

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

Thompson Wooded Dune & Swale Ecological Reference Area

NatureServe Rank: G3 S3
very rare and local throughout range
MNFI Site Quality B/C – Good/Fair

Shingleton Forest Management Unit Schoolcraft County, Michigan

Compartment 79 2010 YOE
T41N,R16W Sections 15, 16, 20-22, 28, 29

2,299 state acres
3,888 private acres
6,187 Total acres

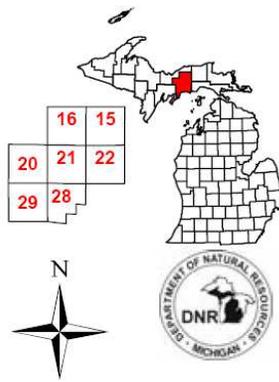
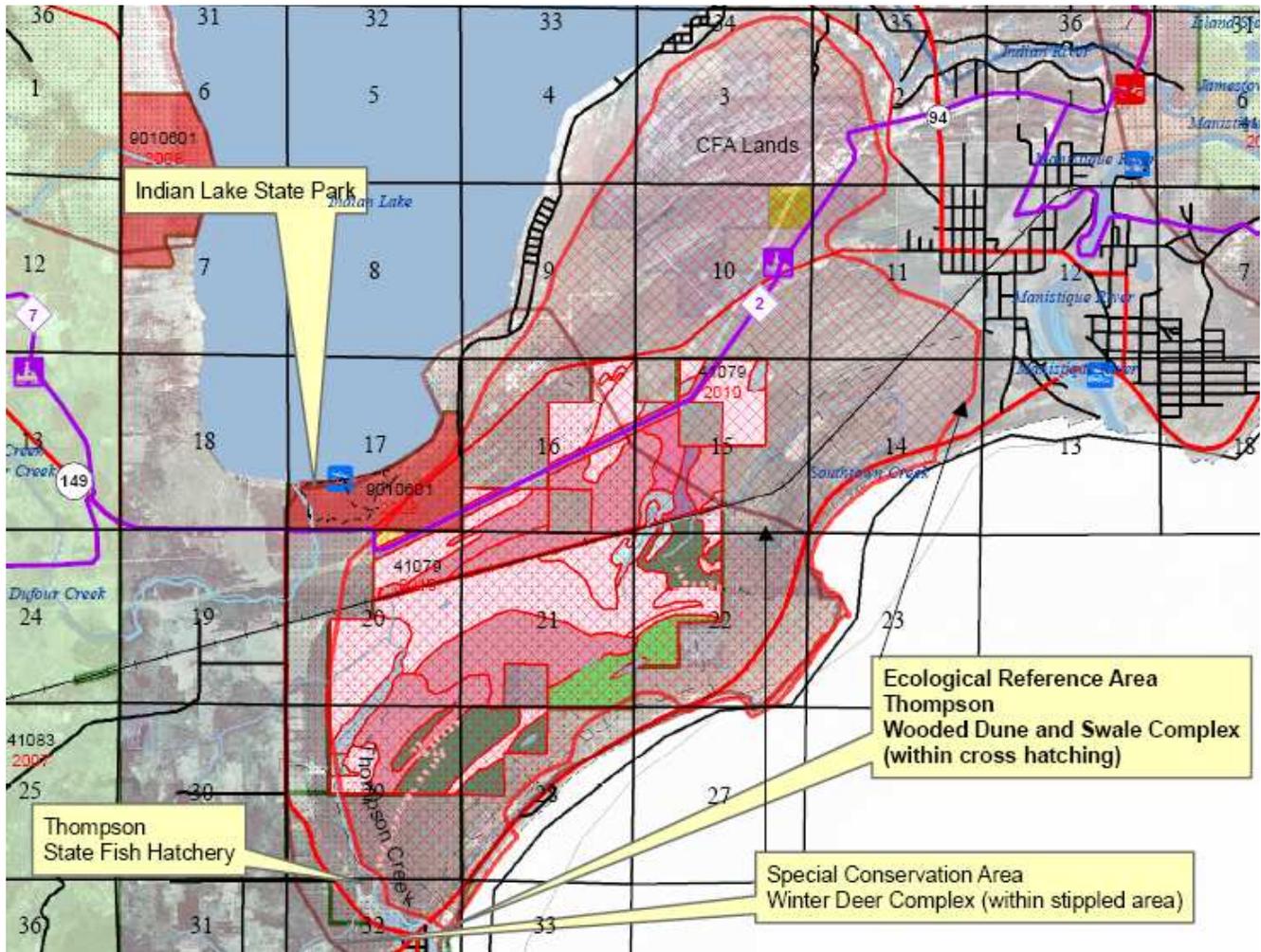


Photo by Bradford Slaughter



RECOMMENDED MANAGEMENT GOALS AND ACTIVITIES (REPEATED FROM SECTION 4 AT END)**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 1: Maintain Wooded Dune and Swale Complex and associated rare species by allowing natural process to occur when compatible with ERA and management goals.

Objective 1: Follow FMFM Policy and Procedure 572 for wildfire suppression in the ERA.

Task 1: As time and resources become available, Unit staff to work with Resource Protection Specialist to develop wildfire response plan and use Minimum Impact Suppression Techniques (MIST).

Task 2: Consider including map of the ERA in the UP Fire Plan.

Objective 2: At the District and Statewide levels, develop a control plan for invasive species and work with conservation groups and MDOT to implement.

Task 1: Continue to monitor for EAB on black ash in swales and work with forest health specialists to determine appropriate response.

Objective 3: Monitor for illegal ATV use and enforce land use rules as needed on state land. (Follow DNR Work Instruction 7.2) http://www.michigan.gov/documents/7_133228_7.2.pdf

Task 1: In conjunction with Service Forester and ORV Trail Specialist, work with conservation groups to help raise awareness about ORV impacts from use in area on private lands.

Objective 4: Develop a management approach that focuses on the long-term sustainability of northern white cedar.

Task 1: Evaluate and monitor regeneration in normal inventory process.

Task 2: Per regeneration evaluation, passively recruit northern white cedar by allowing natural processes to occur and do not salvage cut within the ERA unless it is conducive to ERA goals.

Objective 5: At the Lansing and District management levels, consider impacts (invasive species control and hydrological impacts) and potential for improvement when assessing new easement activities.

Goal 2: Maintain habitat conditions along Thompson Creek.

Objective 1: Support opportunities for acquisition or easements on private land within the Thompson Creek watershed.

Objective 2: Support scheduled dam removal within Thompson Creek

Goal 3: Enhance protection for the Thompson Wooded Dune and Swale ERA on private and public lands.

Objective 1: Support opportunities to secure mineral rights.

Objective 2: Support opportunities for acquisition and/or work with conservation groups to acquire conservation easements on private land at District and Statewide levels.

Task 1: Service Forester to contact Plumb Creek to notify them of the ERA status of their land and encourage restoration where feasible.

Objective 3: At the District and Statewide Levels, consider working with Parks and Recreation Bureau, Fisheries Division and/or MDOT to develop interpretive information about the Wooded Dune and Swale complex and associated ERA's in the Garden Peninsula. (Opportunities exist at Fayette and Indian Lake State Parks, MDOT Roadside Park on US-2 and Thompson Hatchery

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"/> Coastal 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: per MNFI data | <input type="checkbox"/> Quiet Area: |
| Thompson Wooded Dune and Swale Complex | <input type="checkbox"/> Other: |
| <input type="checkbox"/> Endangered Species Management Area | |
| <input type="checkbox"/> Kirtland Warbler | |
| <input type="checkbox"/> Piping Plover | |
| <input type="checkbox"/> Other: | |

ADDITIONAL SPECIAL CONSERVATION AREAS - LIST OTHER CATEGORIES BELOW

SCA – Wintering Deer Complex
 SCA – Thompson Creek Cold Water Trout Stream
 Lake Michigan Shoreline Management Area within draft EUP State Forest Plan

B: SITE, CONTACT AND ADMINISTRATIVE INFORMATION

Site Name: Thompson Wooded Dune and Swale		Other Names:	
ReportDate Draft December 3, 2008	Forest Mgt Unit Shingleton Forest Management Unit	Compartment Number(s) : 79 Stand Number(s): 2010 YOE Entire Compartment	<input checked="" type="checkbox"/> Map Attached <input type="checkbox"/> Shape File in OI/IFMAP GDSE File Location/Name
County(ies): Schoolcraft		Township(s) Range(s) Section(s) ¼ Sec. Optional if mapped T41N, R16W Sections 15, 16, 20-22, 28, 29	
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 Adam Petrelius, Forester, FMFMD, Manistique Robert Burnham, Forester, FMFMD, Manistique David Jentoft , Wildlife Technician, Wildlife Division Darren Kramer, Fisheries Biologist, Fisheries Division, Gladstone		Telephone (906) 786-2351 (906) 341-8643 (906) 341-8643 (906) 452-6236 (906) 786-2351 ext 128	Email Address hermank@michigan.gov petrelia@michigan.gov burnharg@michigan.gov jentoftd@michigan.gov kramerd@michigan.gov
Additional contact information Name of individual providing information (first and last), if applicable Jeff Stampfly, FMU Manager, FMFM , Shingleton Sherry MacKinnon, Wildlife Ecologist, Newberry Richard Stevenson, Acting Inventory & Planning Specialist, Newberry		Telephone (906) 452-6227 ext 240 (906) 293-3293 ext 4080 (906) 293-3293 ext 4043	Email Address stampflg@michigan.gov mackinsm@michigan.gov stevenrd@michigan.gov
Name of DNR/DEQ Program Contact if Applicable Mike Smolinski, DEQ, Gwinn		Telephone (517) 346-8562	Email Address smolinskim@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:
Shingleton Forest Management Unit | <input type="checkbox"/> State Game Area: |
| <input checked="" type="checkbox"/> State Park/Recreation Area: Indian Lake State Park | <input checked="" type="checkbox"/> Other or Private Land (describe): RR and Utility easements , Block of commercial forest land (CFA) owned by Plumb Creek, Manistique Reynolds owns one 40, rest is small private parcels. One 40 has a conservation easement. |
| <input checked="" type="checkbox"/> State Fish Hatchery: Thompson Fish Hatchery | |

D: CONSERVATION PARTNERS – FILL IN ALL KNOWN PARTNERS

Name of Organization: **The Nature Conservancy**
 Contact Name: **Christine (Tina) Hall**
 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 ()

Name of Organization: **Plumb Creek**
 Contact Name: **Charlie Becker**
 Email Address
 Telephone **(906) 789-9076**

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

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

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

Albert, D.A. and P.J. Comer. 1999. Natural community abstract for wooded dune and swale complex. Michigan Natural Features Inventory, Lansing, MI. 6 pp.
http://web4.msue.msu.edu/mnfi/abstracts/ecology/Wooded_dune_and_swale_complex.pdf

Comer, P.J. and D.A. Albert. 1991. A Survey of Wooded Dune and Swale Complexes in the Northern Lower and Eastern Upper Peninsulas of Michigan. A report by the Michigan Natural Features Inventory to the Coastal Management Program, Michigan Department of Natural Resources. 99 pp.

Comer, P.J. and D.A. Albert. 1993. A Survey of wooded dune and swale complexes in Michigan. Report to Michigan DNR - Land and Water Mgmt. Div., CZM Program. 159 pp.

Site Summary for Thompson Wooded Dune and Swale from Cohen, J.G., B.S. Slaughter, and M.A. Kost. 2008. Natural Community Surveys of Potential Ecological Reference Areas on State Forest Lands. Michigan Natural Features Inventory, Report Number 2008-04, Lansing, MI. 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. [Wooded Dune and Swale Complex](#)

Slaughter, B. 2007. Wooded dune and swale complex\Thompson EO-986 \Species Lists\Thompson EO-18-986.inv.

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
<input checked="" type="checkbox"/>	Wooded Dune & Swale	S3	G3	B rank changed to C in 2007

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

Check all that apply	Name	Section Number	Subsection Number	Sub-subsection Number
<input checked="" type="checkbox"/>	Section VIII. Northern Lacustrine-Influenced Upper Michigan and Wisconsin	8		
<input checked="" type="checkbox"/>	Subsection VIII.1. Niagaran Escarpment and Lake Plain	8	1	
<input checked="" type="checkbox"/>	Sub-subsection VIII.1.3. Escanaba/Door Peninsula	8	1	8.1.3.

3. Ecological Systems

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

Excerpted from Kost et al, 2007. Wooded Dune And Swale Complex is a large complex of parallel wetland swales and upland beach ridges (dunes) found in coastal embayments and on large sand spits along the shorelines of the Great Lakes. The upland dune ridges are typically forested, while the low swales support a variety of herbaceous or forested wetland types, with open wetlands more common near the shoreline and forested wetlands more prevalent further from the lake. Wooded dune and swale complexes occur primarily in the northern Lower and Upper Peninsulas and Thumb region.

From Albert and Comer, 1999. Complexes within the Northern Lake Huron/Lake Michigan-Low Dune subtype are commonly found in embayments with little exposure to prevailing westerly winds. As a result, the low beach ridges (0.5-1m) of these complexes are almost entirely water-lain. They generally support wetland vegetation, both in the swales and on many of the ridges. All complexes along the Northern Lake Huron shoreline fall into this category. Along the Northern Lake Michigan shoreline, complexes of this subtype are found in portions of Mackinac, Schoolcraft, and Delta counties, where embayments are protected from westerly winds. Because the sandy soils along these shorelines are partly derived from limestones and dolomites of the underlying Niagaran Escarpment, plant species associated with moist, calcareous conditions, including Great Lakes endemics such as Houghton's goldenrod and dwarf lake iris, are commonly found close to the shoreline.

Summary Site Description excerpted from Cohen et al 2008.

Natural Community Type: Wooded Dune and Swale Complex

Rank: G3 S3, very rare and local throughout range

Element Occurrence Rank: C

Location: Shingleton Forest Management Unit, Compartment 79, and Private Lands

Element Occurrence Identification Number: 986

Site Description: This extensive wooded dune and swale complex occurs adjacent to Lake Michigan along an embayment on a sandy lakeplain. Thousands of years of lacustrine processes have developed complex patterning of low dune ridges (0.5-2.0 m) and swales of variable depth and width. The soils in this complex range from calcareous dune sand on beach areas to acidic, fine-textured sand mixed with organic material on ridges to acidic to circumneutral sapric or fibric peat deposits over saturated sands in swales. Depth of organics within the swales generally increases with distance from the lakeshore. The lake effect moderates the local climate with heavy snow loads, moderate temperatures in the winter and summer, and increased precipitation in the summer (fog and mist).

This wooded dune and swale is characterized by complex community structure that includes dry-mesic northern forest, rich conifer swamp, northern shrub thicket, northern wet meadow, and northern fen. The complex ecological patterning results in high species and community diversity in an area with severe anthropogenic disturbance. The low sandy dune ridges are dominated by white pine (*Pinus strobus*) with canopy associates including red pine (*P. resinosa*), paper birch (*Betula papyrifera*), red maple (*Acer rubrum*), and black spruce (*Picea mariana*). Typical low shrubs include low sweet blueberry (*Vaccinium angustifolium*), huckleberry (*Gaylussacia baccata*), and Labrador tea (*Ledum groenlandicum*). Bracken fern

(*Pteridium aquilinum*) is dominant in the ground cover with wintergreen (*Gaultheria procumbens*) common. Some low dune ridges have been paludified and are covered in peat and support rich conifer swamp, which dominates the majority of the swales within the complex. Northern white-cedar (*Thuja occidentalis*) dominates the forested swales with tamarack (*Larix laricina*), balsam fir (*Abies balsamea*), and white pine as a canopy associate. Scattered tall shrubs include tag alder (*Alnus rugosa*) and winterberry (*Ilex verticillata*). Typical species of the ground cover in the forested swales include Labrador tea (*Ledum groenlandicum*), swamp fly honeysuckle (*Lonicera oblongifolia*), alder-leaved buckthorn (*Alnus rhamnifolia*), creeping winterberry (*Gaultheria hispidula*), false mayflower (*Smilacina trifolia*), starflower (*Trientalis borealis*), three-seeded sedge (*Carex trisperma*), goldthread (*Coptis trifolia*), and sphagnum mosses (*Sphagnum* spp.). Narrow swales with a high water table often support northern shrub thickets dominated by tag alder with associates including winterberry, red-osier dogwood (*Cornus stolonifera*), sweet gale (*Myrica gale*), and willows (*Salix* spp.). Bluejoint grass (*Calamagrostis canadensis*), sedges (*Carex* spp.), and saplings of northern white-cedar and tamarack are also characteristic of the shrub-dominated swales. Swales dominated by northern fen are characterized by bog birch (*Betula pumila*), shrubby cinquefoil (*Potentilla fruticosa*), sweet gale, wiregrass sedge (*Carex lasiocarpa*), bog goldenrod (*Solidago uliginosa*), small cranberry (*Vaccinium oxycoccos*), pitcher-plant (*Sarracenia purpurea*), and roundleaved sundew (*Drosera rotundifolia*). Open swales that are more acidic tend to be dominated by leatherleaf (*Chamaedaphnecalyculata*) with well-developed sphagnum hummock and hollow microtopography.

- Ecological processes** – such as connectivity, hydrology, fire, wind events, flooding, pest and disease cycles;
Describe: Excerpted from Albert and Comer, 1999. Wooded dune and swale complexes formed as a result of receding Great Lakes water levels and post-glacial uplift that created a series of parallel, arced, low sand ridges and swales. Vegetative succession has since created a distinct pattern of communities or zones across this landscape complex. The flow of surface streams and groundwater is critical for maintaining saturated to inundated conditions in swales.

Because of the close proximity to the shoreline, windthrow is common, especially on the loose organic soils of swales where anaerobic conditions limit the rooting depth of trees. Along-shore currents, waves, and wind create and continuously re-work foredunes along the shoreline. Additional important components of the natural disturbance regime include fire, beaver flooding, and insect epidemics.

- Underlying environmental features** – such as soils, geology, topography, headwaters;
Describe: Excerpted from Kost et al 2007. Wooded dune and swale complexes are found in coastal embayments and on large sand spits along shorelines of the Great Lakes in Minnesota, Wisconsin, Michigan, Illinois, Pennsylvania, Ohio, and Ontario. They were formed in two stages by retreating water levels and post-glacial uplift beginning with glacial Lake Algonquin approximately 12,000 years ago. As lake levels progressively receded, they deposited a series of low, parallel, sandy beach ridges ranging in height from 0.5 m to 4.0 m. The alternating sequence of arced sand ridges and associated swales often extends up to two miles inland.

Surface sediments consist of lacustrine (lake) sand & gravel and peat & muck. The glacial drift thickness varies between 10 and 100 feet. The Silurian Manistique Group sub crops below the glacial drift.

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

Describe:

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

Describe:

Thompson Creek is a high quality cold water stream (stable strong ground water input) allowing it to support a resident brook trout community. It's close connectivity with Lake Michigan also it to support naturally reproducing potadromous native and non-native fish. There is a dam proposed for removal @ 1/3 mile up from US-2.

Thompson Creek is a cold-water stream that supports a diverse trout and salmon population. Brook trout, brown trout, chinook salmon, coho salmon, and steelhead all use the lower reaches for spawning and juvenile nursery areas. Maintaining buffer strips that prevent inputs of sediment to the stream channel are very crucial to protect the substrate and sensitive juvenile fish.

Southtown Creek is a small, warm-warm water stream. No information exists in the files regarding the composition of the stream fish community.

Indian Lake

Near shore birds such as caspian and common terns and nesting interior birds occur which are dependent on spring midge hatches and near shore lowland conifer forests.

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

- High quality natural communities nearby:

Describe: A limestone bedrock shore was identified by Michigan Natural Features Inventory and it occurs on the shoreline of Stony Point.

- 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).

Deer use was heavy in the winter in winter of 2008 per stand examiner observations.

- 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: Near shore birds such as caspian and common terns reported by Richard Stevenson, migratory and nesting interior birds which are dependent on spring midge hatches and near shore lowland conifer forests.

- 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:

[Trimerotropis huroniana \(Lake Huron Locust\) - MNFI Rare Species Explorer](#)

- State Status: T - Threatened (legally protected)
- State Rank: S2S3 - Rank is uncertain, ranging from imperiled to vulnerable
- Global Rank: G2G3 - Rank is uncertain, ranging from imperiled to vulnerable

[Cirsium pitcheri \(Pitcher's Thistle\) - MNFI Rare Species Explorer](#)

- State Status: T - Threatened (legally protected)
- US Status: LT - Listed Threatened
- State Rank: S3 - Vulnerable
- Global Rank: G3 - Vulnerable

[Iris lacustris \(Dwarf Lake Iris\) - MNFI Rare Species Explorer](#)

- State Status: T - Threatened (legally protected)
- US Status: LT - Listed Threatened
- State Rank: S3 - Vulnerable
- Global Rank: G3 - Vulnerable

[Solidago houghtonii \(Houghton's Goldenrod\) - MNFI Rare Species Explorer](#)

- State Status: T - Threatened (legally protected)
- US Status: LT - Listed Threatened
- State Rank: S3 - Vulnerable
- Global Rank: G3 - Vulnerable

- 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.

B: KNOWN SOCIAL/ECONOMIC VALUES

C: EXISTING INFRASTRUCTURE/FACILITIES:

- Archaeological
- Historical:
- Recreational:
 - Camping :
 - Canoeing/Kayaking: Along Lake Michigan
 - Fishing: **brook trout and other salmonids in Thompson Creek**
 - Hiking/Backpacking:
 - Hunting/Trapping: **Limited access difficult walking – local use mostly deer and bear, small game, trapping – beaver, mink, otter, bobcat, coyote**
 - Photography
 - Scenic: Along Lake MI
 - Water (lake, river, stream): **Lake Michigan, Thompson Creek, Indian Lake**
 - Wildlife Viewing: **Birding**
 - Cross Country Skiing
 - Other :
- 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: **US-2, County Road, Indian Lake State Park boat launch, State Roadside park**

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

<i>LIST CONSERVATION VALUE/TARGET FROM SECTION 2 – A, B OR C</i>	<i>LIST CATEGORY OF SIZE, CONDITION, OR LANDSCAPE CONTEXT</i>	<i>LIST KEY ATTRIBUTE</i>	<i>LIST INDICATOR</i>	<i>LIST CURRENT STATUS POOR, FAIR, GOOD, OR VERY GOOD</i>
WOODED DUNE & SWALE COMPLEX	LANDSCAPE CONTEXT	ECOSYSTEM PROCESSES HYDROLOGY WINDTHROW FIRE	* FOREST STRUCTURE AND REGENERATION * WATER FLOW * HIGH FLORISTIC QUALITY (NATIVE FQI = 61.8 135 NATIVE PLANT SPECIES IN 2007) * VOLUNTARY PROTECTION ON PRIVATE LAND	GOOD FAIR (INLAND HYDROLOGY) VERY GOOD UNKNOWN
RARE SPECIES	HABITAT CONDITION LANDSCAPE CONTEXT	INTACT NEAR SHORE DUNE AND INTERDUNAL WETLANDS	PRESENCE HABITAT LOSS MINIMIZED ALONG RIGHTS OF WAYS AND SUBDIVISIONS	FAIR
DEER WINTERING COMPLEX	LANDSCAPE CONTEXT CONDITION	LOWLAND CONIFER & WHITE CEDAR	CANOPY COVER CEDAR REGENERATION	VERY GOOD
FISHERIES IN THOMPSON CREEK	LANDSCAPE CONTEXT CONDITION	HYDROLOGY WATER TEMPERATURE FISH PASSAGE	BROOK TROUT PANADROMOUS FISH	VERY GOOD
NEAR SHORE & MIGRATORY NEOTROPICAL BIRDS	LANDSCAPE CONTEXT	NEAR SHORE LOWLAND CONIFERS AND GREAT LAKES SHORE NESTING & FOOD SOURCE	MIGRATING BIRD DIVERSITY	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* **RR Grade disrupted the sheet flow from north to south causing some tree die off on the north side of the RR tracks. South of the tracks there is higher stocking. There are similar effects from the pipeline.**
- 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* **Along Lake MI, Stony Point, and Indian Lake**
- 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* **Stony Point Golf Course**
- 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: **Existing and active RR alters the drainage. Canadian National**
- Roads and Trails: **County Road 442, US-2 and Road side park**
- Shipping Lanes:
- Trails:
- Utility Lines. **Large power line and two gas 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 all minerals on state land, and minerals reserved on most of private land on the ne. In south town creek area neither.**
- 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: **Could occur on private land – owned primarily one owner enrolled in Commercial Forest Act. Plumb Creek planted red pine on the ridges on their property.**
-
- 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*
On east side of ERA four-wheeler access by local teenagers.
- Motor-Powered Recreation - *Traveling outside of established transport corridors: off-road vehicles, motorcycles, motorboats, jet-skis, snowmobiles, ultra-light planes.* **Active Snow mobile trail**
- 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: **Road salt and chemicals from roadside maintenance, particularly in the winter.**
- Solid Waste – *garbage, litter*
- Thermal Pollution
- Waste & Residual Materials – *dredge spoil, water treatment residuals, slash, mine tailings, excess sediment loads.*

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.**

- 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: **Several non-native species were noted during the 2007 survey by Michigan Natural Features Inventory including. *Centaurea maculosa* spotted knapweed, *Chrysanthemum leucanthemum* ox eye daisy, *Cirsium palustre* marsh thistle, *Hypericum perforatum* -common St. John's wort, *Phalaris arundinacea* reed canary grass, *Phleum pratense* timothy, *Poa compressa*, Canada bluegrass, *Ranunculus acris*, tall or common buttercup.****Emerald Ash Borer has been located 10 miles to the west in Garden Corners.** 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**

GOAL AND DESCRIPTION ARE DERIVED FROM SECTIONS 2 AND 3

Goal 1: Maintain Wooded Dune and Swale Complex and associated rare species by allowing natural process to occur when compatible with ERA and management goals.**Objective 1: Follow FMFM Policy and Procedure 572 for wildfire suppression in the ERA.****Task 1:** As time and resources become available, Unit staff to work with Resource Protection Specialist to develop wildfire response plan and use Minimum Impact Suppression Techniques (MIST).**Task 2:** Consider including map of the ERA in the UP Fire Plan.**Objective 2: At the District and Statewide levels, develop a control plan for invasive species and work with conservation groups and MDOT to implement.****Task 1:** Continue to monitor for EAB on black ash in swales and work with forest health specialists to determine appropriate response.**Objective 3: Monitor for illegal ATV use and enforce land use rules as needed on state land. (Follow DNR Work Instruction 7.2) http://www.michigan.gov/documents/7_133228_7.2.pdf****Task 1:** In conjunction with Service Forester and ORV Trail Specialist, work with conservation groups to help raise awareness about ORV impacts from use in area on private lands.**Objective 4: Develop a management approach that focuses on the long-term sustainability of northern white cedar.****Task 1:** Evaluate and monitor regeneration in normal inventory process.**Task 2:** Per regeneration evaluation, passively recruit northern white cedar by allowing natural processes to occur and do not salvage cut within the ERA unless it is conducive to ERA goals.**Objective 5: At the Lansing and District management levels, consider impacts (invasive species control and hydrological impacts) and potential for improvement when assessing new easement activities.****Goal 2: Maintain habitat conditions along Thompson Creek.****Objective 1: Support opportunities for acquisition or easements on private land within the Thompson Creek watershed.****Objective 2: Support scheduled dam removal within Thompson Creek****Goal 3: Enhance protection for the Thompson Wooded Dune and Swale ERA on private and public lands.****Objective 1: Support opportunities to secure mineral rights.****Objective 2: Support opportunities for acquisition and/or work with conservation groups to acquire conservation easements on private land at District and Statewide levels.****Task 1:** Service Forester to contact Plumb Creek to notify them of the ERA status of their land and encourage restoration where feasible.**Objective 3: At the District and Statewide Levels, consider working with Parks and Recreation Bureau, Fisheries Division and/or MDOT to develop interpretive information about the Wooded Dune and Swale complex and associated ERA's in the Garden Peninsula. (Opportunities exist at Fayette and Indian Lake State Parks, MDOT Roadside Park on US-2 and Thompson Hatchery**