Evaluating the Effectiveness of the Environmental Review Process along the Great Lakes Shoreline: Phase II Progress Report

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The statements, findings, conclusions and recommendations in this report are those of the Grantee and do not necessarily reflect the views of the MDNRE and the NOAA.

Cover Photo: Lake Huron coastal shoreline, Cheboygan County, MI during a site assessment with LWMD staff. 2009. Daria A. Hyde

Executive Summary

In 2008, Michigan Natural Features Inventory (MNFI) with support from the Michigan Department of Natural Resources and Environment (DNRE), Wildlife Division (WD) and the Land and Water Management Division (LWMD), initiated the first year of a three-year project to evaluate the effectiveness of the environmental review process and make recommendations to improve rare species protection efforts. Since the ability to monitor compliance of threatened and endangered species regulations has not been a part of the environmental review process, it is a challenge to gauge the success of the DNRE in protecting Michigan's rare natural resources. It can be difficult to assess the extent that rare species concerns are incorporated into LWMD permits, or how well applicants are following the provisions stated in each permit. In addition, land owners that do not respond to DNRE potential impact "clearance needed" letters are not subsequently contacted to determine if projects proceeded with the required clearance or if impacts to rare species possibly occurred.

Since many of Michigan's rarest communities and plants are found only in the Great Lakes coastal zone, we focused our study on areas in the northeast part of the state where the potential for impacts to rare species is high. In 2008, all LWMD applications submitted from townships within the defined coastal boundary in Mackinac and Chippewa counties in 2006 and 2007 were reviewed. Files were evaluated internally for program and process coordination and externally at the project site for regulation compliance. Using the same methodologies developed in 2009, we broadened our sample size to include LWMD applications from Alpena, Cheboygan, and Presque Isle counties submitted in 2006 - 2008 as well as 2008 applications from Chippewa and Mackinac counties. This provided an opportunity to analyze the environmental review process in a variety of different situations and settings and make substantive recommendations.

Our internal evaluation of program and process coordination revealed that although the environmental review process is working reasonably well in flagging rare species at potential project sites in Great Lakes wetlands and screening out additional "no element occurrence" and "no impact" projects from review, there is duplication of effort and inefficiencies that hinder the process. A focused effort to improve coordination and implement innovative technology will save valuable staff resources and expedite the response time for applications. Survey reports often lack consistent and critical information necessary for the evaluation of rare species impacts. It is recommended that the WD create a standardized survey report form to be included with the "clearance needed" letter and require all applicants to use this form when reporting on the potential for rare species and suitable habitat at project sites.

The external evaluation at project sites for regulation compliance revealed that there was a high likelihood of finding threatened or endangered plant species within the study area, underscoring the critical biodiversity harbored by shoreline areas in this region. Beyond the corroboration of shoreline biodiversity, the results of the project site assessments also indicate that most of the time, adequate screening and/or surveys are being conducted and for the most part, permits accurately reflect the potential for impacts to rare species. It is recommended that specific and consistent rare species permit language, including the names of the specific plants and animals occurring at a site and who to contact regarding T&E species, be included and highlighted in the

permit. This would improve the applicant's understanding of their responsibility to avoid impacts to these species and the role of the WD and LWMD in enforcing these regulations.

The opportunity to engage in cross training with LWMD, WD and MDOT staff was instructive and productive. LWMD staff are knowledgeable in all aspects of wetland regulations and permitting procedures and are well trained and diligent in implementing the environmental review process. MDOT personnel were conscientious in mitigating potential impacts to rare species. The single WD staff person is hardworking and efficient in processing reviews with potential hits for T&E species concerns, but rarely has the time and resources to conduct on-site evaluations for projects with high potential for impacts. Perhaps with the unification of the two divisions under one department, staff that specialize in T&E rare species and community review could be utilized in conducting more comprehensive reviews and on-site evaluations.

There are gaps in the environmental review process which decrease the DNRE's effectiveness in protecting biodiversity. Information about species that occur in close proximity to project sites is rarely reported and as a result the department loses its ability to flag future projects in the area which could impact rare species or to prevent cumulative impacts to species. More importantly, there is no system for flagging rare species and natural communities that occur in upland habitats. This is a huge gap and as a result these species and communities are highly vulnerable to impacts from poorly planned development. Although the solution to this problem is not simple, with the commitment and leadership of the DNRE, an effort could be made to begin to address this issue. Various existing tools could be shared with townships and local governments to assist them in learning about, protecting and managing unique natural features in their communities to insure long-term ecological and economical benefits for their citizens.

Education is an important component of any successful biodiversity conservation program. Balancing private property rights with the protection of public resources, declining native species, increasing invasive species and ecosystem functions is not easy but must be done to help landowners become aware of the value and function of these species and ecological processes in our environment. These steps are necessary if Michigan is going to be successful at protecting its unique natural resources in an increasingly cash-strapped economy.

Based on our research from years one and two, it appears that the State of Michigan's ER program is effectively protecting known locations of rare and declining plants in wetland habitats along the Great Lakes shoreline. The majority of landowners are typically very cooperative if provided good information and reasonable alternatives. However, it also appears that there is little or no resistance given to the small number of uncooperative landowners that decide to move forward with development plans despite impacts to rare and declining natural resources. Fortunately, for the vast majority of proposed development projects along the GL shoreline, potential impacts are being mitigated with minimal burden to applicants, and thus the environmental review process is accomplishing its stated goals. As the WD and LWMD work more closely together within the DNRE, efforts should continue to strengthen and improve the effectiveness of the State of Michigan's environmental review program

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Introduction

The Great Lakes coastal zone is a landscape rich with significant natural communities and associated species. Many of Michigan's rarest communities and plants are found only in the coastal zone. An analysis of the MNFI database reveals that 13% of the statewide element occurrences (~ 2,000) occur within 0.5 mile of the Great Lakes shoreline. For example, interdunal wetlands, alvar, limestone bedrock glades, volcanic lakeshore cliffs, open dunes, Great Lakes marshes and lakeplain wet prairies are coastal communities that are considered to be critically imperiled (S1), imperiled (S2), or vulnerable (S3) in the state (Kost et al. 2007). Four federally listed plants inhabit Michigan's northern Great Lakes shoreline including, Houghton's goldenrod *(Solidago houghtonii)*, dwarf lake iris *(Iris lacustris)*, Pitcher's thistle *(Cirsium pitcheri)* and Michigan monkey-flower *(Mimulus glabratus* var. *michiganensis)*. These well known rarities, along with many state listed shoreline species, have some of their best populations in Michigan. Rare plants and natural communities are important barometers of ecological condition and environmental health, and state and federal agencies have the responsibility of protecting these rare resources from direct and unreasonable human impacts.

Why are we concerned? Development and land alterations occur daily across the state and local communities are in charge of zoning regulations, building permits and appeals. In order to insure that new development activity isn't negatively impacting Michigan's rare natural resources, the state of Michigan developed the current environmental review process. Is this working? What types of improvements should be made to improve the process?

In 2008, Michigan Natural Features Inventory (MNFI) initiated the first year of a three-year project to evaluate the effectiveness of the environmental review (ER) process conducted by the Michigan Department of Natural Resources and Environment (DNRE). Although the original intention of this study was to conduct a comprehensive review of the ER process, various restrictions (e.g. funding sources) necessitated a more focused approach. The 2008 results were subsequently compiled and presented in the report submitted by Olson et al. (2009), which focused on Land and Water Management Division (LWMD) applications for Chippewa and Mackinac counties. Although a relatively small pool of sites (seven) ultimately qualified for review, field inspections were subsequently conducted on six sites to determine any impacts to rare plant species and permit compliance. Despite the limited number of sites available for field reviews, a total of eight rare plant occurrences were documented within or in close proximity to project sites, of which six occurrences (two each from three sites) were previously unknown. In addition to conducting field reviews, the first-year report details the procedures used for methodically evaluating the LWMD application files, selecting project sites, and conducting project site assessments. Insights gained from analyzing the process as well as the site assessments were synthesized into a list of preliminary recommendations that could improve the effectiveness and efficiency of the environmental review process.

Using the same methodologies in 2009, we focused on a much larger set of sites based on LWMD applications from Alpena, Cheboygan, and Presque Isle counties submitted in 2006 - 2008 as well as 2008 applications from Chippewa and Mackinac counties. This greatly increased

the sample size for site visits and provided an opportunity to analyze the environmental review process in a variety of different situations and settings, although still focused along the Great Lakes shoreline. We conclude this report with a summary and several pertinent recommendations gleaned from the second phase of the project, which we believe to be very informative. We hope these recommendations will assist in maintaining and improving the often complicated process of environmental review.

Project Purpose

The DNRE, Wildlife Division (WD), is authorized to protect endangered and threatened plant and animal species Under Part 365 of the Natural Resources and Environmental Protection Act (Act 451 of 1994). The WD maintains compliance with Part 365 through the environmental review process. This process involves evaluating the impacts of proposed projects on federal and state endangered and threatened species, special concern species, high quality natural communities and other unique natural features. Projects are evaluated on public and private land statewide. The process of evaluating projects has progressed from comments on Post-it® notes, memos, and e-mails, to formal project clearance letters, or an on-line web application where the public can have their project evaluated for rare species in minutes.

The LWMD, is responsible for resources along the land and water interface. They have statutory authority over wetlands, inland lakes and streams, floodplains, submerged lands, and critical dune areas on public and private land. Under a cooperative agreement with the WD, LWMD screens their permit applications using MNFI's database. Applicants are not allowed to violate any state environmental regulations. Project activities occurring near known rare species or high quality natural communities are sent to the WD for review and they become involved if or when rare species may be impacted by land altering activities.

The current environmental review process can be summarized in 6 steps:

1) **Receive** request with proposed project description and location information provided.
2) **Compare** the project location against the MNFI database of rare and unique natural features.
3) **Determine** the potential for rare and unique natural features to be present and impacted by land altering activities. This may involve MNFI biologists and/or outside experts.
4) **Respond** to the applicant, consultants, agencies or other entities involved. The response will either be no element occurrences nearby, no impacts expected or potential impacts may occur and restrictions are provided or a "clearance needed" letter is sent.
5) **Provide** formal project clearance if suitable information is received and direct impacts can be avoided.
6) **Identify** additional project clearance requirements and/or provide an application for an Endangered Species Permit if direct impacts can not be avoided.

Statement of Problem

Unfortunately, the ability to follow-up and monitor compliance of rare species protection has not been a part of the environmental review process, and understanding the effectiveness of the DNRE in this area is a challenge. For example, of the 2,431 environmental review requests responded to in **2008**, **23%** (549) had the potential to impact rare or unique natural features. In **2009**, of the 2,222 environmental review requests that were responded to, **24%** (539) had the

potential to impact rare or unique natural features. It is not clear to what extent rare species and natural community concerns are being incorporated into the LWMD permits, or how well applicants are following the provisions stated in each permit. In addition, land owners that do not respond to DNRE potential impact “clearance needed” letters are not pursued and the resulting impact of these projects on rare species is unknown. In order to improve the effectiveness and efficiency of rare species protection efforts, this project was initiated to evaluate the DNRE, WD and LWMD environmental review process along the Great Lakes shoreline, one of Michigan’s most critical zones for rare natural features.

Methods

File Evaluation

The majority of environmental reviews involve potential impacts to rare plants, which comprise the largest proportion of the MNFI database. Since animal species are mobile and it is more difficult to evaluate impacts as a result of project activities, this study focused on project impacts to rare plant and high quality natural community occurrences. However, if rare animals were documented on a project site, they were included in the impact evaluation.

All LWMD applications submitted from townships within the DNRE defined coastal zone boundary of Alpena, Cheboygan, Chippewa, Mackinac and Presque Isle Counties in 2006, 2007 and 2008 were evaluated (Figure 1.). This area was expanded from the two counties evaluated in 2008 to include three additional counties. DNRE Endangered Species Permits that were issued in either county during the designated time period were also considered for evaluation. This region was targeted for several reasons including: 1) a relatively high number of federal and state protected rare species and unique natural communities occur in the targeted coastal townships, 2) a relatively high number of environmental review projects with potential impacts to rare species occur in the targeted coastal townships, 3) the rate of development is increasing along this stretch of Great Lakes shoreline, 4) private property has not been well surveyed in the targeted coastal townships, 5) there exists potential for illegal development activities and 6) opportunities for compliance inspections on private property are limited.

LWMD and WD files were evaluated for program and process coordination and for regulation compliance on-site at the project location. The internal evaluation was conducted with the goal of identifying how well the process of flagging LWMD applications for review, sending applications to the Wildlife Division, Natural Heritage Program for review and response, sending DNRE "clearance needed" letters directly to the applicant, and final permit language is working. We were particularly interested in learning what the WD response was, and how well their comments were incorporated into the LWMD's final action – either into the permit or denial letter. All results were entered into an Access database. The following criteria were used for the **internal evaluation**:

A. The total number of LWMD applications in Alpena, Cheboygan, and Presque Isle Counties from 2006 - 2008; as well as in Chippewa and Mackinac Counties in 2008.
B. The total number of LWMD applications within the coastal zone townships of Alpena, Cheboygan, and Presque Isle Counties from 2006 - 2008; as well as in coastal areas in Chippewa and Mackinac Counties in 2008.
C. The number of LWMD applications identified for Natural Heritage review within the coastal zone townships of Alpena, Cheboygan, and Presque Isle Counties from 2006 - 2008; as well as in coastal areas of Chippewa and Mackinac Counties in 2008.
D. The number of LWMD applications the DNR reviewed and commented on within the coastal zone townships of Alpena, Cheboygan, and Presque Isle Counties from 2006 - 2008; as well as in coastal areas of Chippewa and Mackinac Counties in 2008.
    a. The number of no impact responses from the Natural Heritage program
    b. The number of potential impact responses from the Natural Heritage program

i. The number of "clearance needed" letters sent to applicant/landowner
ii. The number of clearance needed letters responded to by the applicant/landowner/representative agent or LWMD field staff

E. The final LWMD decisions on applications flagged, reviewed and commented on by the WD within the coastal zone townships of Alpena, Cheboygan, and Presque Isle Counties from 2006 - 2008; as well as in Chippewa and Mackinac in 2008.
   a. The number of LWMD applications issued
      i. The number of permits that incorporated Natural Heritage comments
   b. The number of LWMD application denied
      i. The number of denials that incorporated Natural Heritage comments
   c. The number of LWMD applications withdrawn
   d. The number of LWMD applications closed
   e. The number of LWMD applications pending

F. The number of DNRE Endangered Species permits issued within the coastal zone townships of Alpena, Cheboygan, and Presque Isle Counties from 2006 - 2008; as well as permits issued in Chippewa and Mackinac in 2008.

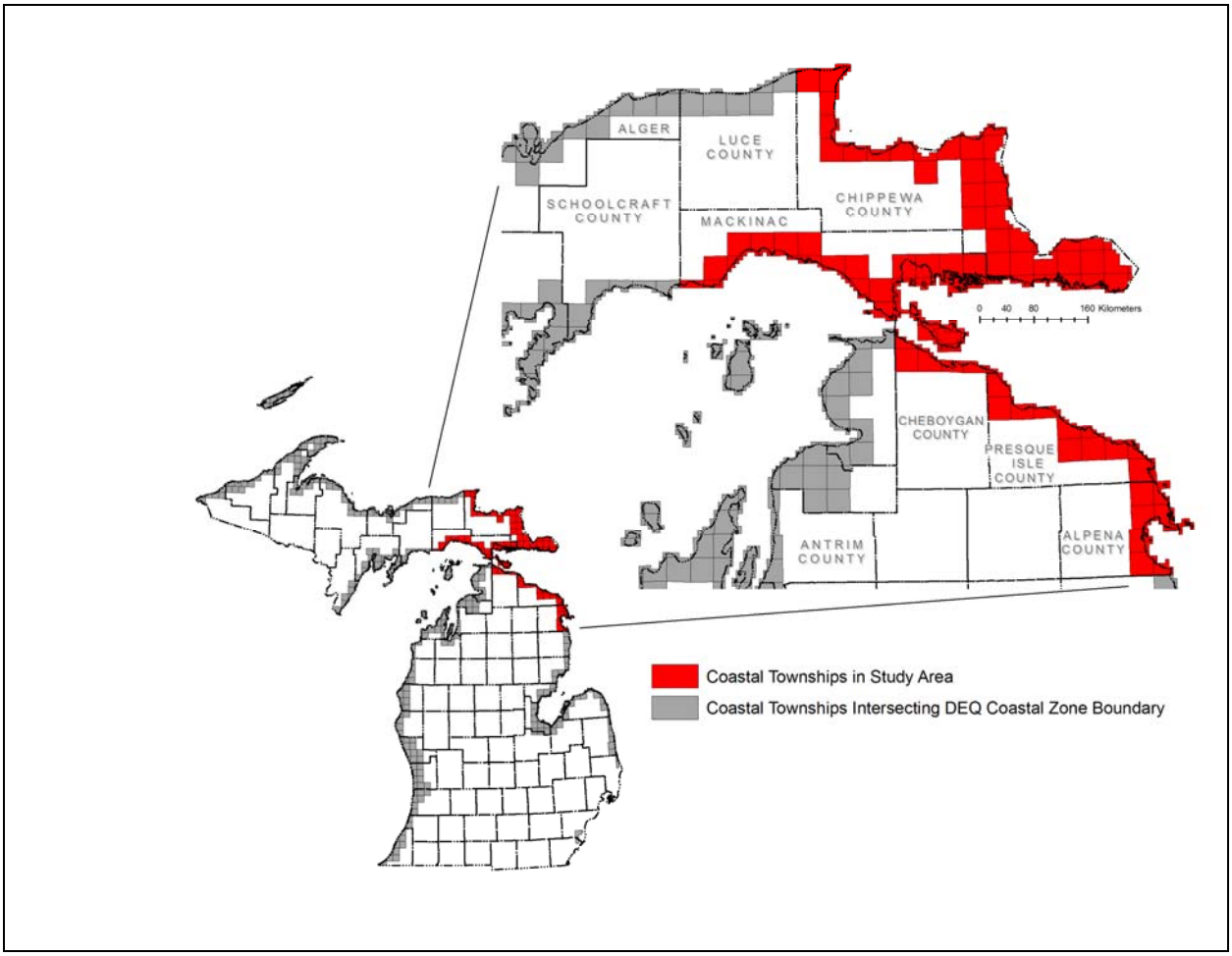

Figure 1. 2009 Study Area: Evaluating the Effectiveness of the Environmental Review Process along the Great Lakes Shoreline – Phase II

Project Site Selection
After completing the internal file evaluation, those LWMD files that had a high likelihood of potential impacts to rare species were selected for an on-site project compliance evaluation. Files with a high likelihood of potential impacts included those where the applicant/landowner received a DNRE "clearance needed" letter and the resulting survey report described suitable habitat at the project site, and/or if the applicant/landowner received a DNRE Endangered Species Permit in the study area. The following criteria were used for the **on-site evaluation**:

G. The number of projects within the coastal zone townships of Alpena, Cheboygan, and Presque Isle counties from 2006 - 2008 and projects in coastal areas in Chippewa and Mackinac Counties in 2008 with high potential of impacts to rare species
    a. Did property owners follow the LWMD permit requirements?
    b. How many rare species were found on the project site?
    c. How likely were rare species impacted by project activities?
    d. Did property owners follow DNRE Endangered Species Permit requirements?

Following the completion of the internal file evaluation and the project site selection, the LWMD field staff personnel in the respective counties were contacted. Arrangements were subsequently made to access and conduct on-site project visits with the appropriate LWMD field staff.

Project Site Assessments
Site visits were conducted from August 4 – 19, 2009 by Mike Penskar and Daria Hyde of MNFI, John Arevalo, John Gustafson, Marcy Knoll, Roxanne Merrick and Scott Rasmusson of DNRE, LWMD, and Dave Schuen, Ulrika Zay and Dick Wolinski of MDOT. This period was selected based on the desired survey window of August –September for the federal and state threatened Houghton's goldenrod *(Solidago houghtonii)*, dwarf lake iris *(Iris lacustris)* and Pitcher's thistle *(Cirsium pitcheri)*, all of which were flagged by the WD for potential impacts and thus comprised our principal target species in the first year of this study.

The goal of each site visit was to assess the activities conducted via the issued permits, determine compliance with respect to the specific provisions of each permit, and ascertain the presence and condition of known or previously unknown rare species at the site and note any impacts to these species or their habitat. A project field form was completed for each site assessment. Plant specimens were collected as needed for subsequent determination and verification, and specific plant associates and other relevant data were recorded for all rare plant occurrences documented. GPS points were recorded for rare plant locations, particularly when identifying new rare plant populations. Lastly, a series of representative photos for each site was compiled, emphasizing the project area and general context, known and potential rare species habitat, and species of rare taxa as needed (Appendix A).

Data Processing
Following project site visits, plant specimens were reviewed, keyed, and determined using the Michigan Flora (Voss 1996, 1985, 1972). Standard MNFI field forms were prepared for data transcription. All rare plant data were entered into the statewide Biotics database following the digitizing of occurrence boundaries where necessary. Site visit results were entered into the study's Access database.

Results

File Evaluation

As part of the internal file evaluation, several databases were queried for information including the DNRE Coastal and Inland Waters Permit Information System (CIWPIS) database, the DNRE Environmental Review database and the DNRE Endangered Species Permit database. For ease of documentation, the results are described in the same format as presented in the Methods section.

In **2008**, the DNR responded to **2,431** individual environmental review requests covering more than **2,726** project sites. Of the 2,341 requests responded to, **69%** of those requests originated from state agencies. Of the state agencies requesting an environmental review, DEQ was the most frequent customer (84% of requests from state government) and the LWMD was the primary division making requests (70% of requests within what was then the DEQ).

In **2009**, the DNR responded to **2,222** individual environmental review requests covering more than 2,559 project sites. Of the 2,222 requests responded to, **55%** of those requests originated from state agencies. Of the state agencies requesting an environmental review, DEQ was the most frequent customer (82% of requests from state government) and the LWMD was the primary division making requests (74% of requests within what was previously the DEQ).

The LWMD continues to be the state agency that the WD works most closely with on environmental review related projects. Thus, coordination and cooperation with the LWMD is a critical component of the environmental review process. To assist in the management and protection of rare species in Michigan, cooperative agreements exist between (what was previously the DNR and DEQ) the WD and the LWMD, and the WD and MNFI. These cooperative agreements, and an established protocol, form the foundation of the state's environmental review process.

As of September 30, 2009 the LWMD permit database, the WD environmental review database, and the endangered species permit database were reviewed for projects falling within Alpena, Cheboygan, and Presque Isle County for 2006-2008. Only permits for projects applied for in 2008 in Chippewa and Mackinac County were reviewed, as permits for projects applied for in 2006 and 2007 were reviewed the previous year. A total of 180 LWMD applications, 35 in Alpena, 35 in Cheboygan, 36 in Chippewa, 44 in Mackinac and 30 in Presque Isle County, were evaluated within the project area (coastal zone boundary).

- All 180 LWMD applications were flagged for WD Natural Heritage review
- Of the 87 LWMD applications (48%) that were reviewed (logged in) by the WD
    - 54 LWMD applications were determined to have no impact (62%)
    - **32 LWMD applications were determined to have potential impacts (37%)**
    - **1 DNRE Endangered Species was issued for a LWMD project** (one additional permit was carried over from 2008)
        - 20 WD "clearance needed" letters were mailed to applicants (62.5%)
            - 16 responses were received from applicant/agent or LWMD (80%)
        - 24 LWMD permits were issued
        - 2 LWMD applications were withdrawn by applicant

        - 3 LWMD applications were closed due to lack of information, duplicate files or no LWMD authority
        - 3 LWMD projects were denied
- Of the 93 LWMD applications (52%) that were not reviewed by the WD
    - 18 LWMD applications were closed before being sent to WD (19%)
    - 4 LWMD applications were withdrawn by the applicant (4%)
    - 71 LWMD applications (76%) were either determined to not need formal review based on the type of project (seawall in front of existing seawall, dock extension, driveway culverts, addition on house, maintenance dredging of existing boat well or marina, etc.), were not sent to WD for review, or were lost in the transfer.

Project Site Selection

As a result of the internal file evaluation, a total of twenty-one LWMD files were chosen for on-site compliance visits based on a high likelihood of potential impacts to rare species (Table 1). Files with a high likelihood of potential impacts included those where the applicant/landowner received a DNRE "clearance needed" letter and the resulting survey report described suitable habitat at the project site, and/or if the applicant/landowner received a DNRE Endangered Species Permit in the study area.

Table 1. LWMD files chosen for on-site compliance visits.

LWMD File	Applicant	Complied w/ LWMD Permit	# of Rare Species Found On Site	Rare Species Impacted	Complied w/ DNR ES Permit
06-16-0009	MDNR Parks and Rec.	Yes	2	No	N/A
06-16-0013	Stewart	Yes	1	No	N/A
06-16-0059	Bice	Yes	None	No	
06-71-0007	Wolf	Permit denied	Adjacent property visited	No	N/A
06-71-0011	Hilbrecht	Yes	1	No	N/A
06-71-0012	Larson	Yes	None at project site, 2 on beach	No	N/A
07-16-0011	Madgers	Yes	None	No	N/A
07-49-0050	MDOT	Yes	2	Yes/ transplanted	Yes
07-71-0014	Pollard	Partial	2	No	N/A
07-71-0018	McKindles	Partial	2	No	N/A
07-71-0019	LaFarge	N/A	Not surveyed Mitigation site surveyed (2)	N/A	N/A
08-04-0020	Grant	Permit denied	Not surveyed	Unlikely	N/A
08-16-0066	Sedky & Co.	N/A project not initiated	None	No	N/A
08-49-0010	Powell	Don't know	Not surveyed	Unlikely	N/A
08-49-0072	DeGrave	Don't know	Not surveyed	Unlikely	N/A
08-49-0080	Mackinac Co. Road Comm.	N/A project not initiated	None	No	N/A
08-71-0002	Butler	Yes	1	No	N/A
08-71-0004	Evergreen Hwy. LLC	Yes	2 in adjacent fen and shoreline	No	N/A
08-71-0013	Ochmanek	Application withdrawn	Not surveyed Couldn't find	Unlikely	N/A
08-71-0014	Howarth	Yes	None	No	N/A
ES permit #1528	MDOT	N/A	4	No	Yes

Project Site Assessments

Eighteen project site visits were conducted from August 4 – 19, 2009. Five sites were located in Cheboygan County, two in Mackinac County and ten in Presque Isle County. One site visit was attempted in Presque Isle County but LWMD staff was unable to identify the specific location of a proposed building site and thus field assessment could not take place. However, an additional "ad hoc" site visit was made to a locality with potential for a future permit application by request of the LWMD staff in Cheboygan County. Rare species were confirmed on fourteen of the eighteen (77%) project sites as summarized in Table 2 (newly documented species highlighted).

Table 2. Results of on-site project compliance and rare species search in 2009. Rare species previously unknown for a site are indicated in bold.

Applicant	County	Rare species in DNRE letter / permit	Rare species found on site
Bice	Cheboygan	Pitcher's thistle (LT, T) Lake Huron tansy (T)	None (**Lake Huron tansy** (found on adjacent property)
Magers	Cheboygan	Dwarf lake iris (LT, T)	None
MDNR Parks Division	Cheboygan	American bittern (SC) Pitcher's thistle (LT, T) Houghton's goldenrod (LT, T) Lake Huron tansy (T) Lake Huron locust (T) Interdunal wetland	Houghton's goldenrod (LT, T) Lake Huron tansy (T) **Common tern** (T) Bald eagle (SC) (2 observed)
Sedkey and Co. LLC	Cheboygan	Houghton's goldenrod (LT, T)	None
Stewart	Cheboygan	Ram's head lady's-slipper (SC) Houghton's goldenrod (LT, T) Lake Huron tansy (T)	**Lake Huron tansy** (T)
Proposed RV Park: Duncan Bay	Cheboygan	Permit not applied for yet.	**Dwarf lake iris** (LT, T)
Mackinac Co. Road Comm.	Mackinac	Michigan monkey flower (E)	None
MDOT- US-2	Mackinac	Pitcher's thistle (LT, T) Lake Huron tansy (T) Lake Huron locust (T)	Pitcher's thistle (LT, T)
Butler	Presque Isle	Pitcher's thistle (LT, T) Dwarf lake iris (LT, T) Butterwort (SC) Houghton's goldenrod (LT, T)	Dwarf lake iris (LT, T) **Coastal fen**
Evergreen Hwy. LLC	Presque Isle	Cirsium pitcheri (LT, T) Solidago houghtonii (LT, T) Trimerotropis huroniana (T) Pinguicula vulgaris (SC) Pterospora andromedea (T) Sisturus c. catenatus (Fed C. SC)	Pinguicula vulgaris (SC) Tanacetum huronense (T) **Coastal fen**

Applicant	County	Rare species commented on in DNRE Wildlife Division letter	Rare species found on site
Hilbrecht	Presque Isle	Houghton's goldenrod (LT, T) Dwarf lake iris (LT, T) Lake Huron tansy (T)	Houghton's goldenrod (LT, T)
Howarth	Presque Isle	Pitcher's thistle (LT, T) English sundew (SC) Houghton's goldenrod (LT, T) Lake Huron tansy (T)	None
Lafarge-Mitigation site	Presque Isle	No rare species noted in initial survey of mitigation site	**Dwarf lake iris** (LT, T) Bald eagle (foraging) (SC)
Larson	Presque Isle	Pitcher's thistle (LT, T) Houghton's goldenrod (LT, T) Lake Huron tansy (T)	**Houghton's goldenrod** (LT, T) Lake Huron tansy (T) (on beach not at project site)
MDOT US-23 (4 sites)	Presque Isle	Pitcher's thistle (LT, T) Dwarf lake iris (LT, T) Alleghany plum (SC) Houghton's goldenrod (LT, T) Lake Huron tansy (T)	Pitcher's thistle (LT, T) Dwarf lake iris (LT, T) Houghton's goldenrod (LT, T) Lake Huron tansy (T) **Coastal fen**
McKindles	Presque Isle	Pitcher's thistle (LT, T) Lake Huron tansy (T)	**Houghton's goldenrod** (LT, T) Lake Huron tansy (T)
Pollard	Presque Isle	Dwarf lake iris (LT, T) Houghton's goldenrod (LT, T) Butterwort (SC)	Dwarf lake iris (LT, T) **Butterwort** (SC) **Coastal fen**
Wolf (adjacent property visited Valentine)	Presque Isle	Houghton's goldenrod (LT, T) Dwarf lake iris (LT, T) Ram's head lady's-slipper (SC) Beauty sedge (SC)	**Richardson's sedge** (SC) Dwarf lake iris (LT, T) **Coastal fen**

Fed C. = Federal Candidate; LT = Federal Threatened; T = State Threatened; SC = Special Concern.

In addition to the species flagged and commented on by the DNRE, previously unknown rare species and natural communities were identified at 12 of the sites visited in 2009. These include, eight new plant element occurrences (EOs), four EOs for globally rare, federally listed species: Lake Huron Tansy *(Tanacetum huronense)* - T (two EOs), Dwarf Lake iris (*Iris lacustris*) - LT, T (two EOs), Houghton's goldenrod *(Solidago houghtonii)*, - LT, T (two EOs), Butterwort (*Pinguicula vulgaris*) - SC (one EO), and Richardson's sedge *(Carex richardsonii)* - SC (one EO). Records of these species were not in the MNFI database and so were not commented on by the WD or LWMD. In addition, 15 known plant records observed during project site assessments were updated, including several occurrences where an expansion of spatial distribution was recorded. An observation of a pair of Common terns - T and a Bald eagle - SC was noted at Cheboygan S.P. A Bald eagle was also seen flying over the Lafarge mitigation site. These observations were not entered into the database as nesting sites were not documented. High quality coastal fens were recorded at five new locations and will be referred to MNFI ecologists for further evaluation and possible recognition as element occurrences for the statewide database.

Discussion

In Phase II of this project we expanded the study area to include three additional counties in NE Michigan, bringing the total number of counties included to five. There are several reasons this part of the state was chosen for analysis including: 1) a relatively high number of federal and state protected rare species and unique natural communities occur in the targeted coastal townships, 2) a relatively high number of environmental review projects with potential impacts occur in the targeted coastal townships, 3) the rate of development is increasing along this stretch of Great Lakes shoreline, 4) private property has not been well surveyed in the targeted coastal townships, 5) there exists high potential for illegal development activities since the nearest DEQ office is often located some distance away and it is often not feasible to regularly monitor potential project sites, and 6) opportunities for compliance inspections on private property are limited. During the second year of this project we gained additional insights on the internal environmental review file review process, on-site physical site review and opportunities, and the cooperative partnership between the WD, MNFI and LWMD staff.

File Evaluation

The file evaluation portion of this study was fairly straight forward due to our ability to access the entire LWMD CIWPIS database. The full CIWPIS database is quite useful in providing access to the final permit or denial letter, any correspondence between LWMD and the applicant, LWMD field notes, site photographs, file history and special interests. As stated in last year's report, the WD's current access to CIWPIS is through an Intranet website which is limited in its use – primarily to file basics including the applicant's name and address, project description, project location, file status, legislation regulating activity, file history and special interests (http://intranet.deq.state.mi.us/ciwpis/ciwpisqryINET.asp).

Process and Communication Issues

Many of the basic project file fields entered into LWMD CIWPIS database are re-entered into the WD's Environmental Review Access database. This includes the file number, field person, applicant's name, project description, county, project location in TRS format and water body. This "logging in" phase is repetitive when done by both LWMD and WD staff. Although each division has its own use for the information, it would be beneficial if both divisions could use the same database software so communication could occur between the two customized interfaces, eliminating duplicative efforts with data entry of applications and tracking project status changes (closed, withdrawn, issued, denied, etc.). Perhaps now that the two divisions are under the same department, this process can be streamlined.

It would be beneficial from WD's standpoint to know when and if a project file goes from active to "closed" or "withdrawn." This could impact whether they decide to send a "clearance needed" response to the applicant and whether they should expect a response from the applicant. Although the response rate of applicant's to the "clearance needed" letters was significantly improved in 2009 (80 % response in 2009 compared to only 28 % in 2008); this is an issue that needs careful monitoring to determine compliance. Using the same database software, or allowing full CIWPIS access to individuals in the DNR involved with the environmental review process, would improve the ability to track project changes and responses.

Flagging for Natural Heritage Review and Screening Process

A total of 180 applications were submitted to LWMD from coastal areas within Alpena, Cheboygan, and Presque Isle Counties between 2006 and 2008, and from coastal areas in Chippewa and Mackinac Counties in 2008 (permits for projects in 2006 and 2007 in these counties were reviewed the previous year). All 180 of these applications were flagged for WD, Natural Heritage review. The WD responded to 87 applications or 48% of what was flagged. The discrepancy between what was flagged and what was responded to can be partially explained by the screening of LWMD applications by the WD and MNFI personnel prior to logging them in for review. Since the majority of projects that are reviewed by the WD have no impacts expected (average = 60%) and LWMD projects are the most frequent projects sent to the WD for review, it was decided that a screening process be implemented to maximize efficiency. This screening was formalized in a memo distributed to LWMD personnel indicating the types of projects that do not need WD – Natural Heritage review including:

1) Construction of a seawall where a seawall already exists (i.e. seawall in front of an existing seawall). We do want to review seawall construction projects that are new.

2) Dock extensions

3) Installation of mooring buoys.

4) Installation of boat hoists when a dock and/or boat well already exist.

5) Maintenance dredging of existing boat wells or marinas.

6) Replacement of existing boat ramps.

7) Additions to existing structures (e.g. house, garage, etc.).

8) Projects occurring along the lake front where the grass is mowed to the lakeshore and no native vegetation is present. This is often determined from pictures with the application.

Improved Technology and Screening Criteria

As mentioned in last year's report, the WD and MNFI are exploring ways to screen out additional "no element occurrence" and "no impact" projects from the ER process. Solutions often come in the form of improved technology including mapping projects digitally using geographic information systems (GIS) or implementing new screening criteria. For example, the DNRE Endangered Species Assessment (ESA) web application is an on-line mapping tool which screens out "no element occurrence" reviews. The ESA application needs improved mapping technologies and web-based interface capabilities. Lori Sargent, WD, has been exploring grant sources to support the needed upgrades. New screening criteria for CIWPIS was implemented in October 2007 by the WD and MNFI including only flagging the locations of G1 or G2 special concern species, all endangered and threatened species, and all documented natural communities. This new criteria means that only 14 of the 266 special concern species are being flagged for Natural Heritage review. Improvements to screening criteria and screening tools will continue to be necessary to efficiently and effectively spend what limited time employees have on environmental review issues.

Analysis of Projects with Potential Impacts

Of the 32 LWMD applications that had potential impacts identified, the WD responded to 20 of the applications (62.5%) requesting a letter of clearance prior to the final LWMD decision on whether the file and associated permit was issued, denied or closed. LWMD permits were issued for 24 applications (75%) and eight applications (25%) identified with potential impacts were closed (3), withdrawn by the applicant (2), or denied (3).

Of the 24 permits that were issued, 7 permits (29%) included specific language in the permit regarding threatened and endangered (T&E) species which were likely to occur at the site, 5 permits (21%) included general language regarding the potential presence of T&E species and T& E concerns for 12 permits (50%) were resolved prior to issuance of the DEQ permit.

Addition of T & E Species to State List

Michigan's official list of endangered and threatened species was amended April 9, 2009. The list now includes 396 species, up from the previous total of 342 species. An additional 69 species were added to the state list, although fifteen species were delisted. Snails, freshwater mussels and plants were the most common additions to the new list. As a result, it is likely more shoreline development projects will be flagged for rare species review and comment. Once the newly listed species are documented in the field, at museums, and/or at herbariums their locations will be entered into the Biotics database. With the addition of 54 threatened and endangered species it is prudent for the WD to work with MNFI and other partner's to provide LWMD with critical information regarding these species such as species abstract and best management practices to help prevent impacts to these species from project activities. It is in both the LWMD and the WD's interest to protect endangered and threatened species, as well as special concern species which are not legally protected by state or federal law but which are often believed to be declining and may be added to the list in the future.

Revisiting the MOU (note: MOU per se may be moot)

The 'Memorandum of Understanding which was originally written between the MDEQ and MDNR' and signed in July 1999, should be revisited now that the departments have been united. Phase III of this project may provide further insights regarding how to improve the efficiency and effectiveness of the current process. Some of the current requirements of the MOU (note that old department names are used) which directly affect the environmental review process include:

1) Upon receipt of a permit application, DNR staff informally notifies DEQ of its intent to comment (Appendix B). Comments will be provided to DEQ by DNR staff from the Management Unit where the proposed project is located. (How often is this occurring?)

2) The DEQ will not issue any permit prior to the expiration of the public comment period or until DNR comments have been provided, whichever comes first; except for emergency permits. Permits which do not require a public notice and are reviewed by DNR shall not be issued by DEQ for at least 15 days from the date DEQ provides a copy of the application to DNR, or until DNR comments have been provided, whichever comes first.

3) If DNR concerns regarding protection of threatened and endangered species have been provided to DEQ during application review, any permit issued by DEQ for such projects shall contain conditions that address DNR concerns, or language informing the permitee that further review and approval by DNR may be necessary.

4) The DEQ shall provide a copy of the permit or permit denial to DNR Management Units and to the Wildlife Division to the attention of MNFI (should just be Lansing Wildlife Division) where DNR has provided written comment to DEQ.

5) The DEQ may request DNR assistance prior to issuance of a public notice for any project DEQ deems appropriate. The DNR will participate in pre-public notice review of an application to the extent practicable.

Project Site Selection

Phase II of this study included visiting seventeen LWMD project sites and one potential project site. Sites were chosen based on the high likelihood of potential impacts to rare species. Those project sites where the applicant received a DNR "clearance needed" letter and the resulting survey report described suitable habitat at the site, and/or those sites for which the applicant received a DNR Endangered Species Permit, were visited to evaluate on-site compliance.

Suggested Improvements to Survey Reporting

As mentioned in last year's report, one issue that could improve project analysis and compliance in the future is the survey reports that are provided to the WD as a result of an applicant/landowner receiving a "clearance needed" letter. Survey reports often lack consistent and critical information necessary for the evaluation of rare species impacts. It is recommended that the WD adopt a standardized survey report form to be included with the "clearance needed" letter. All applicants/landowners/consultants would then use this form when conducting a survey and report on the potential for rare species and suitable habitat at a project site. A template for this form has been drafted and should be reviewed and implemented as soon as possible. Information that should be required in a survey report includes:

- Project location
- Description of proposed project with map showing where impacts will occur
- Target species
- Survey date
- Survey start time
- Survey end time
- Weather conditions (temp, wind, % sun, precipitation)
- Snow cover (yes/no)
- Habitat description
- Description of survey methods including map of survey route
- Plant species observed/documented (includes native and non-native)
- Animal species observed/documented
- Representative photographs of specific project site and immediate environs

Project Site Assessments

Summary of Rare Species Documented in Year 1 and Year 2 of the Project

Over the two years of this study, project site assessments were conducted for 24 sites, resulting in the documentation of rare plant species at 17 sites. A total of 31 rare plant occurrences were documented, consisting of 14 new rare plant records and 17 updates of previously known occurrences. Of the 14 new plant records found, 5 consisted of federally listed species (2 Dwarf lake iris records, 3 Houghton's goldenrod records). Of the 17 updated plant records, 11 consisted of federally listed species (5 Houghton's goldenrod records, 4 Dwarf lake iris records, 2 Pitcher's thistle records). For all of the rare plant occurrences observed and documented, 52% (16 of 31 records) consisted of federally listed species. In addition to rare plant records, three rare animal species were observed in the general area of project sites, and five potential high quality examples of coastal fen, a globally imperiled (G1G2) natural community, were observed.

Results from both years of the project indicate that shoreline sites within the study area had a high likelihood of harboring either endangered or threatened plant species. In 2008, with only six sites visited, rare plants were found at 50% of the sites. In 2009, with a much larger sample size (18 sites) rare plants were found at 77% of sites. For the two years combined, rare plants were found at 17 of 24 sites (70.8%), or 3 out of every 4 sites that were visited. These well known rarities, along with many special concern shoreline species, are represented by some of their largest and most exemplary populations in Michigan. The results from the project site assessments confirm that the coastal zone of Alpena, Cheboygan, Chippewa, Mackinac and Presque Isle County contain important areas of biodiversity, and underscore the importance of this portion of Michigan's shoreline.

Evaluation of Project Sites

High quality maps and photographs as part of the LWMD application greatly improve the WD's ability to evaluate a project site for suitable rare species habitat. Whether a rare species had been documented and identified in a "clearance needed" letter or not, when suitable habitat exists for endangered or threatened shoreline species on a property, the applicant/landowner and consultant should be advised of the potential presence of such species and a survey should be required inside and outside of the direct impact zone. Meander surveys conducted in suitable habitat are often acceptable methods for locating rare species. Complete and consistent survey information in areas of suitable habitat enables adequate evaluation of project impacts and when necessary, makes project modifications and communication more successful and less time consuming/costly for state and federal agencies, and for the landowner.

Adequate Analysis and Surveys Completed at Most Project Sites

Beyond the corroboration of shoreline biodiversity, the results of the project site assessments also indicate that most of the time, adequate analysis or surveys were conducted at sites visited in 2009. Permits reflect that either no habitat existed for T&E species at the project site or the potential for impacts to rare species were adequately addressed in the permit. This differed from the results in 2008, which found T & E permit language lacking for eight (44%) of the project sites. In 2009, 15 of the 18 sites visited were analyzed to assess the relationship between what was documented by MNFI and LWMD field staff during the site visits with what was reported

by the applicant, consultant or LWMD staff prior to issuance of the permit. Numerous rare species were found at sites in habitats adjacent to where the project activity was occurring, although these species were not reported nor mentioned in most permits, if indeed they had been observed previously by environmental consultants during their site assessments.

Rare species were only found at 2 sites in the immediate project area that were not previously noted by the applicant/landowner, consultant or LWMD field staff. In one case, the presence of Lake Huron tansy growing approximately 15 feet away from an area at Cheboygan State Park where a permit was issued to MDNR Parks and Recreation Division for mechanical grooming of the beach was not noted and mentioned in the permit, although this species was mentioned in the "clearance needed letter". Specific language should be included in any future permits for beach grooming and the area with the rare plants should be flagged prior to the maintenance activity so that the machine operator will be advised of the location of the Lake Huron tansy and thus avoid any damage to the plants. In another instance, we found Houghton's goldenrod growing in a ditch through which a culvert and drive had been installed. LWMD did not identify this species and it was not noted in the project review report. The WD later provided approval. Although this was a minor activity that likely had minimal impacts to the species, it still would have been better to have some language in the permit notifying the applicant that this rare plant occurred in the project area so that the plants could have been flagged and avoided during construction.

It is encouraging to note that most of the time, the presence of rare species that occur in the project area are documented and potential impacts to these species are addressed in the permit. Overall, the environmental review process appears to be working well with regard to identifying the presence or absence of habitat for documented rare species in wetland habitats along the Great Lakes shoreline where projects are being proposed.

Permit Language

Of the 24 permits that were issued, 9 were denied, withdrawn, closed or pending. Of the remaining 15 permits, 4 contained very specific language regarding the endangered and threatened species known to occur at the site. Applicants were instructed to obtain an endangered species permit if impacts to these species might occur. In addition, one endangered species permit issued by the WD contained very detailed language about the species at the site. This type of precise language is very useful and can serve to educate the applicant about the particular plants and animals which occur on their property so that impacts can be avoided.

Five permits contained very general language about the potential for endangered and threatened species to occur at the site and applicants were instructed to contact the endangered species coordinator if impacts occurred. This language does not provide sufficient guidance to avoid impacts. The potential for the applicant to overlook this statement or to not understand the potential to impact rare species is very high. In addition, it also may not be clear what role the WD and LWMD play in regulating project activities on private land.

In 6 cases, the potential for T&E species was resolved prior to the permit being issued due to the LWMD or WD staff determining that no habitat for T&E species was present at the site or because the permit was for minor activities where the U.S. Army Corps of Engineers has joint jurisdiction.

Through discussions with LWMD field staff it became apparent that at times there is potential for confusion due to a lack of a consistent language in permits with regard to plant terminology. For example, in a permit for a site where dwarf lake iris occurs, the applicant was instructed to transplant "150 plants". Because dwarf lake iris is a low, clone-forming plant, it was not clear to the applicant what the term "stems" referred to. Consistent language and methods should be established for plant species where this type of confusion could occur. When reporting on the occurrence of dwarf lake iris it would be more effective to report on the extent, distribution and density of patches (3 scales) rather than attempting to ascertain the number of individual plants (i.e. genetic individuals). MNFI can be of assistance in suggesting how to design and employ consistent language and guidance in permits.

Permit Violations

At two project sites, it was noted that although boardwalks were constructed according to permit conditions, additional fill was installed illegally above the ordinary high water mark (OHWM) at the end of the boardwalks to provide access to the lake. The coastal fen habitat where these fills occurred is very sensitive and this type of activity should be monitored closely and wetland laws enforced to prevent impacts to this globally imperiled natural community. It is very encouraging that no additional permit violations were noted during 2009 site visits.

Gaps in the ER Process

At the Evergreen Highway project site, a survey was not completed in response to the "clearance needed" letter yet a wetland permit was still issued. The permit that was granted did contain specific language about the potential for impacts to rare species in the project area. During the site visit Lake Huron tansy was documented on the beach adjacent to the boreal forest through which the road was being cleared. This occurrence of Lake Huron tansy was not previously known at the site. If a survey had been completed as required, this species could have been noted in the permit and taken into account prior to the clearing of the road. Information regarding the coastal fen plant species that occur in this area is important to consider when developing a management plan for the future easement that will be associated with this habitat. In addition, the potential for run off and sedimentation associated with the road construction is of concern, as noted in the photo taken of the culvert filled with sediment taken at the site. It is unknown whether the required silt fencing was used to prevent sedimentation into the stream.

In another situation, although dwarf lake iris was noted in the permit to build a boardwalk at the Pollard property, this species was not flagged for a wetland permit which was granted at this site for driveway fill. At six additional sites, rare species were found in adjacent contiguous habitat, although not directly in the area where the project occurred. This type of information is very important for minimizing potential impacts in the future.

Most importantly, there is currently no parallel process for flagging rare species and natural communities that occur in upland habitats. Since the majority of land altering activities occur in upland systems this is a huge gap and as a result these species and communities are highly vulnerable to impacts from poorly planned development. Although this is a very difficult problem to resolve, with the commitment and leadership of the WD, significant effort could be made to address this issue. Various, existing tools could be shared with townships and local

governments to assist them in learning about, protecting and managing unique natural features in their communities to insure long term ecological and economical benefits for their citizens.

Invasive Species

A number of invasive plant species were noted during project site assessments in 2008 and 2009 including such exotic plants as baby's breath (*Gypsophila* spp.), Canada thistle (*Cirsium arvense*), common garden tansy (*Tanacetum vulgare*), spotted knapweed (*Centaurea maculosa*), St. John'-wort (*Hypericum perforatum*), white clover (*Trifolium* spp.), sweet clover (*Melilotus* spp.), giant fescue (*Festuca arundinacea*), narrow-leaved cat-tail (*Typha angustifolia*), mullein (*Verbascum thapsus*), and European helleborine (*Epipactus helleborine*). Because the alarming impacts of exotic species in native ecosystems is well documented, we suggest that recording the presence of invasive species in project areas be incorporated as a component of rare plant surveys conducted at sites.

Training and Education

This project provided an extraordinary opportunity to meet one-on-one with LWMD, MDOT, WD and MNFI personnel at project sites. This mutual training experience involved information sharing about rare species and wetland regulations. Discussions included what is covered or not covered under various administered regulations, what works, what doesn't work, and how to optimally search for and identify rare species. These productive interactions build trust, allow for specific questions and answers to be explored, and highlight the need for additional cross-training opportunities. MNFI personnel were deeply impressed with LWMD field staff's knowledge of wetland flora and their keen interest in enhancing and improving their plant identification skills. Their diligence in assessing potential impacts to rare species and their knowledge of Michigan environmental regulations was consistently noted throughout project site assessments. It is apparent that they do a commendable job, given the amount of ground they have to cover and the time limitations that they commonly face.

MNFI also met with MDOT personnel to review project activities associated with the maintenance of protected plant areas along US-23 and the construction of a ditch to minimize blowing sand and the transplanting of Pitcher's thistle in an impacted area along US-2. MNFI staff were pleased with the careful thought that went into mitigating potential project impacts at both sites and appreciated the time MDOT staff spent discussing the practices that they implemented at the US-2 site, detailed in the Environmental Assessment (Michigan Department of Transportation, 2009) to avoid impacts to rare plants, animals and natural communities. A great deal was learned at the US-2 project site resulting from the planting of marram grass to prevent erosion and the transplanting of 49 Pitcher's thistle plants from affected areas. The survival rate of >50% of the transplants should be considered high. Lessons learned by MDOT will help guide similar efforts in the future. The construction of a bike path along US-23 was designed to minimize disturbance to the dunes and shoreline trees. Ditch maintenance along US-23 is done carefully each year to prevent disruption of hydrology in areas with alvar glade and boreal forest. Interpretive signage would be beneficial to instruct the public about the ecology and value of the rare plants, animals and natural communities which occur in MDOT right of ways, especially in areas where people park to access the shoreline. Grants should be pursued to support this type of effort.

Education is an important component of any successful biodiversity conservation program. Balancing private property rights with the protection of public resources, declining native species and increasing invasive species is not easy but must be done to help landowners become aware of the value and function of the species and ecological processes that occur in the places where they reside. Educating Michigan residents is necessary if we want to be successful at protecting our unique natural resources.

Conclusions and Recommendations

Phase I and Phase II of the environmental review evaluation project provided insights that are the foundation for several recommendations that could improve the efficiency and effectiveness of the environmental review process and maintain the protection of Michigan's biodiversity. These preliminary findings are bulleted below:

Conclusions

- The WD and the LWMD should continue their commitment to and investment in, an efficient yet comprehensive environmental review program. The results of this study strongly corroborate that the environmental review process is working well in wetland habitats along the Great Lakes shoreline and is a vital component for the protection of Michigan's rare and declining plants, animals and natural communities.

- We found that LWMD staff are knowledgeable in all aspects of wetland regulations and permitting procedures and are well trained, very thorough and diligent in implementing the environmental review process. LWMD staff expressed their appreciation for the on-site training they received from the MNFI botanist. Cross training is invaluable for information sharing and should continue.

- The MDOT staff were conscientious in mitigating potential impacts to rare species and natural communities during the implementation of their projects and demonstrated a good understanding of the ecology of the natural resources in coastal areas.

Recommendations

Training

- Facilitate additional DNRE/MNFI assistance for LWMD project consultations and for cross-training opportunities between the WD, LWMD and MNFI.

- Develop resources to identify newly listed species, assess the potential for their occurrence in various habitats, and evaluate activities which could impact these species. These resources could include species abstracts, updating the rare species explorer and the development of best management practices for targeted species.

File Evaluation and Coordination

- Eliminate duplicative efforts by using database software that can be accessed by LWMD and WD staff. Ideally this software would allow two separate customized applications for each Division, but could communicate and transfer information between each application.

- Design innovative tools and techniques to improve the screening of LWMD applications to reduce the number of 'no impact' projects which are reviewed. This would include improving the existing DNRE Endangered Species Assessment web application to allow the users the ability to digitize their entire project boundary, instead of the current limitation of only a single latitude and longitude being recorded.

- Provide WD/MNFI individuals involved with reviewing LWMD applications (2-4 people) with access to the full CIWPIS database (read-only).

- Review the Memorandum of Understanding between the DEQ and DNR that was signed in 1999 and incorporate key points and suggestions into an intra-agency document to improve and streamline the process, now that the departments are unified into the DNRE.

Applications and Survey Reporting

- Require photographs and high quality maps (include north arrow, road names, water bodies, major landforms, general habitat, etc.) of the project site as part of a technically complete LWMD application.

- Design and implement a standardized DNRE survey report form and distribute with the "clearance needed" letters to improve the gathering of consistent critical survey information to evaluate potential impacts of project activities. Require habitat description, survey methodology, photographs and plant list, including any invasive species.

- Advise the applicant/landowner/consultant of the potential presence of rare species and their responsibility to survey for rare species inside and outside of the direct impact zone (i.e. where future impacts may occur – beach, open areas, etc.). Only accept complete, adequate and consistent survey reports of project sites.

Permits

- Insure that permits are not issued to applicants that do not respond to "clearance needed" letters. More communication between LWMD and WD regarding final permit decisions and enforcement of this requirement is needed.

- Include specific language with regards to the rare plants and animals that occur or have potential to occur at project sites in all permits. This language should "stand out" in the permit so that applicants do not overlook the importance of this information. Vague wording should be avoided.

Compliance

- Develop a computerized method for tracking compliance on endangered species permits and permits for projects which have the potential to directly impact rare species. Annual site visits to inspect projects at a small sample of sites with highly vulnerable species is strongly recommended.

Education

- Educate landowners/applicants using multiple communication styles (letters, publications, web, telephone, face-to-face, etc.) about the value and function of the Great Lakes coastal communities and their associated rare species. Include color abstracts, suggested references, and contact information so people know where to go when they have future questions.

Ongoing Efforts

DNRE received funding from the Michigan Coastal Management Program to work with Michigan Natural Features Inventory to complete the final phase of this project (Phase 3). The final phase will include conducting a survey of LWMD staff as well as environmental programs from all states across the country to identify specific recommendations for improving the environmental review process. We look forward to learning first hand from those working in the field in the LWMD and other divisions and departments as appropriate. In addition we are eager to investigate how other states are addressing the challenges of environmental review and discover innovative approaches they are taking to make their programs more effective.

We thank the (former) Michigan Department of Environmental Quality, Michigan Coastal Management Program and Land and Water Management Division for supporting and funding this project. We also thank the Michigan Department of Natural Resources, Wildlife Division and Michigan State University Extension, Michigan Natural Features Inventory for their participation and funding of the project. In addition we are grateful for the invaluable assistance provided by the Land and Water Management Division field staff and the Michigan Department of Transportation, Environmental Section staff, during visits to project sites. Finally we appreciate the support of the project officer, Alisa Gonzales-Pennington, who provided valuable input and guidance throughout the project.

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Appendix A: Photographs of Project Sites and Site Field Forms

Bill and Shannon Bice
06-16-0059 Location: Cheboygan County

Top Photo: Path to beach from newly constructed home
Bottom photo: Pathway to narrow beach

Top Photo: Slope to beach stabilized with cement blocks
Bottom photo: Lake Huron Tansy location immediately west on adjacent property

Environmental Review Evaluation Project - Project Site Form

Michigan DNR

Red fields: Fill out on-site
Black fields: Fill out prior to field visit

DEQ

Survey date: 08-04-2009	Time: 12:15 – 12:30 am or pm (circle) [pm circled]

Surveyors: Mike Penskar, Scott Rasmussen, Daria Hyde	Weather (temp, sun, clouds, wind): partly cloudy

DEQ File #: 06-16-59	Applicant's Name: Mr & Mrs. Bill Bice – 8257 Cedarwood Trail
DNR project #: 47435	Project Address: Cordwood Point #1 Subdivision, Lot 17
County: Cheboygan	City, Zip: Cedarwood trail and Ridgeview Rd.
T, R, S: T38N R1E Sec 21	US 23 to Straitsview Dr. Go down to lake, turn left on Cordwood trail. Go just past Cedarwood to site on lake.

Margin note: wood, ranch blue-gray garage

Past photos? Yes / No (circle) [Yes circled]	Landowner present? Yes / No (circle) [No circled]
Took photos on day of evaluation: Yes / No (circle) [Yes circled]	Allowed to survey property? Yes / No (circle)
How many? 4 7931 – 7934	

Permitted Activity (from DEQ permit): Construct new home 60' back from OHWM with deck, well, septic and driveway; existing garage.

✓ Construct 52 foot by 28 foot single family house and a new septic system

Rare species potentially impacted (ER letter): Pitcher's thistle & Lake Huron Tansy

Rare species documented prior to visit (surveys, ES Permit): None found during survey by Bert Ebbers.

Potential habitat on applicant's property? Yes / No [Yes circled]

Describe habitat: Bits of potential – though just W of property [illegible] LHT. Quite weedy. Centaurea, Silene, Dune Ammophila, Polygonum [illegible], [illegible], Salix myricoides, Artemisia, Asclepias [illegible],

Tansy present on [illegible] W

Estimate of habitat extent (acres, sq meters, sq feet?): ~ 90' x 20' – 1800 sq ft [sq feet circled]

GPS used? Yes / No (circle) [Yes circled]	
Type of GPS: Garmin GPS Map 76S	Waypoint name:
Waypoint name: CH-BICE	Waypoint name:
Waypoint name:	Waypoint name:

on adjacent property

Michigan DNR

Environmental Review Evaluation Project - Project Site Form

DEQ

GPS - CIT - BICE - AD

Plant species documented: Taxus - Fraxinus Mixed # Ramets (total # individuals): ~8 # Genets (total # of groups): ? a few Population density (scattered, clumps, evenly distributed) c/sm 4. / M Phenology: Post flw / Fr, Evidence of reproduction? Yes / No / Unknown	Plant species documented: _____ # Ramets (total # individuals): _____ # Genets (total # of groups): _____ Population density (scattered, clumps, evenly distributed) _____ Phenology: _____ Evidence of reproduction? Yes / No / Unknown

Plant species documented: _____ # Ramets (total # individuals): _____ # Genets (total # of groups): _____ Population density (scattered, clumps, evenly distributed) _____ Phenology: _____ Evidence of reproduction? Yes / No / Unknown	Plant species documented: _____ # Ramets (total # individuals): _____ # Genets (total # of groups): _____ Population density (scattered, clumps, evenly distributed) _____ Phenology: _____ Evidence of reproduction? Yes / No / Unknown

Rare animal species documented: _____	Rare species on **adjacent** property? (Yes) / No / Unsure Species on ~~**adjacent**~~ property: _____

Permit requirements followed: (Yes) / No / Unsure (circle)

Comments on project activity: _____

No Habitat on property

Curt Stewart
DEQ LWMD File: 06-16-0013, Location: Cheboygan County

Top Photo: View of home and stone breakwall
Bottom photo: Mike Penskar points out Lake Huron tansy to Scott Rasmusson

Environmental Review Evaluation Project - Project Site Form

Michigan DNR

Red fields: Fill out on-site
Black fields: Fill out prior to field visit

Survey date: 08-04-2009	Time: 11:45am - 2:05 am or pm (circle)

Surveyors: Mike Penskar, Scott Rasmussen, Daria Hyde	Weather (temp, sun, clouds, wind): partly cloudy 67°

DEQ File #: 06-1643	Applicant's Name: Curt Steuart
DNR project #: 46205	Project Address: 8857 Cordwood Trail
County: Cheboygan	City, Zip: Cheboygan
T, R, S: T38N R1E Sec 21	

Past photos? **Yes** / No (circle)	Landowner present? **Yes** / No (circle)
Took photos on day of evaluation: **Yes** / No (circle)	Allowed to survey property? **Yes** / No (circle)
How many? 3 - 7928 - 7930	

Permitted Activity (from DEQ permit): Construct a new single family house with an attached garage. and a septic system..

Rare species potentially impacted (ER letter): Rams head lady's slipper, Pitcher's thistle, Lake Huron Tansy

Rare species documented prior to visit (surveys, ES Permit): Lake Huron tansy found and Pitcher's thistle habitat found 23' feet away, seperated by a stone breakwall.

Potential habitat on applicant's property? **Yes** / No — not in project area.

Describe habitat: Small, limited strip of shoreline dunes, ca. 15 to 18 ft in width, abrupt "little bluff" along beach strand. Tansy at [illegible] lip of dunes ~8 ft long patch, associated w/ Elymus can., Lathyrus japonicus, Ammophila, [illegible] [illegible] [illegible], Agropyron dasystachyum present, Artemisia, Prunus pumila

Estimate of habitat extent (~~acres~~, sq meters, **sq feet?**): 90 x 20 ft 1800 sq ft.

GPS used? **Yes** / No (circle)	
Type of GPS: Garmin GPSmap 74S	Waypoint name:
Waypoint name: CH-STE	Waypoint name:
Waypoint name:	Waypoint name:

Environmental Review Evaluation Project - Project Site Form

Plant species documented: Lake Huron Tansy # Ramets (total # individuals): 10-30 # Genets (total # of groups): _____ Population density (scattered, clumps, evenly distributed) Phenology: sterile Evidence of reproduction? Yes / (No) / Unknown GPS - CH-STE-LHT	Plant species documented: _____ # Ramets (total # individuals): _____ # Genets (total # of groups): _____ Population density (scattered, clumps, evenly distributed) Phenology: _____ Evidence of reproduction? Yes / No / Unknown

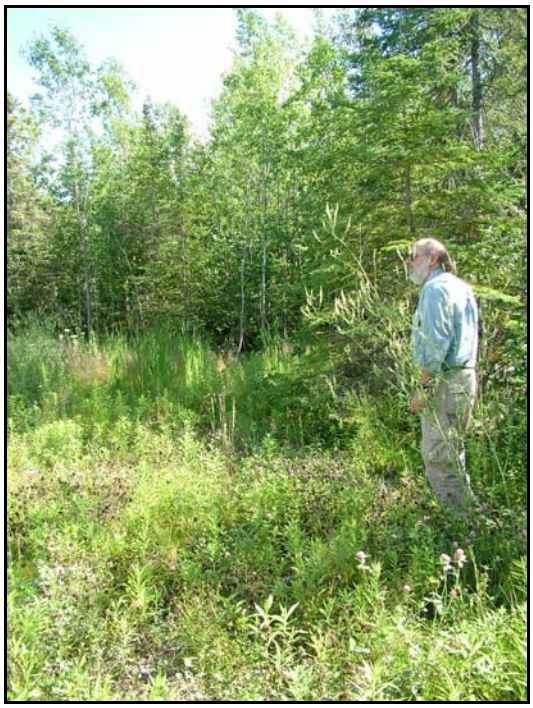
Plant species documented: _____ # Ramets (total # individuals): _____ # Genets (total # of groups): _____ Population density (scattered, clumps, evenly distributed) Phenology: _____ Evidence of reproduction? Yes / No / Unknown	Plant species documented: _____ # Ramets (total # individuals): _____ # Genets (total # of groups): _____ Population density (scattered, clumps, evenly distributed) Phenology: _____ Evidence of reproduction? Yes / No / Unknown

Rare animal species documented: _____	Rare species on **adjacent** property? Yes / No / Unsure Species on **adjacent** property: _____

Permit requirements followed: (Yes) / No / Unsure (circle)

Comments on project activity: House and garage built away from shoreline habitat and separated by (23ft) stone boardwall from habitat supporting Lake Huron Tansy and potential habitat for Pitcher's thistle

Jane Magers
DEQ LWMD File: 07-16-0011, Location: Cheboygan County



Top and Bottom photo: Mixed hardwood-conifer swamp habitat

Environmental Review Evaluation Project - Project Site Form

Red fields: Fill out on-site
Black fields: Fill out prior to field visit

Survey date: 08-04-2004 | Time: 4:25-4:30 am or pm (circle)

Surveyors: Mike Penskar, Scott Rasmussen, Dacia Hydl | Weather (temp, sun, clouds, wind): mostly sunny 70°

DEQ File #: 07-16-11
DNR project #: 48132
County: Cheboygan
T, R, S: T 39N R 3W, Sec 20

Applicant's Name: Jane Magers
Project Address: 20629 Mary Ann Blvd. - Mary Ann Estates at US-23
City, Zip: Mackinac City Lot #31

Past photos? (Yes) / No (circle)
Took photos on day of evaluation: (Yes) / No (circle)
How many? 2 - 7956-7957

Landowner present? Yes / (No) (circle)
Allowed to survey property? Yes / No (circle)

Permitted Activity (from DEQ permit): Excavate up to 362 cubic yards of native soils from 0.098 acres of wetland, temporarily stocking piling on site, with the final placement in an upland/non-wetland area. Place up to 444 cubic yards of clean fill in 0.17 acres of wetland for the construction of a house, garage, driveway and drainfield.

Rare species potentially impacted (ER letter): Dwarf Lake Iris.

Rare species documented prior to visit (surveys, ES Permit): none found during survey.

Potential habitat on applicant's property? Yes / (No)
Describe habitat: mixed hardwood / conifer swamp

Estimate of habitat extent (acres, sq meters, sq feet?):

GPS used? (Yes) / No (circle)
Type of GPS: Garmin GPS Map 76S
Waypoint name: CH-MA6
Waypoint name:
Waypoint name:
Waypoint name:
Waypoint name:

Sedkey and Co. LLC
DEQ LWMD File: 08-16-0066, Location: Cheboygan County

Top photo: Flagging for driveway route proposed through boreal forest habitat
Bottom photo: Habitat for Houghton's goldenrod not found where boardwalk is proposed.

Environmental Review Evaluation Project - Project Site Form

Red fields: Fill out on-site
Black fields: Fill out prior to field visit

Survey date: 08-04-2009 | Time: 4:00 - 4:10 am or pm (circle)

Surveyors: Mike Penskar, Scott Rasmussen, David Hyde | Weather (temp, sun, clouds, wind): mostly clear, 70°

DEQ File #: 08-16-64 (previous permit 04-16-0010)
DNR project #: 54345
County: Cheboygan
T, R, S:

Applicant's Name: Sedkey & Co. L.L.C.
Project Address: US-23 and Freedom Rd.
City, Zip: Approx 1.15 mi SE of intersection along US-23 pole located N. of US-23. Located E. of U-shaped drive and existing access drive to property/house to the west.

Past photos? Yes / (No) (circle)
Took photos on day of evaluation: (Yes) / No (circle)
How many? 5 - 7951 - 7955

Landowner present? Yes / (No) (circle)
Allowed to survey property? Yes / No (circle)

Permitted Activity (from DEQ permit): Place up to 180 cubic yds of clean fill over three wetland crossings (0.056 ac wetland) totaling 152 linear feet of regulated fill, with a base width not to exceed 16 ft for a single family driveway that terminates at an upland building site. Three 18 ft by 12 in culverts will be installed in the driveway. Construct a 27 ft long by 6 foot wide open pile boardwalk, as indicated on plans to access Lake Huron.

Rare species potentially impacted (ER letter): Houghton's Goldenrod

Rare species documented prior to visit (surveys, ES Permit): project review - S.R.

Potential habitat on applicant's property? Yes / (No)
Describe habitat: No habitat for HG. at proposed location for drive & boardwalk. Forest - driveway proposed. Narrow swale & Dense vegetated swale w/ organic substrate not suitable for HG.

Estimate of habitat extent (acres, sq meters, sq feet?): none

GPS used? (Yes) / No (circle)
Type of GPS: Garmin GPS Map 76 S
Waypoint name: CH-SED-SW (swale)
Waypoint name:
Waypoint name:
Waypoint name:
Waypoint name:

MDNR Parks and Recreation Division
LWMD DEQ File # 06-16-0009, Location Cheboygan County

Top photo: Area of beach that has been mechanically groomed
Bottom photo: Lake Huron tansy growing approximately 15' from groomed edge

Environmental Review Evaluation Project - Project Site Form

Red fields: Fill out on-site
Black fields: Fill out prior to field visit

Survey date: 08-04-2009 | Time: 9:30-11:00 (am) or pm (circle)

Surveyors: Mike Penskar, Scott Rasmusson, Daria Hyde | Weather (temp, sun, clouds, wind): partly cloudy 72° 25-30 mph

DEQ File #: 06-16-9
DNR project #: 46084
County: Cheboygan
T, R, S: T38N R1W Sec. 27

Applicant's Name: MDNR Parks & Recreation Div.
Project Address: Cheboygan S.P. - Duncan Bay Drive at Cheb S.P. Beach Road
City, Zip: Cheboygan
From Park H.Q. south 1 mile on Beach Rd. - From Bathhouse walk N.W to lake shore edge.

Past photos? Yes / (No) (circle)
Took photos on day of evaluation: (Yes) / No (circle)
How many? 7917 - 7926

Landowner present? Yes / No (circle)
Allowed to survey property? Yes / No (circle)

Permitted Activity (from DEQ permit): Mechanically grade a previously graded 800-foot by 300-foot area for use as a public beach for a period of five years.

Rare species potentially impacted (ER letter): Houghton's goldenrod, Lake Huron tansy, Pitcher's thistle, Lake Huron locust, American bittern, Great Lakes Marsh, Interdune wetland
Rare species documented prior to visit (surveys, ES Permit):

Potential habitat on applicant's property? Yes / (No) — HG - behind dune in swale.
Describe habitat: Area groomed has been maintained for many years. There are no wetland plants present in the groomed area.
Lake Huron Tansy found 15-20' from groomed edge at bse of dune - 200 stems scattered across foredune. Photo 7923-7924, 7925, 7926
Juncus balticus, sandcherry, wormwood
Estimate of habitat extent (acres) sq meters, sq feet?): 1-2 ac small patch of beach groomed

GPS used? (Yes) / No (circle) Garmin GPS Map 76S
Type of GPS:
Waypoint name: CH-SP - CH-SP-LHT
Waypoint name:
Waypoint name:
Waypoint name:
Waypoint name:

Michigan DNR

Environmental Review Evaluation Project - Project Site Form

DEQ

Plant species documented: Lake Huron Tansy
Ramets (total # individuals): [illegible]
Genets (total # of groups):
Population density (scattered, clumps, evenly distributed)
Phenology: [illegible]
Evidence of reproduction? Yes / No / Unknown

Plant species documented: Houghton's Goldenrod
Ramets (total # individuals): [illegible]
Genets (total # of groups): MANY
Population density (scattered, clumps, evenly distributed) [illegible]
Phenology: [illegible]
Evidence of reproduction? (Yes) / No / Unknown
[illegible]

Plant species documented:
Ramets (total # individuals):
Genets (total # of groups):
Population density (scattered, clumps, evenly distributed)
Phenology:
Evidence of reproduction? Yes / No / Unknown

Plant species documented:
Ramets (total # individuals):
Genets (total # of groups):
Population density (scattered, clumps, evenly distributed)
Phenology:
Evidence of reproduction? Yes / No / Unknown

Rare animal species documented: Common Tern (2) on beach at water's edge, 2 - bald eagles flew by

Rare species on **adjacent** property? [illegible] No / Unsure
Species on **adjacent** property: [illegible]

Permit requirements followed: (Yes) / No / Unsure (circle)
Comments on project activity:
[illegible] Solidago ohioensis

Associates for LHT: Prunus pumila, wormwood, dune willow (2 sp) bearberry, sand reed grass, marram grass, milkweed, knapweed, beach pea

* Recommend staking/flagging LHT prior to grooming
* - Stay away from base of dune where tansy grows

17927- Ohio & Houghton's compare [illegible]

[illegible] Bob Clancy

Proposed RV park near Duncan Bay
Permit not yet submitted, Location: Cheboygan County

Top photos: An RV park may be proposed in area that grades into northern hardwood conifer swamp and an interdunal wetland. Dwarf Lake iris was noted on a cobble beach ridge near shore

Bottom photo: Cobble shoreline provides potential habitat for Houghton's goldenrod

Environmental Review Evaluation Project - Project Site Form

Red fields: Fill out on-site
Black fields: Fill out prior to field visit

Survey date: 08-04-2009 | Time: 1:30 - 2:30 am or (pm) (circle)

Surveyors: Scott Rasmussen, Daria Hyde, Mike Penskar | Weather (temp, sun, clouds, wind): Sunny 74°

DEQ File #: Duncan Bay - proposed RV park -
DNR project #:
County: Cheboygan
T, R, S:

Applicant's Name:
Project Address:
City, Zip:

Past photos? Yes / No (circle)
Took photos on day of evaluation: (Yes) / No (circle)
How many? 7935 - 7150

Landowner present? Yes / No (circle)
Allowed to survey property? Yes / No (circle)

Permitted Activity (from DEQ permit): propose 3ac fill for RV community development

Rare species potentially impacted (ER letter):

Rare species documented prior to visit (surveys, ES Permit):

Potential habitat on applicant's property? Yes / No
Describe habitat: N hardwood - conifer swamp community that graded into an Interdunal wetland depression with Houghton's Goldenrod Cobble shore. has potential for HC.

DLI - found on small cobble beach ridge. - 3m area
Assoc: cedar - buffaloberry
w spruce - paper birch
balsam fir

Estimate of habitat extent (acres, sq meters, sq feet?): unknown

GPS used? (Yes) / No (circle)
Type of GPS: Garmin GPS map 76-S
Waypoint name: CH-DUN-[redacted] DLI
Waypoint name:
Waypoint name:
Waypoint name:
Waypoint name:

Mackinac County Road Commission
LWMD DEQ File # 08-49-0080, Location: Mackinac County

Top photo: Proposed road flattening activity should not impact MI monkey flower habitat
Bottom photo: *Chrysoplenium americanum* looks similar to MI monkey flower

Environmental Review Evaluation Project - Project Site Form

Red fields: Fill out on-site
Black fields: Fill out prior to field visit

Survey date: 08-18-2009 | Time: 4:30pm - 5 am or (pm) (circle)

Surveyors: Mike Penskar, Doria Hyde | Weather (temp, sun, clouds, wind): 72° mostly cloudy

DEQ File #: 08-49-80
DNR project #: 54325
County: Mackinac
T, R, S: 42N R7W Sec 10

Applicant's Name: Mackinac County Road Commission
Project Address: ~~Epoufette Bay Road~~ Bellant Road
City, Zip:

Past photos? (Yes) / No (circle)
Took photos on day of evaluation: (Yes) / No (circle)
How many? (4) 8082 - 8085

Landowner present? Yes / No (circle)
Allowed to survey property? Yes / No (circle)

Permitted Activity (from DEQ permit): ~~Permit Pending~~ -- Permit issued 7/31/09

Proposed activity is to flatten the foreslope on the north side of Epoufette Bay Rd. (Bellant Road?) to meet safety standards and to remove the existing guardrail in T42N R4W Sec 10.

Rare species potentially impacted (ER letter): Mimulus glabratus var. michiganiensis - MI Monkey-flower

Rare species documented prior to visit (surveys, ES Permit): 50 ft uphill from potential Michigan monkey-flower habitat noted by Ginny Pennaly - MI-monkey flower population documented in 9/08 by Mike Penskar, Lori Sargent and Mike Smolinski

Potential habitat on applicant's property? (Yes) / No

Describe habitat: Cedar swamp, Balsam fir - sandy bottom cold spring

Chrysosplenium americanum - growing in clear spring on W side of road (looks very similar)

Alder, whitespruce cedar

Yew - growing near seeps

Monkey-flower habitat but should not be impacted by activity

Jeopardized assoc.

Estimate of habitat extent (acres, sq meters, sq feet?):

GPS used? (Yes) / No (circle)
Type of GPS: Garmin GPS Map 76 S
Waypoint name: MAC-MCRC-S
Waypoint name:
Waypoint name:
Waypoint name:
Waypoint name:

permit issued 7/31/09

Dr. Zimmerman - Lake State Univ.

Plant species documented: _____ # Ramets (total # individuals): _____ # Genets (total # of groups): _____ Population density (scattered, clumps, evenly distributed) _____ Phenology: _____ Evidence of reproduction? Yes / No / Unknown	Plant species documented: _____ # Ramets (total # individuals): _____ # Genets (total # of groups): _____ Population density (scattered, clumps, evenly distributed) _____ Phenology: _____ Evidence of reproduction? Yes / No / Unknown

Plant species documented: _____ # Ramets (total # individuals): _____ # Genets (total # of groups): _____ Population density (scattered, clumps, evenly distributed) _____ Phenology: _____ Evidence of reproduction? Yes / No / Unknown	Plant species documented: _____ # Ramets (total # individuals): _____ # Genets (total # of groups): _____ Population density (scattered, clumps, evenly distributed) _____ Phenology: _____ Evidence of reproduction? Yes / No / Unknown

Rare animal species documented: _____	Rare species on **adjacent** property? Yes / No / Unsure Species on **adjacent** property: _____

Permit requirements followed: Yes / No / Unsure (circle) – project not implemented yet

Comments on project activity: _____

Michigan Department of Transportation
MDNR Endangered Species permit #1528, Location: Mackinac County

Top photo: Marram grass planted to stabilize sand dunes and to prevent erosion
Bottom photo: Mike Penskar discusses the planting with Dave Schuen and Ulrika Zay MDOT

Top photo: V-Ditch cut at 45 degree angle to minimize sand blowing over road
Bottom photo: John Gustafson, DEQ, looks closer at Lake Huron tansy growing next to road

Top photo: Mike Penskar discusses the Pitcher's thistle transplant with MDOT staff
Bottom photo: Boardwalk maintained for foot traffic to prevent trampling and erosion

Michigan DNR

Environmental Review Evaluation Project - Project Site Form

Red fields: Fill out on-site
Black fields: Fill out prior to field visit

Survey date: 08-28-2009	Time: ______ am or (pm) (circle)
Surveyors: Mike Penskar, Daria Hyde, Dave Schuen, Ulrika Zay, Dick Wolinski	Weather (temp, sun, clouds, wind): 74° pt cloudy
DEQ File #: 07-49-50 expires 12/31/2013 DNR project #: 50511 County: Mackinac T, R, S: T41N R5W sections 5, 8, 9, 16, 22	Applicant's Name: MDOT Project Address: US-2 City, Zip: 1 mile east of Brevort Campground Road to Point Aux Chenes Rd
Past photos? (Yes) / No (circle) Took photos on day of evaluation: Yes / No (circle) How many? ______	Landowner present? Yes / No (circle) N/A Allowed to survey property? Yes / No (circle)

Permitted Activity (from DEQ permit): Construct and maintain 1.56 miles of V-bottom ditch for a safety upgrade of the clear zone area and to improve drainage along the south side of US-2. Restoration and planting of eroded areas on the south side of the project. Mechanical removal of sand from boardwalk approaches

Rare species potentially impacted (ER letter): Cirsium pitcheri, Tanacetum huronense, Charadrius melodus, Stellaria longipes (sc)
Rare species documented prior to visit (surveys, ES Permit): ES permit # 1486 expires 12/31/2009 Cirsium pitcheri, Tanacetum huronense, Trimerotropis huronidna

Potential habitat on applicant's property? Yes / No
Describe habitat: Foredune on N & S side of US-2

Estimate of habitat extent (acres, sq meters, sq feet?): ______

GPS used? Yes / No (circle) Type of GPS: Garmin GPS Map 76 Waypoint name: ______ Waypoint name: ______	Waypoint name: ______ Waypoint name: ______ Waypoint name: ______

What is role of transplanting activity? Took out 44 plants. 52 plants [illegible]
Remove plants
Dissemination of seeds
Use plants for restoration sites??
> Major effort & money

Plant species documented: _____ # Ramets (total # individuals): _____ # Genets (total # of groups): _____ Population density (scattered, clumps, evenly distributed) _____ Phenology: _____ Evidence of reproduction? Yes / No / Unknown	Plant species documented: _____ # Ramets (total # individuals): _____ # Genets (total # of groups): _____ Population density (scattered, clumps, evenly distributed) _____ Phenology: _____ Evidence of reproduction? Yes / No / Unknown

Plant species documented: _____ # Ramets (total # individuals): _____ # Genets (total # of groups): _____ Population density (scattered, clumps, evenly distributed) _____ Phenology: _____ Evidence of reproduction? Yes / No / Unknown	Plant species documented: _____ # Ramets (total # individuals): _____ # Genets (total # of groups): _____ Population density (scattered, clumps, evenly distributed) _____ Phenology: _____ Evidence of reproduction? Yes / No / Unknown

Rare animal species documented: _____	Rare species on **adjacent** property? Yes / No / Unsure Species on **adjacent** property: _____

Permit requirements followed: (Yes) / No / Unsure (circle)

Comments on project activity:

PT transplant - On day of planting there were excellent weather conditions. It rained that day prior and the day after the transplant

lesson learned: next time should plant area when equipment disturbed soil.
- 13/22 plants in gaitor survived

West #1 - 3yr monitoring. MDOT offered USFS extra plants,
- Maram grass planted to prevent erosion & stabilize dunes
- permit called for coconut fiber mat - doesn't decompose in sand

West #2 - V-ditch cut at 45° angle - planted w/ maram grass will maintain spacing in fall
Photo 8059-8064

West #3 - 1000' buffer on either side of Brevoort River
- Parking on MDOT ROW - PSA's -
No designated parking areas, no signage
- Should have interpretive signage and kiosk
- Cost prohibitive to redo signs.

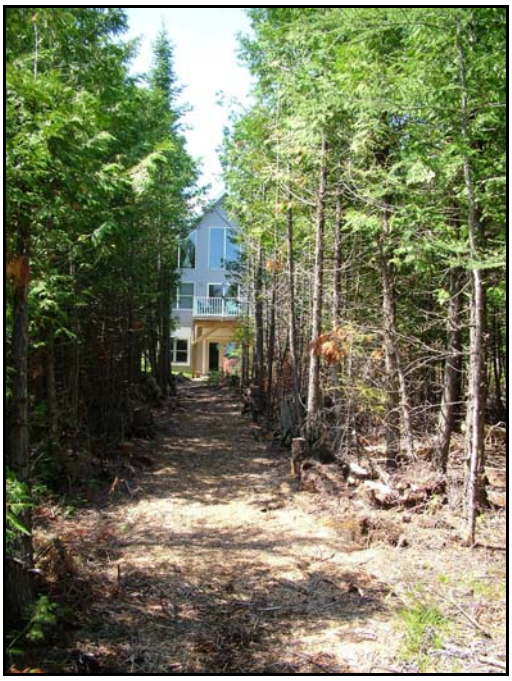
West #4 - PT transplant.

West #5 Boardwalk - by product of permit to clear boardwalk

* Last photo 8081

25% PSA's - US-2

Bernard and Trudy Butler
LWMD DEQ File # 08-71-0002, Location Presque Isle County



Top left photo: A minimum width viewshed was cut through the boreal forest
Top right photo: Mike Penskar inspects the vegetation with LWMD staff

Bottom left photo: Boardwalk and temporary walkway extends over swale,
Bottom right photo: Northern fen with swale and potential rare plant and animal habitat

Environmental Review Evaluation Project - Project Site Form

Red fields: Fill out on-site
Black fields: Fill out prior to field visit

Survey date: 08-05-2009 | Time: 12:30-1:30 am or pm (circle)

Surveyors: Roxanne Merrick, Mike Arevalo, Marcy Knol, Mike Penstar, Daria Hyde | Weather (temp, sun, clouds, wind): Sunny 72°

DEQ File #: 08-71-2
DNR project #: 52156
County: Presque Isle
T, R, S: T34N R8E Sec. 20

Applicant's Name: Bernard and Trudy Butler
Project Address: 6407 Grand Lake Rd.
City, Zip: Intersection of Kaufman Rd & Gr. Lake Rd. N on Gd Lake Rd to Number 6407 Turn E into driveway house blue grey/white "Barney & Trudy" sign on driveway

Past photos? (Yes) / No (circle)
Took photos on day of evaluation: (Yes) / No (circle)
How many? 7987-7996

Landowner present? Yes / (No) (circle)
Allowed to survey property? Yes / No (circle)

Permitted Activity (from DEQ permit): Discharge 36 cuyds of woodchips within an area 270 feet long by 4 foot base width by approx 10 inches deep; construct one elevated boardwalk no greater than 433 feet long by 3 feet wide for accessing Lake Huron. The boardwalk shall never be placed in the water; this may include removal of section during periods of higher water.

Rare species potentially impacted (ER letter): Pitcher's thistle, Houghton's goldenrod, Dwarf lake iris, Butternut.

Rare species documented prior to visit (surveys, ES Permit): Dwarf lake iris documented at site. Habitat on site includes forested wetland and rich fen.

Potential habitat on applicant's property? (Yes) / No
Describe habitat: Northern fen with swale ridge & swale topography
Potential for Hine's Eyed Orchid, Kirtland's Snake, Bullrush Sedge, Butternut

Estimate of habitat extent (acres, sq meters, sq feet?): 3-5

GPS used? (Yes) / No (circle)
Type of GPS: Garmin GPS Map 76 S
Waypoint name: PI-BUT-BOA
Waypoint name:
Waypoint name:
Waypoint name:
Waypoint name:

Environmental Review Evaluation Project - Project Site Form

Michigan DNR

Plant species documented: # Ramets (total # individuals): 100-200 in ca. 2 small patches # Genets (total # of groups): 2 Population density (scattered, clumps, evenly distributed) 2 loose clones Phenology: Evidence of reproduction? Yes / No / **(Unknown)**	Plant species documented: # Ramets (total # individuals): # Genets (total # of groups): Population density (scattered, clumps, evenly distributed) Phenology: Evidence of reproduction? Yes / No / Unknown
Plant species documented: # Ramets (total # individuals): # Genets (total # of groups): Population density (scattered, clumps, evenly distributed) Phenology: Evidence of reproduction? Yes / No / Unknown	Plant species documented: # Ramets (total # individuals): # Genets (total # of groups): Population density (scattered, clumps, evenly distributed) Phenology: Evidence of reproduction? Yes / No / Unknown
Rare animal species documented:	Rare species on **adjacent** property? Yes / No / Unsure Species on **adjacent** property:

Permit requirements followed **(Yes)** / No / Unsure (circle)

Comments on project activity: Did a nice job of only cutting enough trees for a view, put in boardwalk and temporary walkway below OHWM

Pop location: under Thuja, Alnus, ~~Picea glauca~~ w/ Pleurozium, Betula pap, Arctostaphylos, Carex capillaris, Ledum, Marchantia.

Evergreen Hwy. LLC
LWMD DEQ File #08-71-0004, Location: Presque Isle County

Top photos: New section of road rerouted away from Lake Huron through boreal forest

Bottom photos: It is important to control sedimentation and run off to protect fen and shoreline species associated with road construction and future development.

Top photos: Coastal fen provides habitat for pitcher-plant, bladderwort, and butterwort (SC), the latter shown in photo on right

Bottom photos: Old road is disruptive to the hydrology of the fen. Development should proceed carefully to protect this unique coastal fen resource.

Environmental Review Evaluation Project - Project Site Form

Red fields: Fill out on-site
Black fields: Fill out prior to field visit

Survey date: 06-05-2009 | Time: 2:30 - 3:30 am or (pm) (circle)

Surveyors: Mike Penskar, Daria Hyde, Roxanne Merrick, John Arevalo, Marcy Knol | Weather (temp, sun, clouds, wind): sunny 72°

DEQ File #: 08-71-4
DNR project #: 52042
County: Presque Isle.
T, R, S: T36N R4E Sec 20

Applicant's Name: Evergreen Highway, LLC - George Hess
Project Address: Evergreen Hwy & US-23 - Proceed North on Evergreen Hwy for 0.74mi passing Kaline Dr. and ending at lg vacant parcel in project center.

Past photos? Yes / (No) (circle)
Took photos on day of evaluation: (Yes) No (circle)
How many? 7797 - 8018

Landowner present? Yes / No (circle)
Allowed to survey property? Yes / No (circle)

Permitted Activity (from DEQ permit): Reroute a section of Evergreen Hwy away from the Lk Huron shoreline by mechanically excavating approx 170 cuyds of spoils from a max. area 170' x 46' wide. Discharge approx. 968 cuyds of clean fill within approx 0.316 acres. Construction will include mitigation via restoration of the old road grade and executing a cons. easement over 16.43 ac. (excluding road R.O.W. and powerline easement areas)

Rare species potentially impacted (ER letter): Pitcher's thistle, Houghton's goldenrod, Pine drops, Lake Huron locust, Butternut, E. Massasauga.
Rare species documented prior to visit (surveys, ES Permit): no - did not get clearance

Potential habitat on applicant's property? (Yes) near beach / (No) not in project vicinity
Describe habitat: Coastal dune, bordered by interdunal areas with coastal fen
Road thru Boreal Forest.

Estimate of habitat extent (acres) sq meters, sq feet?): Approx. .5 mi of road relocated

GPS used? (Yes) / No (circle)
Type of GPS: Garmin GPS Map 765
Waypoint name: PI-EV-Hwy
Waypoint name:
Waypoint name:
Waypoint name:
Waypoint name:

Lead
* Fen could be within up - Give info to Brad (LIP) Brian Piccolo.

Environmental Review Evaluation Project - Project Site Form

Michigan DNR

DEQ

PI-EU-LIT Plant species documented: Lake Huron Tansy # Ramets (total # individuals): 100-200 stems # Genets (total # of groups): 7 Population density (scattered, clumps, evenly distributed) scattered Phenology: Evidence of reproduction? Yes / No / Unknown	PI-EU-BUT Plant species documented: Butterwort PINGUICULA VULGARIS # Ramets (total # individuals): several 100 # Genets (total # of groups): " " Population density (scattered, clumps, evenly distributed) concentrated in 3 + patches Phenology: Evidence of reproduction? Yes / No / Unknown

Plant species documented: # Ramets (total # individuals): # Genets (total # of groups): Population density (scattered, clumps, evenly distributed) Phenology: Evidence of reproduction? Yes / No / Unknown	Plant species documented: # Ramets (total # individuals): # Genets (total # of groups): Population density (scattered, clumps, evenly distributed) Phenology: Evidence of reproduction? Yes / No / Unknown

Rare animal species documented:	Rare species on **adjacent** property? Yes / No / Unsure Species on **adjacent** property:

Permit requirements followed: Yes / No / (Unsure) (circle)

Comments on project activity:

Pinguicula associates Calamagrostis Canadensis, Solidago uliginosa, Cladium mariscoides, Hypericum kalmianum, Rhynchospora fusca, Tofieldia glutinosa

Taxa of concern associate: Arctostaphylos uva-ursi, Arabis lyrata

Important to control sedimentation & run off to protect fen and shoreline species.

Was siltation barrier installed & maintained?

William Pollard
LWMD DEQ File # 08-49-0010, Location Presque Isle County

Top photos: Dwarf Lake Iris growing adjacent to driveway (not flagged in fill application)

Bottom photos: Boardwalk through fen built according to permit. Butterwort (SC) in fen

Top photo: Unpermitted wetland fill below the OHWM used to extend boardwalk
Bottom photo: Fen plants growing adjacent to illegal fill near the shore

Environmental Review Evaluation Project - Project Site Form

Red fields: Fill out on-site
Black fields: Fill out prior to field visit

Survey date: 08-05-2009 | Time: 11:30 - 12:20 am or pm (circle)

Surveyors: John Arevalo, Roxanne Merrick, Mercy Knoll, Mike Penstar, Daria Hyde | Weather (temp, sun, clouds, wind): Sunny/Mostly Clear 65° 10-15 mph near shore 0-5 upland

DEQ File #: 09-71-14
DNR project #: 50547
County: Presque Isle
T, R, S: T 34N 8E Sec. 20

Applicant's Name: William Pollard.
Project Address: 6331 E. Grand Lake Road.
City, Zip: Intersection of Pine View and Kaufman. Clay colored house. (Ranch)

Past photos? (Yes) / No (circle)
Took photos on day of evaluation: (Yes) No (circle)
How many? 1966-1986 - 18

Landowner present? Yes / (No) (circle)
Allowed to survey property? Yes / No (circle)

Permitted Activity (from DEQ permit): Construct one boardwalk approx 300 linear feet by 4 feet wide, elevated approx. 16 inches from natural/existing grade in compliance with conditions & plans

Rare species potentially impacted (ER letter): Dwarf lake iris, Houghton's goldenrod, Butternut.

Rare species documented prior to visit (surveys, ES Permit): Rich fen and forested wetland. Species assumed present?

Potential habitat on applicant's property? (Yes) / No
Describe habitat: Cedar over limestone - Dwarf lake iris present
Boardwalk over Rich marl fen. (potential for Hine's emerald) marly fen. - potential for Muhlenbergia glomerata, English sundew, Bulrush sedge, Richardson's sedge, Hine's emerald.
cobble shore - near Lk Huron
Estimate of habitat extent (acres), sq meters, sq feet?): 5 acres

GPS used? (Yes) / No (circle)
Type of GPS: Garmin GPS Map 76S
Waypoint name: PI-POLLBOA (boardwalk)
Waypoint name:
Waypoint name:
Waypoint name:
Waypoint name:

DLI did not flag fill for driveway - Gap

* Should be written up as fen

Environmental Review Evaluation Project - Project Site Form

Michigan DNR | DEQ

Plant species documented: Butterwort Pinguicula vulgaris	Plant species documented:
# Ramets (total # individuals): ~~~100-150~~ clumps over about	# Ramets (total # individuals): 1000
# Genets (total # of groups): 200-300 a 40-50 m area	# Genets (total # of groups):
Population density (scattered, clumps, evenly distributed) Scattered over ca. 50 m x 20 m area	Population density (scattered, clumps, evenly distributed) Locally dense patches by driveway fill / see photo
Phenology: stems August 5	Phenology:
Evidence of reproduction? Yes / No / Unknown	Evidence of reproduction? Yes / No / Unknown

Plant species documented:	Plant species documented:
# Ramets (total # individuals):	# Ramets (total # individuals):
# Genets (total # of groups):	# Genets (total # of groups):
Population density (scattered, clumps, evenly distributed)	Population density (scattered, clumps, evenly distributed)
Phenology:	Phenology:
Evidence of reproduction? Yes / No / Unknown	Evidence of reproduction? Yes / No / Unknown

Rare animal species documented:	Rare species on **adjacent** property? Yes / No / Unsure
	Species on **adjacent** property:

Permit requirements followed: (Yes) / (No) / Unsure (circle)

Comments on project activity: Pinguicula associates: Thuja, Solidago ohioensis, Potentilla frut, Sarracenia, Juncus balticus, Castilleja, Tofieldia glut, Calamintha arkansana, Utricularia cornuta & intermedia, Scirpus cesp, Aster, Lobelia kalmii, Danthonia spic, Viola cucullata or neph, Eleocharis rost, Rhynchospora cap, Drosera rot, Carex flava, C. sterilis, Primula miss, Senecio pauper, Cladium, Carex ~~Scirpus~~ Calamagrostis neglecta, Hypericum kalmii, plants

Unpermitted wetland fill below OHWM - It should not have happened but given sensitivities w/ DEQ will not be pursued.

Iris lacustris clones/patches: Abies, Thuja, Betula pap, Pop trem, Pteridium, Solidago juncea, Aralia, a little of → Verbascum thapsus, Hypericum perf

Boardwalk was built according to the permit conditions

* Potential for english sundew, Richardson's sedge, Bulrush sedge.

Randolph Howarth
LWMD DEQ File # 08-71-0014, Location: Presque Isle County

Top photo: Applicant's property where an after the fact permit for wetland fill was granted is rich conifer swamp. Habitat for rare plants occurs on the beach away from the project area.

Environmental Review Evaluation Project - Project Site Form

Red fields: Fill out on-site
Black fields: Fill out prior to field visit

Survey date: 08-05-2009 | Time: 2:40 - 2:45 am or (pm) (circle)

Surveyors: Mike Penstar, Seth Arevalo, Roxanne M. Marcy Knol, Daria Hyde | Weather (temp, sun, clouds, wind): partly cloudy

DEQ File #: 08-71-14
DNR project #: 53289
County: Presque Isle
T, R, S: T36N R3E, Sec. 23

Applicant's Name: Randolph Howarth.
Project Address: 11888 Ray Road. - US-23 & Ray Rd.
City, Zip: Millersburg — West off Ray Rd. Beige cottage.

Past photos? (Yes) / No (circle)
Took photos on day of evaluation: (Yes) / No (circle)
How many? 8019 - 8021 = 3

Landowner present? Yes / No (circle)
Allowed to survey property? Yes / No (circle)

Permitted Activity (from DEQ permit): After the fact authorization to discharge 24 cubic yds of clean sand and gravel fill within a regulated wetland area 24 feet wide by 24 feet long to provide parking at the 11888 Ray Road. Additionally, one 8 inch diameter culvert was installed to equalize surface water.

Rare species potentially impacted (ER letter): Pitcher's thistle, Houghton's goldenrod, Lake Huron tansy, English sundew

Rare species documented prior to visit (surveys, ES Permit): no survey done.

Potential habitat on applicant's property? (Yes) / (No) — not in project area on beach

Describe habitat: Cedar swamp - Rich conifer swamp

Estimate of habitat extent (acres, sq meters, sq feet?):

GPS used? (Yes) / No (circle)
Type of GPS: Garmin GPS Map 76S
Waypoint name: PI-HOW
Waypoint name:
Waypoint name:
Waypoint name:
Waypoint name:

Plant species documented: _____ # Ramets (total # individuals): _____ # Genets (total # of groups): _____ Population density (scattered, clumps, evenly distributed) _____ Phenology: _____ Evidence of reproduction? Yes / No / Unknown	Plant species documented: _____ # Ramets (total # individuals): _____ # Genets (total # of groups): _____ Population density (scattered, clumps, evenly distributed) _____ Phenology: _____ Evidence of reproduction? Yes / No / Unknown

Plant species documented: _____ # Ramets (total # individuals): _____ # Genets (total # of groups): _____ Population density (scattered, clumps, evenly distributed) _____ Phenology: _____ Evidence of reproduction? Yes / No / Unknown	Plant species documented: _____ # Ramets (total # individuals): _____ # Genets (total # of groups): _____ Population density (scattered, clumps, evenly distributed) _____ Phenology: _____ Evidence of reproduction? Yes / No / Unknown

Rare animal species documented: _____	Rare species on **adjacent** property? Yes / No / Unsure Species on **adjacent** property: _____

Permit requirements followed: (Yes) / No / Unsure (circle) ATF -

Comments on project activity: No impacts

MDOT: US 23- Protected Plant Area's (PPA's)
Endangered Species Permit # 1528, Location Presque Isle County

Top photos: PPA #1- Dave Schuen, MDOT stands near maintained ROW (no rare plants noted at road). Houghton's goldenrod grows in adjacent low dune and swale community.

Bottom Photo: Houghton's goldenrod was found growing near shore in long interdunal swale (ca. 50' wide) occurring between road and foredune.

Presque Isle PPA #1 (Northernmost - Hammond Bay)

Environmental Review Evaluation Project - Project Site Form

Red fields: Fill out on-site
Black fields: Fill out prior to field visit

Survey date: 08-19-2009 | Time: 9:00-9:45 (am) or pm (circle)

Surveyors: Mike Penskar, Daria Hyde, Dave Schven | Weather (temp, sun, clouds, wind): 63° clear, 0-5 mph

DEQ File #:
DNR project #: ES Permit #1528
County: Presque Isle
T, R, S:

Applicant's Name: MDOT
Project Address:
City, Zip:

Past photos? Yes / No (circle)
Took photos on day of evaluation: Yes / No (circle)
How many? 1st sik - 80-84-8113

Landowner present? Yes / No (circle)
Allowed to survey property? Yes / No (circle)

Permitted Activity (from DEQ permit): Maintenance activities to be conducted in Protected Plant Areas -

Mowing of turn areas adjacent to road shoulders on MDOT Right-of-way within MDOT PPA's is permitted up to 10 feet wide on trunkline roads and up to 15 feet or the toe of the slope on interstates and freeways. Brush may be hand cleared within a 10 foot radius of signs within PPA's that do no longer visible from the road.

Rare species potentially impacted (ER letter): Houghton's goldenrod, Allegheny plum, Pitcher's thistle, dwarf lake iris, Lake Huron tansy, and beach sedge.

Rare species documented prior to visit (surveys, ES Permit):

Potential habitat on applicant's property? Yes / No
Describe habitat: low dune & swale community along MDOT ROW's

Estimate of habitat extent (acres, sq meters, sq feet?):

GPS used? Yes / No (circle)
Type of GPS: Garmin Map 76 S
Waypoint name:
Waypoint name:
Waypoint name:
Waypoint name:
Waypoint name:

Environmental Review Evaluation Project - Project Site Form

Michigan DNR

Plant species documented: Solidago houghtonii	Plant species documented:
# Ramets (total # individuals): 1000's	# Ramets (total # individuals):
# Genets (total # of groups): 1000's	# Genets (total # of groups):
Population density (scattered, clumps, evenly distributed) dense in swale, scattered on beach & wetland	Population density (scattered, clumps, evenly distributed)
Phenology: flowering	Phenology:
Evidence of reproduction? (Yes) / No / Unknown — Many seedlings	Evidence of reproduction? Yes / No / Unknown

Plant species documented:	Plant species documented:
# Ramets (total # individuals):	# Ramets (total # individuals):
# Genets (total # of groups):	# Genets (total # of groups):
Population density (scattered, clumps, evenly distributed)	Population density (scattered, clumps, evenly distributed)
Phenology:	Phenology:
Evidence of reproduction? Yes / No / Unknown	Evidence of reproduction? Yes / No / Unknown

Rare animal species documented:	Rare species on **adjacent** property? Yes / No / Unsure
	Species on **adjacent** property:

Permit requirements followed: (Yes) / No / Unsure (circle)

Comments on project activity:

1st site - 6 foot swath mowed - no rare plants noted at road
(just south of Hammond Bay Harbor) - Houghton's goldenrod nearer to shore in swale. GPS point taken P1-PPA-1
Pony swale. 50" wide - between road & foredune.
* P1-CO FEN - Houghton's Goldenrod large coastal fen. 5 acres

Solidago associates: Thuja, Aster [illegible], Calamagrostis, Picea glauca, Juniperus horizontalis, Hypericum kalmianum, Comandra umb., Tofieldia glutinosa, Smilacina stellata, Equisetum variegatum, Carex [illegible], Rudbeckia hirta, [illegible], Salix myricoides, Juncus balticus, [illegible], Carex [illegible]

PPA #2

Top photos: Bike path has eliminated people parking on the shoulder near rare plant community

Middle photos: (left) Pitcher's thistle and (right) nice flow through culvert with Houghton's goldenrod and an orchid, Loesel's twayblade (*Liparis loeselii*)

Bottom photo: Invasive baby's breath (*Gypsophila* spp.) beginning to be established in swale

Presque Isle PPA #2 - (near Hoeft S.P.)

Hoeft S.P.

Environmental Review Evaluation Project - Project Site Form

Red fields: Fill out on-site

Black fields: Fill out prior to field visit

Survey date: 08-19-2009	Time: 10:00-11:00 (am or pm (circle))
Surveyors: Mike Penskar, Daria Hyde, Dave Schuen	Weather (temp, sun, clouds, wind): 67° clear, 0-5mph
DEQ File #:	Applicant's Name:
DNR project #: End sp permit # 1528	Project Address:
County: Presque Isle	City, Zip:
T, R, S:	
Past photos? Yes / (No) (circle)	Landowner present? Yes / No (circle) N/A
Took photos on day of evaluation: (Yes) / No (circle)	Allowed to survey property? (Yes) / No (circle)
How many? 8114-8134	

Permitted Activity (from DEQ permit): MDOT PPA maintenance - of ROW's

Rare species potentially impacted (ER letter): Houghton's goldenrod, Pitcher's thistle, Lake Huron Tansy

Rare species documented prior to visit (surveys, ES Permit): HG, PT, LHT

Potential habitat on applicant's property? (Yes) / No

Describe habitat: low dune & swale community some PT & LHT (PI-PPA-2) GPS PT:

Estimate of habitat extent (acres, sq meters, sq feet?):

GPS used? (Yes) / No (circle)

Type of GPS: Garmin GPS Map 76S

Waypoint name: [redacted]

PI-HG-PPA2

PI-BB-PPA2

PI-BRYOPHT

Waypoint name:

Waypoint name:

Waypoint name:

Michigan DNR

Environmental Review Evaluation Project - Project Site Form

Plant species documented: Cirsium pitcheri # Ramets (total # individuals): scattered 10's (10-100+) # Genets (total # of groups): numerous Population density (scattered, clumps, evenly distributed) occasional Phenology: Past flowering / fruiting - cutting into Evidence of reproduction? (Yes) / No / Unknown	Plant species documented: Tanacetum huronense # Ramets (total # individuals): occasional to frequent in dunes # Genets (total # of groups): Population density (scattered, clumps, evenly distributed) Phenology: Fruiting Evidence of reproduction? (Yes) / No / Unknown

Plant species documented: # Ramets (total # individuals): # Genets (total # of groups): Population density (scattered, clumps, evenly distributed) Phenology: Evidence of reproduction? Yes / No / Unknown	Plant species documented: # Ramets (total # individuals): # Genets (total # of groups): Population density (scattered, clumps, evenly distributed) Phenology: Evidence of reproduction? Yes / No / Unknown

Rare animal species documented:	Rare species on **adjacent** property? Yes / No / Unsure Species on **adjacent** property: Likely - PT. LHT, HG

GPS point - PI - BRYOPHY - Hornwort?

Permit requirements followed? (Yes) / No / Unsure (circle)

Comments on project activity:

- pullout & parking area for bikers - no disturbance to dunes

ROW usually 300 deep here ROW - up to 500-700' feet deep

DUNE ASSOCIATES: Prunus pumila, Calamovilfa, Antennaria, Solidago spath, Arctostaphylos, Lathyrus japonicus, Thuja, Betula pap, Elymus, Populus balsam, Centaurea mac, Salix myricoides, Poa glauca, Juniperus comm

* bike path has elliminated people parking on shoulder

- MDOT only allows 1ft of maintenance on lake side of bike path.

2nd parking area

- built bike path on lake side of trees so wouldn't need to cut trees

agalinus pur., aster simplex, plantain hyper.

HGN: scattered along wet edge > Gypsophila paniculata - locally established near HGN

WAYPOINT: PI-HG-PPA2

PI-BB-PPA2- *Baby's breath beginning to be established in swale at pullout in middle portion

Gypsophila paniculata

- also Spotted knapweed

culvert - nice flow - Liparis loe. HG + (Twayblade)

PPA #3

Top photos: Alvar glades with flowing water in ditches adjacent to extensive cedar glades with Dwarf Lake iris. Maintenance of ROW's done carefully to prevent disruption of hydrology

Bottom photos: MDNR Parks violation: Thompson Harbor entrance area that is rutted and where rocks and brush were dumped should be restored and invasive plants (spotted knapweed, Canada thistle) removed.

Thompson's Harbor PPA #3

Michigan DNR

Environmental Review Evaluation Project - Project Site Form

Red fields: Fill out on-site
Black fields: Fill out prior to field visit

DEQ

Survey date: 08-19-2009	Time: 11:40 - 12:15 (am) or pm (circle)
Surveyors: Mike Penstar, Dave Hyde, Dave Schiven	Weather (temp, sun, clouds, wind): 73° 05 mph clear
DEQ File #:	Applicant's Name: MDOT
DNR project #: ES permit 1528	Project Address: [redacted] Thompson's Harbor MDOT R.O.W.
County: Presque Isle	City, Zip:
T, R, S:	
Past photos? Yes / (No) (circle)	Landowner present? Yes / No (circle)
Took photos on day of evaluation: (Yes) / No (circle)	Allowed to survey property? Yes / No (circle)
How many? 8135-	//

Permitted Activity (from DEQ permit): Maintenance of MDOT ROW

Rare species potentially impacted (ER letter): Beauty sedge Dwarf Lake iris not seen in past

Rare species documented prior to visit (surveys, ES Permit):

Potential habitat on applicant's property? (Yes) No - for DLI

Describe habitat: 1st stop - Alvar glades cedar glades w/ flowing water in ditches

Estimate of habitat extent (acres, sq meters, sq feet?): extensive - need to look at topo or aerial

GPS used? Yes / No (circle)	
Type of GPS: Garmin GPS Map 76S	Waypoint name:
Waypoint name:	Waypoint name:
Waypoint name: PI-DLI-PPA	Waypoint name:

Michigan DNR

Environmental Review Evaluation Project - Project Site Form

Plant species documented: I. LACUSTRIS # Ramets (total # individuals): 10,000 & 10,000 # Genets (total # of groups): " " Population density (scattered, clumps, evenly distributed) Dense to local patches Phenology: Evidence of reproduction? **(Yes)** / No / Unknown	Plant species documented: # Ramets (total # individuals): # Genets (total # of groups): Population density (scattered, clumps, evenly distributed) Phenology: Evidence of reproduction? Yes / No / Unknown

Plant species documented: # Ramets (total # individuals): # Genets (total # of groups): Population density (scattered, clumps, evenly distributed) Phenology: Evidence of reproduction? Yes / No / Unknown	Plant species documented: # Ramets (total # individuals): # Genets (total # of groups): Population density (scattered, clumps, evenly distributed) Phenology: Evidence of reproduction? Yes / No / Unknown

Rare animal species documented:	Rare species on **adjacent** property? Yes / No / Unsure Species on **adjacent** property:

Permit requirements followed: **(Yes)** / No / Unsure (circle)

Comments on project activity: not mowed in 2-3 yrs (66' R.O.W)

mowers w/ boom - cut 6' wide

ditch maintenance - very careful so won't disrupt hydrology

DC: OS: Thuja, Cornus, Picea mar & P. glauca, Abies

OS: Thuja et al., Rhamnus aln., Amelanchier, Prunus [illegible]

GC: [illegible], Solidago ptar., Aster umb., Rosa sp., Arctostaphylos uva, [illegible], Centaurea, Andropogon [illegible], Andropogon [illegible], Agropyron [illegible], [illegible], Solidago hispida

~~Thomp Harbor entrance~~

MDNR Parks - tore up area near park sign - dumped rocks & brush

Violation - 2 yrs ago

After the fact permit

* invasives - spotted knapweed, Canada thistle

\# should be restored -

PPA #4

Top photo: Snowmobile trail along ROW in alvar/cedar glade, with abundant big bluestem

Bottom photos: Dwarf lake iris is abundant in alvar/cedar glades

PPA #4

Environmental Review Evaluation Project - Project Site Form

Red fields: Fill out on-site
Black fields: Fill out prior to field visit

Survey date: 08-19-2009	Time: 12:30-12:45 am or pm (circle)
Surveyors: Mike Penskar, Dave Schuen, Daria Hyde	Weather (temp, sun, clouds, wind):
DEQ File #: DNR project #: End Sp permit #1528 County: Presque Isle T, R, S:	Applicant's Name: MDOT PPA-#4 Project Address: Grand Lake City, Zip:
Past photos? Yes / (No) (circle) Took photos on day of evaluation: (Yes) / No (circle) How many? 8140 - 8157	Landowner present? Yes / No (circle) Allowed to survey property? Yes / No (circle)

Permitted Activity (from DEQ permit): maintenance of ROW PPA

Rare species potentially impacted (ER letter):

Rare species documented prior to visit (surveys, ES Permit): DLE found - PI-DLIPPA4

Potential habitat on applicant's property? (Yes) / No

Describe habitat: 1400' long - 66' ROW (400')
alvar/cedar glade - abandoned
snowmobile trail (8140) along ROW

Estimate of habitat extent (acres, sq meters, sq feet?):

GPS used? (Yes) / No (circle)

Type of GPS:	Waypoint name:
Waypoint name: Garmin GPS Map 765	Waypoint name:
Waypoint name: PI-DLIPPA4	Waypoint name:

Environmental Review Evaluation Project - Project Site Form

Michigan DNR

Plant species documented: IRIS LACUSTRIS # Ramets (total # individuals): 1000s x 1000s # Genets (total # of groups): " Population density (scattered, clumps, evenly distributed) Dense Mostly (?) Phenology: Evidence of reproduction? Yes / No / Unknown	Plant species documented: # Ramets (total # individuals): # Genets (total # of groups): Population density (scattered, clumps, evenly distributed) Phenology: Evidence of reproduction? Yes / No / Unknown

Plant species documented: # Ramets (total # individuals): # Genets (total # of groups): Population density (scattered, clumps, evenly distributed) Phenology: Evidence of reproduction? Yes / No / Unknown	Plant species documented: # Ramets (total # individuals): # Genets (total # of groups): Population density (scattered, clumps, evenly distributed) Phenology: Evidence of reproduction? Yes / No / Unknown

Rare animal species documented:	Rare species on **adjacent** property? Yes / No / Unsure Species on **adjacent** property:

Permit requirements followed: Yes / No / Unsure (circle)

Comments on project activity:

OK / HABITAT · -GCFOE/ALVAR

01-ALV-PPA

Thuja, Larix, Rhamnus alnifolia, Acer spicatum, Rhamnus alni (abundant), Carex eburnea, Juniperus, Solidago ohioensis, Pyrola (?), Carex flava, Carex castanea, Shepherdia can., Prenanthes (?) (rare or ?), Zygadenus, Carex gran., Comus sto

James Hilbrecht
LWMD DEQ File # 06-71-001, Location: Presque Isle County

Top photo: Houghton's goldenrod grows sparsely in interdunal swale in ditch adjacent to driveway with culvert that was installed for access to private home.

Environmental Review Evaluation Project - Project Site Form

Red fields: Fill out on-site
Black fields: Fill out prior to field visit

Survey date: 08-19-2001	Time: 5:15-5:30 am or pm (circle)
Surveyors: Dave Hyde Mike Penski Raynard Menard	Weather (temp, sun, clouds, wind): 75° clear 0-5 mph
DEQ File #: 06-71-11 DNR project #: 47019 County: Presque Isle T, R, S: T 37N R2E Sec. 23	Applicant's Name: James Hillbright Project Address: 1st lot north of real estate office. City, Zip: Approx 20 miles south of Cheboygan on US-23 one mile south of Hamm's Bay protected harbor.
Past photos? (Yes) / No (circle) Took photos on day of evaluation: (Yes) / No (circle) How many? 1 & 198	Landowner present? Yes / No (circle) Allowed to survey property? Yes / No (circle)

Permitted Activity (from DEQ permit): Construct one residential drive for purpose of accessing property; 40 linear feet of 24 inch standard culvert shall be installed at the lowest point of the wetlands crossing.

Rare species potentially impacted (ER letter): Houghton's goldenrod, Dwarf lake iris, Lake Huron tansy.

Rare species documented prior to visit (surveys, ES Permit): no TE on W side of US-23. DLI might be promoted by cutting trees.

Potential habitat on applicant's property? (Yes) / No

Describe habitat: H.G. in intermittent swale draining over road - culvert

Estimate of habitat extent (acres, sq meters, sq feet?):

GPS used? (Yes) / No (circle)	
Type of GPS: Garmin GPS Map 76S	Waypoint name:
Waypoint name:	Waypoint name:
Waypoint name: PI-23-HL	Waypoint name:

Environmental Review Evaluation Project - Project Site Form

Michigan DNR

Plant species documented: SOLIDAGO HOUGHTONII # Ramets (total # individuals): ? 100-200 ? including [illegible] # Genets (total # of groups): ? 100 ? Population density (scattered, clumps, evenly distributed) Low [illegible] Phenology: Flowering Evidence of reproduction? (Yes) / No / Unknown seeds present	Plant species documented: # Ramets (total # individuals): # Genets (total # of groups): Population density (scattered, clumps, evenly distributed) Phenology: Evidence of reproduction? Yes / No / Unknown

Plant species documented: # Ramets (total # individuals): # Genets (total # of groups): Population density (scattered, clumps, evenly distributed) Phenology: Evidence of reproduction? Yes / No / Unknown	Plant species documented: # Ramets (total # individuals): # Genets (total # of groups): Population density (scattered, clumps, evenly distributed) Phenology: Evidence of reproduction? Yes / No / Unknown

Rare animal species documented:	Rare species on **adjacent** property? Yes / No / Unsure Species on **adjacent** property:

Permit requirements followed (Yes) / No / Unsure (circle)

Comments on project activity:

SH: Associates: [illegible] sp. [illegible] Aster [illegible] [illegible] Rosa sp.) Solidago [illegible] [illegible] [illegible] [illegible] Carex sp. (granularis?)

Carex capillaris

Kenneth Larson
LWMD DEQ File # 06-71-12, Location Presque Isle County

Top photo: Project site had been mowed but was a mix of upland and wetland forest that did not provide habitat for rare plants

Bottom photo: Both Lake Huron tansy (shown above) and Houghton's goldenrod were found growing near the shore

Environmental Review Evaluation Project - Project Site Form

Michigan DNR

Red fields: Fill out on-site
Black fields: Fill out prior to field visit

DEQ

Survey date: 08-19-2009	Time: [illegible] am or pm (circle)
Surveyors: [illegible] Roxanne [illegible] / [illegible]	Weather (temp, sun, clouds, wind): 75° clear / 0-5 mph
DEQ File #: 06-71-12 DNR project #: 47355 County: Presque Isle T, R, S: 8174-8179	Applicant's Name: Kenneth Larson. Project Address: City, Zip:
Past photos? Yes / (No) (circle) Took photos on day of evaluation: Yes / No (circle) How many?	Landowner present? Yes / No (circle) Allowed to survey property? Yes / No (circle)

Permitted Activity (from DEQ permit): Excavate and backfill approx 257 cuyds of material; discharge approx 17.8 cuyds of fill within regulated wetlands for a 60 foot by 30 foot home, 29 foot by 26 foot garage, and a drainfield.

Modifications recommended to minimize impacts

Rare species potentially impacted (ER letter): Pitcher's thistle, Houghton's goldenrod, Lake Huron tansy.

Rare species documented prior to visit (surveys, ES Permit): not found during survey

LHT - HG on beach: not at project site

Potential habitat on applicant's property? (Yes) / No

Describe habitat:

- wet mesic forest that has been mowed
- LHT & HG growing on the beach, although boneset & cattail abundant as well

Estimate of habitat extent (acres, sq meters, sq feet?):

GPS used? (Yes) / No (circle)	
Type of GPS: Garmin GPS Map 76S	Waypoint name:
Waypoint name:	Waypoint name:
Waypoint name: PI-LHT-LAP	Waypoint name:

PI-HG-CAPS

Michigan DNR

Environmental Review Evaluation Project - Project Site Form

DEQ

Plant species documented: SOLIDAGO HOUGHTONII	Plant species documented: TANACETUM HURONENSE
# Ramets (total # individuals): VERY LOCAL <10-20??	# Ramets (total # individuals): 100+
# Genets (total # of groups): a few	# Genets (total # of groups): ? LIKELY NUMEROUS
Population density (scattered, clumps, evenly distributed) LOCAL IN ROCKY WET AREAS	Population density (scattered, clumps, evenly distributed) occasional to dense or patchy clumps
Phenology: 1-2 SOME FLOWERING	Phenology: PAST FLWR - ALL IN FRUIT
Evidence of reproduction? (Yes) / No / Unknown	Evidence of reproduction? (Yes) / No / Unknown

Plant species documented:	Plant species documented:
# Ramets (total # individuals):	# Ramets (total # individuals):
# Genets (total # of groups):	# Genets (total # of groups):
Population density (scattered, clumps, evenly distributed)	Population density (scattered, clumps, evenly distributed)
Phenology:	Phenology:
Evidence of reproduction? Yes / No / Unknown	Evidence of reproduction? Yes / No / Unknown

Rare animal species documented:	Rare species on **adjacent** property? Yes / No / Unsure
	Species on **adjacent** property:

Permit requirements followed: ~~Yes~~ / No / Unsure (circle) House not built, permit expired, will need to reapply

Comments on project activity:

[illegible] w/ Juncus balticus, Lobelia kalmii, [illegible] Scirpus pungens, [illegible] viridula, Thuja seedlings, Euthamia gram., [illegible] Potentilla [illegible] Juncus [illegible] Tofieldia glut. Eupatorium perf. Agalinis purp.,

[illegible] w/ Artemisia, [illegible], Populus bal., Salix myr., Arctostaphylos, Juncus balt., [illegible], Lathyrus japonicus, Equisetum var., Solidago [illegible], [illegible], some [illegible], [illegible]

James McKindles
LWMD DEQ File # 07-71-18, Location Presque Isle County

Top photos: Mike Penskar and Roxanne Merrick survey shoreline habitats for rare plants

Middle photos: Houghton's goldenrod and Lake Huron tansy found growing on beach

Bottom photo: Boardwalk constructed according to permit but illegal fill of sand to boat launch

Environmental Review Evaluation Project - Project Site Form

Red fields: Fill out on-site
Black fields: Fill out prior to field visit

Survey date: 08-19-2009 | Time: 4:15-4:30 am or pm (circle)

Surveyors: Mike Penskar, Roxanne Merrick, Darria Hyde | Weather (temp, sun, clouds, wind): 73° clear 0-5 mph

DEQ File #: 07-71-18
DNR project #: 50942
County: Presque Isle.
T, R, S: T 37N R 2E Sec. 10

Applicant's Name: James McKindles
Project Address: 18439 Iroquois Lane.
City, Zip: US-23 to Pine Tree Way (access Rd) north ? blocks to Iroquois Ln. Brick & Green vinyl 2 story Fire Lane # 48.

Past photos? Yes / No (circle)
Took photos on day of evaluation: Yes No (circle)
How many? 8180 81-97

Landowner present? Yes / No (circle)
Allowed to survey property? Yes / No (circle)

Permitted Activity (from DEQ permit): Construct one boardwalk appox. 125 feet long by 4 feet wide, elevated 12-18 inches above existing grade.

Rare species potentially impacted (ER letter): Pitcher's thistle, Lake Huron tansy.

Rare species documented prior to visit (surveys, ES Permit): no

Potential habitat on applicant's property? Yes / No — at beach but not where boardwalk construction

Describe habitat: Boardwalk through cedar, w pine, aspen & willow - LHT & HG on beach

Estimate of habitat extent (acres, sq meters, sq feet?):

GPS used? Yes / No (circle)
Type of GPS: Garmin GPS Map 76S
Waypoint name: PI-LARSON

Waypoint name:
Waypoint name:
Waypoint name:

PI-LHT-MCK
PI-HG-MCK

Environmental Review Evaluation Project - Project Site Form

Plant species documented: Solidago Houghtonii	Plant species documented: Panicetum Hummace
# Ramets (total # individuals): very local <10-20	# Ramets (total # individuals): 100's
# Genets (total # of groups): a few	# Genets (total # of groups): likely numerous
Population density (scattered, clumps, evenly distributed) local in rocky wet areas	Population density (scattered, clumps, evenly distributed) occasional to dense on rocky clumps
Phenology: 1-2 clumps flowering	Phenology: past flower, all in fruit
Evidence of reproduction? (Yes) / No / Unknown	Evidence of reproduction? (Yes) / No / Unknown

Plant species documented:	Plant species documented:
# Ramets (total # individuals):	# Ramets (total # individuals):
# Genets (total # of groups):	# Genets (total # of groups):
Population density (scattered, clumps, evenly distributed)	Population density (scattered, clumps, evenly distributed)
Phenology:	Phenology:
Evidence of reproduction? Yes / No / Unknown	Evidence of reproduction? Yes / No / Unknown

Rare animal species documented:	Rare species on **adjacent** property? Yes / No / Unsure
	Species on **adjacent** property:

Permit requirements followed: Yes / No / (Unsure) (circle) Comments on project activity: Partial - illegal fill of sand to beat Laurel

Lararge Mitigation Site
LWMD DEQ file # 07-71-19, Location Presque Isle County

Top photos: Conservation easement- dry-mesic northern forest with areas of cedar swamp

Middle photo: Dwarf Lake iris found growing along trail

Bottom photo: Cedar swamp provides habitat for rare plants

Environmental Review Evaluation Project - Project Site Form

Red fields: Fill out on-site
Black fields: Fill out prior to field visit

Survey date: 08-19-2009	Time: 2:00-2:45 am or pm (circle)
Surveyors: Roxanne Merrick, Mike Penskar, Daria Hyde	Weather (temp, sun, clouds, wind): 78° clear
DEQ File #: 07-11-19 DNR project #: County: Presque Isle T, R, S:	Applicant's Name: LaFarge Project Address: LaFarge Cons Easement City, Zip: Lake Esau
Past photos? Yes / No (circle) Took photos on day of evaluation: (Yes) / No (circle) How many? 8152 -	Landowner present? Yes / No (circle) Allowed to survey property? Yes / No (circle)

Permitted Activity (from DEQ permit): Mitigation site

Rare species potentially impacted (ER letter): none

Rare species documented prior to visit (surveys, ES Permit): bald eagles seen foraging

Potential habitat on applicant's property? (Yes) / No

Describe habitat: Dry-mesic N forest - conifer dominated areas of cedar swamp; rich conifer swamp - alder, mixed upland/wetland cedar over limestone; DLI found along trail; 5 acres - protected from development; bald eagle - frequent area - nest at Grand Lake; cedar swamp; area is signed -

Estimate of habitat extent (acres, sq meters, sq feet?):

GPS used? (Yes) / No (circle)	
Type of GPS: Garmin GPS Map 76S	Waypoint name:
Waypoint name:	Waypoint name:
Waypoint name: PI-LAF-PL	Waypoint name:

Environmental Review Evaluation Project - Project Site Form

Plant species documented: Dwarf Lake Iris	Plant species documented: Beauty Sedge ? or Carex richardsonii
# Ramets (total # individuals):	# Ramets (total # individuals):
# Genets (total # of groups):	# Genets (total # of groups):
Population density (scattered, clumps, evenly distributed) along trail	Population density (scattered, clumps, evenly distributed)
Phenology:	Phenology: PI-LAF-CAR ?
Evidence of reproduction? Yes / No / Unknown	Evidence of reproduction? Yes / No / Unknown

Plant species documented:	Plant species documented:
# Ramets (total # individuals):	# Ramets (total # individuals):
# Genets (total # of groups):	# Genets (total # of groups):
Population density (scattered, clumps, evenly distributed)	Population density (scattered, clumps, evenly distributed)
Phenology:	Phenology:
Evidence of reproduction? Yes / No / Unknown	Evidence of reproduction? Yes / No / Unknown

Rare animal species documented:	Rare species on **adjacent** property? Yes / No / Unsure
	Species on **adjacent** property:

Permit requirements followed: Yes / No / Unsure (circle)

Comments on project activity:

mitigation site

yellow lady slipper

- Potential - ram's head ladyslipper
Carex richardsonii
limestone oak fern
Massasauga