

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 HCVA's 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 its 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.

SUMMARY: LOCATION MAP, MANAGEMENT RECOMMENDATIONS

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.

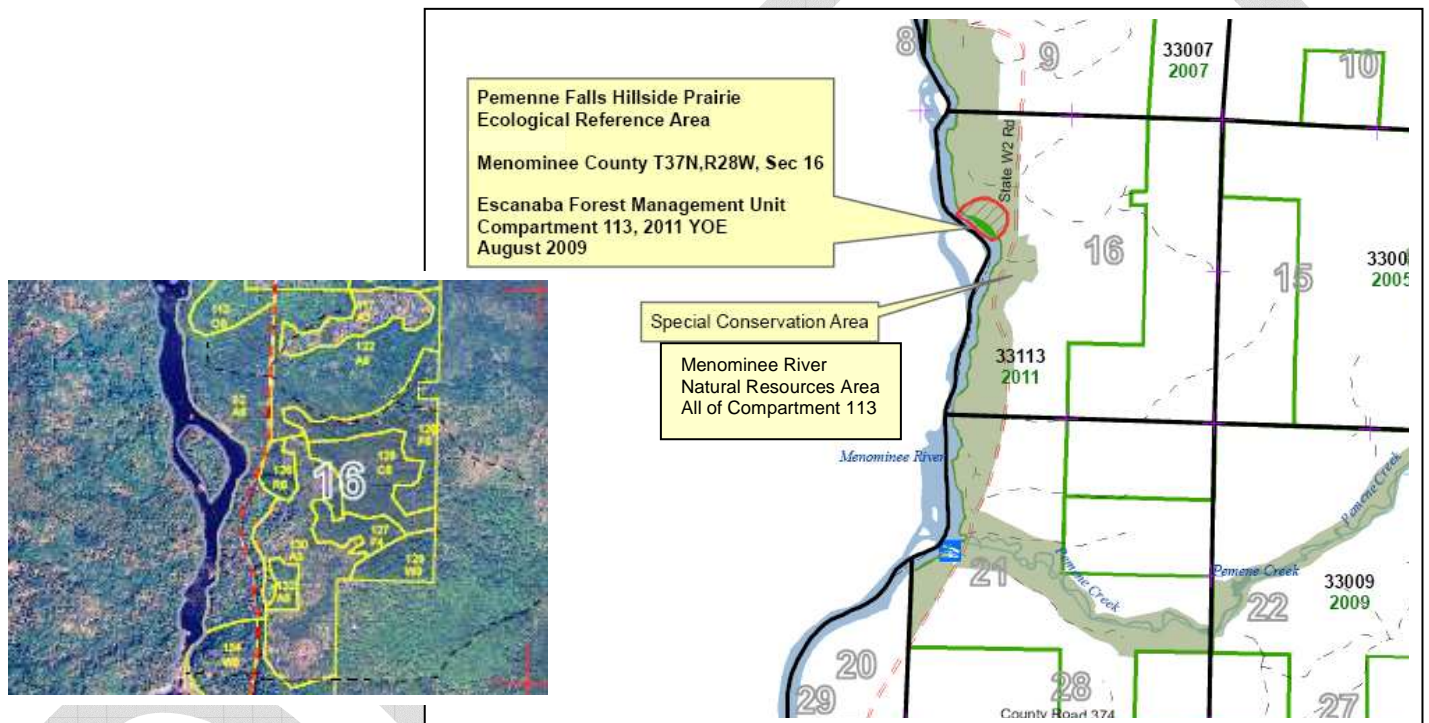
See 2007 overview at <http://sites-conserveonline.org/dcs/projects/art10152.html> and the workbook at http://www.conserveonline.org/2003/07/s/ConPrjMgmt_v4

SUMMARY

Pemene Falls Hillside Prairie Ecological Reference Area

Escanaba
 Forest Management Unit
 Menominee County, MI
 Compartment 113 (2011 YOE)
 T 37N, R28W, Section 16
 Acres = 0.5

Photo by Bradford S. Slaughter



RECOMMENDED MANAGEMENT GOALS AND ACTIVITIES (REPEATED FROM SECTION 4)

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

GOALS AND DESCRIPTION DERIVED FROM SECTIONS 2 AND 3 (REPEATED ON SUMMARY PAGE)

GOAL 1: MAINTAIN OR RESTORE PEMENE FALLS ERA AND ASSOCIATED RARE PLANT BY ALLOWING NATURAL PROCESS TO OCCUR WHEN COMPATIBLE WITH ERA AND MENOMINEE RIVER RESOURCE MANAGEMENT AREA PLAN GOALS.

OBJECTIVE 1: CONSIDER PRESCRIBED FIRE AS A POTENTIAL MANAGEMENT TOOL FOR RESTORATION PURPOSES.

OBJECTIVE 2: FOLLOW FMFM POLICY AND PROCEDURE 572 FOR WILDFIRE SUPPRESSION IN THE ERA'S.

TASK 1: WILDFIRE SUPPRESSION ACTION WOULD BE TAKEN OUTSIDE THE ACTUAL HILLSIDE PRAIRIE BOUNDARY.

OBJECTIVE 3: AT THE DISTRICT AND STATEWIDE LEVELS, DEVELOP A CONTROL PLAN FOR INVASIVE SPECIES AND WORK WITH CONSERVATION GROUPS TO IMPLEMENT.

OBJECTIVE 4: MONITOR REPORTED EROSION ON HILLSIDE PRAIRIE AND ENFORCE LAND USE RULES AS NEEDED. (RESTRICT ACCESS TO THE TRAILS) (FOLLOW DNR WORK INSTRUCTION 7.2

[HTTP://WWW.MICHIGAN.GOV/DOCUMENTS/7_133228_7.2.PDF](http://www.michigan.gov/documents/7_133228_7.2.pdf)

OBJECTIVE 5: MAINTAIN KNOWN POPULATION OF RARE PLANT BY MAINTAINING HILLSIDE PRAIRIE NATURAL COMMUNITY.

TASK 1: MONITOR RARE PLANT AND FLORISTIC QUALITY EVERY TEN YEARS THROUGH OPERATIONS INVENTORY CYCLE OR OPPORTUNISTIC SITE SURVEYS.

OBJECTIVE 6: AT THE ECO-REGIONAL LEVEL, DETERMINE IF ADJACENT STANDS TO ERA WOULD REASONABLY FIT INTO A BIODIVERSITY STEWARDSHIP AREA.

TASK 1: CONSIDER THE ERA FOR INCLUSION AS A BIODIVERSITY STEWARDSHIP AREA IN BIODIVERSITY AND ECO-REGIONAL PLANNING PROCESS.

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"/> Legally Dedicated State Natural Area
<input checked="" type="checkbox"/> Ecological Reference Area: Pemene Falls Hillside Prairie
<input type="checkbox"/> Endangered Species Management Area
<input type="checkbox"/> Kirtland Warbler
<input type="checkbox"/> Piping Plover
<input type="checkbox"/> Other: | <input type="checkbox"/> Environmental Area as defined by DEQ
<input type="checkbox"/> State Natural or Scenic River:
<input type="checkbox"/> Quiet Area:
<input checked="" type="checkbox"/> Biodiversity Stewardship Area (BSA):
Potential BSA Pemene Falls Prairie (21 Acres)
<input checked="" type="checkbox"/> Other: Dedicated Management Area Menominee River Natural Resources Area Compartment 113 |
|---|--|

SPECIAL CONSERVATION AREA - LIST OTHER CATEGORIES BELOW

Special Conservation Area – Stands provide mature habitat conditions along the Menominee River.

B: SITE, CONTACT AND ADMINISTRATIVE INFORMATION

Site Name: Pemene Falls Hillside Prairie		Other Names: Mellon Tract	
Report Date August 13, 2009	Forest Mgt Unit Escanaba Forest Management Unit	Compartment: 113 2011 YOE Stand Number(s): 92	<input checked="" type="checkbox"/> Map Attached <input checked="" type="checkbox"/> Shape File in OI/IFMAP GDSE
County(ies): Menominee		Township(s) Range(s) Section(s) ¼ Sec. Optional if mapped T37N, R28W, Sections 16	
Name of individual completing this form (first and last) <input checked="" type="checkbox"/> Check if DNR Employee Kim Herman, Monitoring Specialist, Forest, Mineral, Fire Management Division (FMFMD), Escanaba Dustin Salter, Forester, FMFMD, Stephenson Craig Albright, Wildlife Biologist, WD, Escanaba Bill Rollo: Wildlife Technician, WD, Escanaba		Telephone (906) 786-2351ext 132 (906) 753-6406 (906) 786-2351ext 117	Email Address hermank@michigan.gov salterd@michigan.gov albrighc@michigan.gov
Additional contact information Name of individual providing information (first and last), if applicable		Telephone	Email Address
Name of DNR/DEQ Program Contact if Applicable		Telephone	Email Address
<input type="checkbox"/> Volunteer (s): Number of Volunteers: - Focus is on trails Name of Group: Contact Name:		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: Escanaba Forest Management Unit | <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

Name of Organization: The Nature Conservancy Contact Name: Christine (Tina) Hall, Conservation Director Email Address: chall@tnc.org Telephone (906) 225-0399 ext 12	Name of Organization Michigan Natural Areas Council Contact Name: Phyllis Higman Email Address: mnac@cyberspace.org Telephone (517) 373-6983
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Name of Organization: Contact Name: Email Address: Telephone:	Name of Organization: Contact Name: Email Address: Telephone:
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E: OTHER DOCUMENTS RELATED TO THIS HCVA – CITATION AND LOCATION WHERE STORED

Cohen, J.G., B.S. Slaughter, and M.A. Kost. 2008. Site Summary for Pemene Falls in Natural Community Surveys of Potential Ecological Reference Areas on State Forest Lands. Michigan Natural Features Inventory, Report Number 2008-04, Lansing, MI. pp 90-91 of 272 pp.

Kost, M.A., D.A. Albert, J.G. Cohen, B.S. Slaughter, R.K. Schillo, C.R. Weber, and K.A. Chapman. 2007. Natural Communities of Michigan: Classification and Description. Michigan Natural Features Inventory, Report No. 2007-21, Lansing, MI. [Hillside Prairie](#)

Michigan Department of Natural Resources. 2000. Escanaba River State Forest Menominee River Natural Resources Area (Formerly the Wisconsin Public Service Corporation property) COMPARTMENT 113 Management Plan as adopted November 2, 2000 at the 2001 year-of-entry compartment review. Stored in Escanaba FMU Compartment Files.

Michigan Natural Features Inventory. 2007. Rare Species Explorer (Web Application). Available online at <http://web4.msue.msu.edu/mnfi/explorer> [Accessed Aug 17, 2009]

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.

Community Name	State Rank	Global Rank	Quality Rank A,B,C,D
Hillside Prairie	S1 critically imperiled in the state	G3 vulnerable globally	BC

2. **Other information if known.**

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

Name

Section IX: NORTHERN CONTINENTAL MICHIGAN, WISONSIN, AND MINNESOTA

Subsection IX.1: Spread Eagle-Dunbar Barrens

Sub-subsection - none

3. **Ecological Systems**

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

Hillside Prairie:

Overview: Hillside prairie is a grassland or savanna community that occurs on moderate to steep exposed slopes and crests of hills associated with river valleys, streams, or kettle lakes, surrounded by oak forest or oak savanna. This natural community is almost always found on south- to west-facing slopes, where exposure to sunlight is highest. Soils are typically strongly acid to neutral loamy sand or sandy loam, and often mixed with gravel. Hillside prairie is notable for supporting several state-listed plant species largely restricted to this community type (Kost et al. 2007).

The distribution of hillside prairie in Michigan is shown in Figure 1 below. In the southern Lower Peninsula, hillside prairie is infrequently documented in Subsections 6.1 (two MNFI element

occurrences), 6.2 (one MNFI element occurrence), and 6.4 (five MNFI element occurrences). One occurrence is found in the Upper Peninsula in 9.1, where it is infrequent in distribution.



Figure 1: Map of Hillside Prairie Statewide Distribution

Pemene Falls Hillside Prairie
 Photos by Bradford S. Slaughter, Ecologist,
 Michigan Natural Features Inventory (MNFI , 2008)

Summary Site Descriptions Excerpted from Cohen et. al. 2008.

Pemene Falls

Natural Community Type: **Hillside Prairie**

Rank: **G3 S1, vulnerable globally and critically imperiled in the state**

Element Occurrence Rank: **BC**

Location: **Escanaba Forest Management Unit, Compartment 113**

Element Occurrence Identification Number: **5050**

Acres: **9.3**

Site Description: **This small hillside prairie occurs on a steep, southwest-facing bluff overlooking the Menominee River. The soils are slightly acidic to circumneutral (pH 6.5-7.5), light to dark brown, loamy sands overlying calcareous drift. The prairie is surrounded by open groves of aspen and oak-pine forest. A Native American trail passed through this site and it is likely that Native Americans camped at this site and possibly even burned it as well. Natural disturbances observed during the surveys included erosion due to the steep slopes and beaver herbivory of aspen stems.**

The sandy, rocky substrate is dominated by grasses with little bluestem, big bluestem, and Canada wild rye. Richardson's sedge (*Carex richardsonii*, state special concern) and bracken fern are common along the woodland margin. Common shrubs include low sweet blueberry, sweet-fern, bearberry, and scattered prairie willow, serviceberry, soapberry (*Shepherdia canadensis*), and choke cherry. Common forbs in the prairie include northern bedstraw, harebell, upland white goldenrod (*Solidago ptarmicoides*), old field goldenrod (*Solidago nemoralis*), thimbleweed (*Anemone cylindrica*), and smooth aster (*Aster laevis*). Trees scattered within the site include red pine, white pine, and white spruce. Areas along the lower slopes of the hillside are characterized by more mesic conditions and support species such as tussock sedge (*Carex stricta*), cordgrass (*Spartina pectinata*), blue vervain (*Verbena hastata*), and joe-pye-weed (*Eupatorium maculatum*).

Floristic Quality Data from Site Survey on Aug 8, 2007 by Brad Slaughter, MNFI Ecologist

- 65 NATIVE SPECIES**
- 71 Total Species**
- 4.2 NATIVE MEAN Coefficient of Conservatism**
- 3.9 W/Adventives**
- 34.2 NATIVE FQI (Floristic Quality Index)**
- 32.8 W/Adventives**
- 1.7 NATIVE MEAN Wetness Index**
- 1.7 Fac. Upland (+)**
- 1.9 W/Adventives**

- Ecological processes** – such as connectivity, hydrology, fire, wind events, flooding, pest and disease cycles;

Describe: Open conditions of hillside prairie are maintained by steep slopes with southerly to westerly aspect, droughty soil, soil erosion, and fire. Natural disturbances observed during the surveys included erosion due to the steep slopes and beaver herbivory of aspen stems (Cohen et al. 2008).

- Underlying environmental features** – such as soils, geology, topography, headwaters;

Describe: This small hillside prairie occurs on a steep, southwest-facing bluff overlooking the Menominee River. The soils are slightly acidic to circumneutral (pH 6.5-7.5), light to dark brown, loamy sands overlying calcareous drift.

- Environmental gradients** – such as elevation, precipitation, temperature;

Describe: This small hillside prairie occurs on a steep, southwest-facing bluff overlooking the Menominee River.

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

Describe: See site description above.

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

Describe:

- High quality natural communities nearby:**

Describe:

- Large Block Size: NO**
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:
Weblink

- 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:
Weblink

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

Species: Richardson's sedge *Carex richardsonii*
[Carex richardsonii \(Richardson's sedge\) - MNFI Rare Species Explorer](#)

Bald eagle, *Haliaeetus leucocephalus* – active nest reaffirmed in 2009
[Haliaeetus leucocephalus \(Bald eagle\) - MNFI Rare Species Explorer](#)

Northern goshawk *Accipiter gentilis* – active nest in 2009 @ 1 mile inland
[Accipiter gentilis \(Northern goshawk\) - MNFI Rare Species Explorer](#)

- 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: **Per MNFI Site Survey and Menominee River Natural Resource Management Plan**
- Historical: **Historic Bridge**
- Recreational:
 - Camping: **Undeveloped campsite adjacent to south**
 - Canoeing/Kayaking: **Menominee River**
 - Fishing: **In Menominee River**
 - Hiking/Backpacking: **Trails along the River**
 - Hunting/Trapping:
 - Photography: **Pemene Falls**
 - Scenic: **Pemene Falls nearby**
 - Water (lake, river, stream): **overlooks Menominee River**
 - Wildlife Viewing:
 - Cross Country Skiing
 - Other :
- Restorative/Spiritual
- Traditional Use/Gathering

- American Disability Accessibility (ADA) Considerations
- Boat Launch(es): **one mile south**
- Bridge(s):
- Campground(s): **Faithhorn Twp. Park & Campground**
- Interpretive Displays:
- Marked boundaries
- Parking lot(s): **Undeveloped pull-offs, associated with nearby campsites and hiking trail**
- Posted use rules
- Scenic Overviews: **Not developed, overlooks Menominee River and Pemene Falls**
- Toilet(s)
- Trails/Boardwalks: **undeveloped paths along the river**
- Other: **County Road nearby**

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
HILLSIDE PRAIRIE	CONDITION & LANDSCAPE CONTEXT	OPEN CONDITION PRAIRIE SPECIES	SIZE OF OPENING LACK OF EROSION FLORISTIC QUALITY PRESCRIBED FIRE	GOOD
RARE SPECIES	CONDITION	CAREX RICHARDSONII	PRESENCE	GOOD
PASSIVE RECREATION	CONDITION & LANDSCAPE CONTEXT	SCENIC VIEW FROM BLUFF	SIZE OF OPENINGS NEARBY TRAILS	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: **Native Americans historically maintained openings by setting fires (Cohen et al, 2008).**
 - 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:

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.

- 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. DNR owns both surface and minerals.*
 - Oil & Gas Drilling -
 - Renewable Energy – *Exploring, developing, and producing.*
-
- D. Biological Resource Harvesting** –Over or under consumption of “wild” resources **resulting in loss** of conservation values.
- Gathering – *Harvesting plants, fungi, and other non-timber/non-animal products for commercial, recreation, or subsistence purposes.*
 - Grazing
 - Hunting, Trapping & Fishing
 - Timber Harvesting:
-
- E. Recreation & Research** – Non-consumptive uses of biological resources **resulting in damage** to natural resources.
- Human-Powered Recreation – *mountain bikes, hikers, backpackers, cross-country skiers, rock climbers, canoeists, kayakers, hang-gliders, birdwatchers, photographers: erosion due to human foot traffic per Cohen et al 2008.*
 - 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: **Non-native species are common within the site and include Canada bluegrass (*Poa compressa*), Kentucky bluegrass (*P. pratensis*), white sweet-clover (*Melilotus alba*), and common mullein (*Verbascum thapsus*). These species readily establish on the bare, eroded soils. Spotted knapweed (*Centaurea maculosa*) is currently uncommon. (Cohen et al. 2008)**
 - 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**

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**

GOALS AND DESCRIPTION DERIVED FROM SECTIONS 2 AND 3 (REPEATED IN FRONT ON SUMMARY PAGE)

GOAL 1: MAINTAIN OR RESTORE PEMENE FALLS ERA AND ASSOCIATED RARE PLANT BY ALLOWING NATURAL PROCESS TO OCCUR WHEN COMPATIBLE WITH ERA AND MENOMINEE RIVER RESOURCE MANAGEMENT AREA PLAN GOALS.

OBJECTIVE 1: CONSIDER PRESCRIBED FIRE AS A POTENTIAL MANAGEMENT TOOL FOR RESTORATION PURPOSES.

OBJECTIVE 2: FOLLOW FMFM POLICY AND PROCEDURE 572 FOR WILDFIRE SUPPRESSION IN THE ERA'S.

TASK 1: WILDFIRE SUPPRESSION ACTION WOULD BE TAKEN OUTSIDE THE ACTUAL HILLSIDE PRAIRIE BOUNDARY.

OBJECTIVE 3: AT THE DISTRICT AND STATEWIDE LEVELS, DEVELOP A CONTROL PLAN FOR INVASIVE SPECIES AND WORK WITH CONSERVATION GROUPS TO IMPLEMENT.

OBJECTIVE 4: MONITOR REPORTED EROSION ON HILLSIDE PRAIRIE AND ENFORCE LAND USE RULES AS NEEDED.

(RESTRICT ACCESS TO THE TRAILS) (FOLLOW DNR WORK INSTRUCTION 7.2

[HTTP://WWW.MICHIGAN.GOV/DOCUMENTS/7_133228_7.2.PDF](http://www.michigan.gov/documents/7_133228_7.2.pdf)

OBJECTIVE 5: MAINTAIN KNOWN POPULATION OF RARE PLANT BY MAINTAINING HILLSIDE PRAIRIE NATURAL COMMUNITY.

TASK 1: MONITOR RARE PLANT AND FLORISTIC QUALITY EVERY TEN YEARS THROUGH OPERATIONS INVENTORY CYCLE OR OPPORTUNISTIC SITE SURVEYS.

OBJECTIVE 6: AT THE ECO-REGIONAL LEVEL, DETERMINE IF ADJACENT STANDS TO ERA WOULD REASONABLY FIT INTO A BIODIVERSITY STEWARDSHIP AREA.

TASK 1: CONSIDER THE ERA FOR INCLUSION AS A BIODIVERSITY STEWARDSHIP AREA IN BIODIVERSITY AND ECO-REGIONAL PLANNING PROCESS.