address THIELSJ@michigan.gov CARLSONE@michigan.gov slaughterb@michigan.gov
Name of DNR/DEQ Program Contact if Applicable		Telephone () ()		Email Address
<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 checked="" type="checkbox"/> Other or Private Land (describe):
within Camp Grayling boundaries |

D: CONSERVATION PARTNERS – FILL IN ALL KNOWN PARTNERS

Name of Organization: Camp Grayling, Michigan National Guard	Name of Organization
Contact Name: CG Environmental Staff- John Hunt	Contact Name:
Email Address: john.w.hunt1@us.army.mil	Email Address
Telephone: (989)344-6176	Telephone ()

Name of Organization	Name of Organization
Contact Name:	Contact Name:
Email Address	Email Address
Telephone ()	Telephone ()

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

Cohen, J.G. 2005. Draft Natural community abstract for bog. Michigan Natural Features Inventory, Lansing, MI. 14 pp.

Michigan Natural Features Inventory Database Element Occurrence Record Bog EO_NUM 74-1747 Transcription Last Modified 01/08/2007 jgc

Slaughter, B and B. Schillo. August 16, 2006. Michigan Natural Features Inventory Lovell's Bog Ecological Community Field Survey Form. Michigan State University Extension. 8 p.

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 checked="" type="checkbox"/>	Bog	S4	G3	B	<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 sw amp	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?	B/C	<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 type="checkbox"/>	Rich conifer swamp	S3	G4	
<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 Barrens	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 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 checked="" type="checkbox"/>	Sub-subsection VII.2.2. Grayling Outwash Plain	7	2	7.2.2
<input 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		

3. Ecological Systems

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

Bog: Ombrotrophic (nutrient poor) not groundwater inputs, also classified as a wetland and is now protected by Part 303, Wetlands Protection, PA 451, NREPA, 1994, as amended due to completion of statewide wetlands inventory.

Number/Acres Statewide:

Number/Acres and Percent of Total in Ecoregion:

Number/Acres on Private Land:

Number/Acres on Public Land:

Number/Acres on State Land:

Ecological processes – such as connectivity, hydrology, fire, wind events, flooding, pest and disease cycles;
Describe: 42 acre shallow basin bog with open water (lake) in the center. 24 vascular plant spp. noted. periodic light fires would burn into bog from surrounding uplands, relies strictly on precipitation for water inputs.

Underlying environmental features – such as soils, geology, topography, headwaters;
Describe: poorly-drained pitted outwash plain, thick organic layer of acidic peat soils, no groundwater inputs, isolated from any other riparian areas

Environmental gradients – such as elevation, precipitation, temperature;
Describe: terrain is flat, no slope, precipitation inputs from rainfall and snow; overall, average precipitation input for this area approximately 30 inches of water per year. Located in middle of Lower Peninsula, above tension zone infers that area is subjected to climatic extremes, long, and cold winters and short summers, short growing season (less than 90 days)

Species and/or community structure – using during migration, during different life stages, or gradual species turnover across environmental gradients.
Describe: As with most ombrotrophic, rainfall inputs only bogs, this is a bog ecosystem in which soils are organic peats and acidic, with sphagnum sp. mosses are overlaying the peat soils and with both peat and mosses are continually expanding into and overtaking the area of open water. Successional pathways from here may vary, possibly over several centuries (if left alone), the this bog may develop or evolve into a shrub swamp or swamp forest ecosystem.

Nested large and small natural communities linked by functional or restorable ecosystems
Describe: Surrounded by managed aspen and jackpine

High quality natural communities nearby:
Describe:

Large Block Size: No
General Shape and Acres: 42 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).

Describe: Chamaedaphne cal, Sphagnum spp, Picea mar (Black Spruce), Larix lar (Larch), Scirpus hud, Carex olig, Eriophorum virid. 24 vascular plant species were found also. Per Wildlife Biologist - pickerel frog, smooth green snake, bittern, sora, ruby-crowned kinglet, snowshoe hare.

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:

- 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:

DRAFT

B: KNOWN SOCIAL/ECONOMIC VALUES

- Archaeological
- Historical: Example of old growth red pine
- Recreational:
 - Camping
 - Canoeing/Kayaking
 - Fishing
 - Hiking/Backpacking:
 - Hunting
 - Photography
 - Scenic
 - Water (lake, river, stream)
 - Wildlife Viewing
 - Cross Country Skiing
 - Other: Site maybe of interest to amateur botanists
- 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 : A state forest trail called Oats Trail lies to the east of the bog.
- Other: Lies in the middle of an active training area of Camp Grayling – a State Military and National Guard training range that is used to train troops with heavy equipment.

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
CARBON SEQUESTRATION	SIZE/AMOUNT OF PEAT AND MOSS	ACRES	NUMBER	GOOD
BOG COMMUNITY	CONDITION	COMMUNITY STRUCTURE	INTACT ZONATION PRESENCE OR LACK THEREOF OF TRAILS OR SOIL COMPACTION OR MINING FOR PEAT	GOOD
BOG	CONDITION	NATIVE BOG PLANTS	FLORISTIC QUALITY INDEX	GOOD
ECOLOGICAL PROCESSES • HYDROLOGY • FIRE	LANDSCAPE CONTEXT CONDITION	INTACT BUFFER AROUND BOG WILDFIRE RESPONSE PLAN	RIPARIAN MANAGEMENT ZONE NEW FIRE CONTROL LINES OUTSIDE OF BOG	UNDER DEVELOPMENT PLAN TO BE DEVELOPED
ASSOCIATED NON-GAME WILDLIFE	SIZE	NUMBER AND GROUPS OF SPECIES	PRESENCE	UNKNOWN?
SCENIC VALUES	LANDSCAPE	BOG ZONES	UNUSUAL FLORA	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: Fire in surrounding landscape has been suppressed.
- 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*) :
The bog lies on State of Michigan ownership that is under long term lease to the Michigan Military Board for the purposes of military training. The bog is surrounded by lands actively used for training by the Michigan National Guard.
- 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 : .
- 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.*
- 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: Numerous deer trails, compacting soil, and possibly grazing plants for food...
- Hunting, Trapping & Fishing
- Timber Harvesting: Aspen clear-cuts and probably Jack Pine may be eventually scheduled for clear-cut. A lack of identified boundaries and an unmanaged buffer is problematic and threatens the integrity and quality of this ERA

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*

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 :

- Problematic Native Species : Numerous deer trails crisscross bog causing soil compaction.
- 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.*
As average temperatures begin to rise due to global warming, the natural processes of this bog will likely be affected, probably due to decreased precipitation over the next century or more
- Habitat Shifting & Alteration

I. Other

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: ESTABLISH MICHIGAN NATIONAL GUARD SITE PROTECTION PROTOCOLS:

TASK 1: IDENTIFY BOG ON MILITARY MAPS AND IN THE FIELD.

TASK 2: DISALLOW MILITARY/TRAINING VEHICLES FROM THE RMZ OR ENTERING THE BOG. ENVIRONMENTAL TRAINING REG 200-1 PROHIBITS ANY MILITARY ACTIVITY WITHIN 400 FT OF ANY LAKE, STREAM, OR WETLAND, WHICH PROTECTS LOVELLS BOG.

GOAL 2: CREATE A 150 FEET RIPARIAN MANAGEMENT ZONE AROUND THE ERA.

TASK 1: ENCOURAGE NO CUTTING WITHIN THE RMZ UNLESS BENEFICIAL TO THE ERA.

TASK 2: MONITOR RMZ

GOAL 3: DEVELOP A WILDFIRE RESPONSE PLAN IN CONJUNCTION WITH THE MICHIGAN NATIONAL GUARD.

TASK 1: ESTABLISH THE ERA AS A NO PLOW ZONE WITHIN THE GRAYLING FMU FIRE PLAN AND ALLOW FIRE TO SPREAD INTO OR BURN THOUGH WETLAND/BOG FROM SURROUNDING FOREST.

GOAL 4: MONITOR FOR POTENTIAL IMPACTS TO THE BOG FROM

- INVASIVE SPECIES – NONE CURRENTLY KNOWN.
- DEER TRAILS – SOME ESTABLISHED THOUGH MAY DIMINISH OVER TIME AS SURROUNDING ASPEN MATURES.
- PLANT COLLECTION (SPHAGNUM MOSS) – NONE KNOWN AT THE TIME.

GOAL 5: EVALUATE PROTECTION NEEDS AND ESTABLISH LONG-TERM PROTECTION LEVEL BASED ON THE UPCOMING BIODIVERSITY CONSERVATION PLANNING FRAMEWORK.

TASK 1: MAINTAIN ADMINISTRATIVE PROTECTION BY CODING IN FOREST INVENTORY DATA BASE AS ECOLOGICAL REFERENCE AREA (ERA), HIGH VALUE CONSERVATION AREA (HCVA) AND SPECIAL CONSERVATION AREA (SCA)

TASK 2: REVIEW POTENTIAL FOR STATE NATURAL AREA DEDICATION.

DRAFT