CONVENTION ON WETLANDS
CONVENTION SUR LES ZONES HUMIDES
CONVENCIÓN SOBRE LOS HUMEDALES
(Ramsar, Iran, 1971)

RIS Form created by RSIS V.0.9
Wednesday the 25th Mar 2015

Ramsar ID: 2218
Country:United States of America
Designation date: 10-Jun-2014
Publication date: 25-Mar-2015
Official Name: Door Peninsula Coastal Wetlands
Official area (ha): 4630.77
Coordinates: in progress
Number of zones:
Outlines:

The Door Peninsula Coastal Wetlands Ramsar Site comprises lands and waters holding a large expanse and diversity of high quality regionally- and globally-significant wetland communities including Great Lakes ridge and swale, interdunal wetland, northern wet-mesic forest, northern sedge meadow, calcareous fens, boreal rich fen, and Great Lakes alkaline rockshore. The site also includes springs, creeks, and embayment lakes.

In 2009, Wisconsin Wetlands Association designated select high quality wetland sites in the state of Wisconsin as Wetland Gems®. Only 100 wetland sites were given this prestigious designation across the state, and three of them lie within the Ramsar Site: Mink River Estuary, North Bay, and Moonlight Bay & Connected Wetlands (which includes Ephraim Swamp, Baileys Harbor Swamp, Ridges Sanctuary State Natural Area, Toft Point State Natural Area, and Mud Lake State Wildlife and Natural Area).

Collectively, the Door Peninsula Coastal Wetlands Ramsar site along with adjacent wetland habitat provide critical breeding and migratory habitat for a high diversity and abundance of characteristic as well as uncommon fish, mammals, birds, amphibianns, and invertebrates. These wetlands support colonial nesting waterbirds, wetland dependent breeding and neo-tropical migratory birds, Great Lakes migratory fish, and numerous resident wetland associated mammals and amphibians.

Color codes

Fields back-shaded in light blue relate to data and information required only for RIS updates.

Note that some fields concerning aspects of Part 3, the ecological character description of the RIS (tinted in purple), are not expected to be completed as part of a standard RIS, but are included for completenes s so as to provide the requested consistency betwee n the RIS and the format of a ‘ full ’ Ecological Character Description, as adopted in Resolution X.1 5 (2008). If a Contracting Party does have informat ion available that is relevant to these fields (for example from a national format Ecological Character Description) it may, if it wishes to, include info rmation in these additional fields.

1 - Summary

Summary

The Door Peninsula Coastal Wetlands Ramsar Site comprises lands and waters holding a large expanse and diversity of high quality regionally- and globally-significant wetland communities including Great Lakes ridge and swale, interdunal wetland, northern wet-mesic forest, northern sedge meadow, calcareous fens, boreal rich fen, and Great Lakes alkaline rockshore. The site also includes springs, creeks, and embayment lakes.

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2 - Data & location

2.1 - Formal data

2.1.1 - Name and address of the compiler of this RIS

Name	The Nature Conservancy of Wisconsin
Institution/agency	The Nature Conservancy of Wisconsin
Postal address	242 Michigan Street Ste B103 Sturgeon Bay, WI 54235-2548
E-mail	wisconsin@tnc.org
Phone	920 743 8695
Fax	920 743 9068

2.1.2 - Period of collection of data and information used to compile the RIS

From year	
To year	

<no data available>

2.1.3 - Name of the Ramsar Site

Official name (in English, French or Spanish)	Door Peninsula Coastal Wetlands
Unofficial name (optional)	

2.2 - Site location

2.2.1 - Defining the Site boundaries

b) Digital map/image

<1 file(s) uploaded>

Boundaries description (optional)

The Door Peninsula Coastal Wetlands Ramsar Site boundary comprises lands under permanent ownership by the Wisconsin Department of Natural Resources (WDNR) and Door County (government agencies); the University of Wisconsin – Green Bay (Wisconsin state educational system); non-governmental conservation organizations: Door County Land Trust (DCLT), The Nature Conservancy (TNC), and The Ridges Sanctuary (TRS). All of these lands are designated or dedicated for conservation objectives by the respective landowners. The DCLT also holds permanent conservation easements on land within the Focus Area. Two landowners with lands protected by conservation easements held by DCLT are included within the site boundary.

The Focus Area (i.e., the larger landscape within which the above lands lie, indicated with the red boundary on the site map) was determined using a variety of ecological information including: the Wisconsin Department of Natural Resources ' wetlands layer, the Door County soils layer, locations of state and federally listed threatened and endangered species, and other relevant natural resource zones of contribution for Hine ' s emerald dragonfly (Somatochlora hineana) habitat, as well as information on wetland dependent or associated species. For land above the ordinary high water mark of Lake Michigan, the Focus Area was determined by roads or land units. The Focus Area boundary in Lake Michigan covers the area between the ordinary high water mark and the 1.5 meter (5 foot) depth.

Another key source of information that shaped the Focus Area is a spatial data layer delineating Great Lakes coastal embayment wetlands. This layer was created by the Door County Planning and Zoning Department and The Nature Conservancy staff in July 2009. This layer captured all coastal embayment wetlands in Door County and is based on the presence and spatial arrangement of soils and landforms specifically associated with embayment wetlands. The Ramsar Focus Area comprises the largest, ecologically outstanding, connected set of embayment wetlands on the east coast of the Door Peninsula.

The Focus Area encompasses 16,759 hectares (41,412 acres). There are 12,961 hectares (32,027 acres above the ordinary high water mark of Lake Michigan and 3,798 hectares (9,385 acres) below the ordinary high water mark.

2.2.2 - General location

a) In which large administrative region does the site lie? Wisconsin

b) What is the nearest town or population centre? Sturgeon Bay

2.2.3 - For wetlands on national boundaries only

a) Does the wetland extend onto the territory of one or more other countries? Yes ○ No ◉

b) Is the site adjacent to another designated Ramsar Site on the territory of another Contracting Party? Yes ○ No ◉

2.2.4 - Area of the Site

Official area, in hectares (ha): 4630.77

Area, in hectares (ha) as calculated from GIS boundaries:

2.2.5 - Biogeography

Biogeographic regions

Regionalisation scheme(s)	Biogeographic region
Other scheme (provide name below)	Escanaba/Door Peninsula subsection - Northern Lacustrine-influenced Upper Michigan/ Wisconsin ecosystem

Other biogeographic regionalisation scheme: Albert, D. 1995. Regional Landscape Ecosystems of Michigan, Minnesota, and Wisconsin: A Working Map and Classification. United States Forest Service, North Central Forest Experiment Station. General Technical Report NC-178 pp.164.

3 - Why is the Site important?

3.1 - Ramsar Criteria and their justification

☑ Criterion 1: Representative, rare or unique natural or near-natural wetland types

Hydrological services provided	
Other ecosystem services provided	
Other reasons	The Door Peninsula Coastal Wetlands Ramsar Site contains " excellent examples " of several wetland types occurring in the Escanaba/Door Peninsula subsection of the Northern Lacustrine-Influenced Upper Michigan and Wisconsin regional landscape ecosystem (Albert 1995). This biogeographic region is known for freshwater, tree-dominated, and permanent freshwater marshes which are represented by the extensive conifer swamps and emergent marsh wetlands. State Natural Areas are designated due to their high quality plant and animal communities and occurrence of rare species. Ten state natural areas are found within the Ramsar site and Baileys Harbor Boreal Forest and Wetlands, Europe Bay Woods, Marshall ' s Point (not part of the Ramsar site at this time), Moonlight Bay Bedrock Beach, Mink River Estuary, Mud Lake, Newport Confer Swamp, North Bay, The Ridges Sanctuary, and Toft Point State Natural Areas contain extensive high quality wetlands including – According to the WDNR Natural Heritage Conservation Bureau the following are significant plant communities: Alder thicket Boreal forest Emergent marsh Great lakes alkaline rockshore Lake--shallow, hard, drainage Northern mesic forest Northern sedge meadow Northern wet forest Northern wet-mesic forest Springs and spring runs, hard

☑ Criterion 2 : Rare species and threatened ecological communities

☑ Criterion 3 : Biological diversity

Justification

The Ramsar Site protects some of the most biologically diverse habitats in the region. According to the Wisconsin Department of Natural Resources, the Baileys Harbor Township situated in the heart of the Ramsar site harbors 76 rare species, which is work rank Baileys Harbor 4th highest in rare species per township. Over 150 species of birds utilize the site during the nesting season or as migratory stopover areas during the spring and fall. Warbler numbers are also unusually high for this area as twenty three species have been documented, seventeen of which are consistent breeders. The plant diversity of the Door Peninsula is equally impressive, as more than 1,000 species have been documented, the majority of which can be found within coastal wetland areas. The Ridges Sanctuary contains 25 species of orchids and this is the highest concentration of orchid species in Wisconsin. See criterion 2 for information about the substantial population of a globally rare plant, the federally-threatened dwarf lake iris, which is also found throughout the Ramsar Site.

☑ Criterion 4 : Support during critical life cycle stage or in adverse conditions

☑ Criterion 9 : >1% non-avian population

3.2 - Plant species whose presence relates to the international importance of the site

Scientific name	Common name	Criterion 2	Criterion 3	Criterion 4	IUCN Red List	CITES Appendix I	Other status	Justification
Astragalus neglectus		☑	☐	☐		☐	Federally endangered	
Carex concinna		☑	☐	☐		☐	Federally threatened	
Carex garberi		☑	☐	☐		☐	State threatened	
Cirsium pitcheri		☑	☐	☐		☐	Federally threatened	
Festuca occidentalis		☑	☐	☐		☐	state threatened	
Iris lacustris		☑	☐	☐		☐	Federally threatened	
Parnassia palustris parviflora		☑	☐	☐		☐	State Endangered	
Pterospora andromedea		☑	☐	☐		☐	State Endangered	
Ribes oxyacanthoides		☑	☐	☐		☐	state threatened	
Solidago simplex gillmanii		☑	☐	☐		☐	state threatened	

3.3 - Animal species whose presence relates to the international importance of the site

Phylum	Scientific name	Common name	Species qualifies under criterion				Species contributes under criterion				Pop. Size	Period of pop. Est.	% occurrence	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
			2	4	6	9	3	5	7	8								
CHORDATA/AMPHIBIA	Ambystoma laterale		☐	☑	☐	☐	☐	☐	☐	☐					☐	☐		dependent upon these wetlands as breeding areas to maintain their local
CHORDATA/AMPHIBIA	Ambystoma maculatum	Spotted Salamander	☐	☑	☐	☐	☐	☐	☐	☐				LC	☐	☐		dependent upon these wetlands as breeding areas to maintain their local
CHORDATA/AVES	Aythya affinis	Lesser Scaup	☐	☑	☐	☐	☐	☐	☐	☐				LC	☐	☐		Site along migration
CHORDATA/AVES	Aythya americana	Redhead	☐	☑	☐	☐	☐	☐	☐	☐				LC	☐	☐		Site along migration
CHORDATA/AVES	Bucephala albeola	Bufflehead	☐	☑	☐	☐	☐	☐	☐	☐				LC	☐	☐		Site along migration
CHORDATA/AVES	Bucephala clangula	Common Goldeneye	☐	☑	☐	☐	☐	☐	☐	☐				LC	☐	☐		Site along migration corridor and used as
CHORDATA/ACTINOPTERYGII	Coregonus clupeaformis	Lake whitefish	☐	☑	☐	☐	☐	☐	☐	☐					☐	☐		tributary network provides production of and access to forage species as well as high quality water for these near shore
CHORDATA/ACTINOPTERYGII	Esox lucius	Northern pike	☐	☑	☐	☐	☐	☐	☐	☐				LC	☐	☐		spawn in many areas and have seasonal migration corridors in the focus
CHORDATA/AVES	Larus delawarensis	Ring-billed Gull	☐	☑	☐	☐	☐	☐	☐	☐				LC	☐	☐		site used during migrations and as a nesting site

Phylum	Scientific name	Common name	Species qualifies under criterion				Species contributes under criterion				Pop. Size	Period of pop. Est.	% occurrence	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
			2	4	6	9	3	5	7	8								
CHORDATA/AVES	Mergus merganser	Common Merganser	☐	☑	☐	☐	☐	☐	☐	☐				LC	☐	☐		Site along migration corridor and used as
CHORDATA/AVES	Mergus serrator	Red-breasted Merganser	☐	☑	☐	☐	☐	☐	☐	☐				LC	☐	☐		Site along migration corridor and used as
CHORDATA/ACTINOPTERYGII	Micropterus dolomieu		☐	☑	☐	☐	☐	☐	☐	☐					☐	☐		tributary network provides production of and access to forage species as well as high quality water for these near shore
CHORDATA/AVES	Numenius phaeopus	Whimbrel	☐	☑	☐	☐	☐	☐	☐	☐				LC	☐	☐		use the site as resting
CHORDATA/ACTINOPTERYGII	Perca flavescens	Yellow perch	☐	☑	☐	☐	☐	☐	☐	☐				LC	☐	☐		known to utilize some of these tributaries and offshore
CHORDATA/AVES	Phalacrocorax auritus	Double-crested Cormorant	☐	☑	☐	☐	☐	☐	☐	☐				LC	☐	☐		site used during migrations and as a
ARTHROPODA/INSECTA	Somatochlora hineana		☑	☐	☐	☑	☐	☐	☐	☐	30000	1998	40	NT	☐	☐	Federally endangered	William Smith with the WDNR estimates that 30-40% of the worlds Hine ' s emerald dragonfly population is found in the Ramsar site

According to William Smith, DNR Conservation Biologist, the site hosts the largest known population and best habitat of the federally-endangered Hine ' s emerald dragonfly, an insect that lives in calcareous spring-fed marshes and sedge meadows overlaying dolomite bedrock. Historically, the Hine ' s emerald dragonfly was found in Alabama, Indiana, and Ohio. The dragonfly can now only be found in Wisconsin, Illinois, Michigan, and Missouri. The greatest threat to the Hine's emerald dragonfly is habitat destruction, as most of the wetland habitat that this dragonfly depends on for survival has been drained and filled to make way for urban and industrial development. Contamination of wetlands by pesticides or other pollutants also poses a threat. The dragonfly depends on healthy wetland or stream areas with high water quality. Development that decreases the amount or quality of ground water flowing to the dragonfly ' s habitat threatens its survival because it depends on spring-fed shallow water to breed (USFWS 2006). Several areas within the Door Peninsula Coastal Wetlands Ramsar Site have been federally designated as Hine ' s emerald habitat (critical habitat and ground water contribution area) (Map 2) for this dragonfly and are essential for the survival of this globally rare insect.

The Hines emerald dragonfly (Somatochlora hineana) is currently listed as Endangered by the United States Fish and Wildlife Service and the Wisconsin Department of Natural Resources. The IUCN Red List Category & Criteria rate this species as Near Threatened (IUCN 2010). The IUCN considers a taxon near threatened when it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future. Further information from the IUCN states that there are " less than 50 estimated occurrences; extirpated in Ohio, Alabama and Indiana; other extant occurrences are threatened with habitat destruction or degradation. " (IUCN 2013)

Currently, the Hine ' s emerald is known to be found in approximately 45 locations: 21 sites in Wisconsin, 10 sites in Michigan, 9 sites in Illinois, at least 3 sites in Missouri, and at least 1 site in Canada. Hine ' s emerald dragonflies are found in 11 sites in Door County including 6 sites in the Door Peninsula Coastal Wetlands Ramsar Site.

3.4 - Ecological communities whose presence relates to the international importance of the site

Name of ecological community	Community qualifies under Criterion 2?	Description
Northern wet-mesic forest	☐	forested minerotrophic wetland is dominated by white cedar (Thuja occidentalis), and occurs on rich, neutral to alkaline substrates
Northern sedge meadow	☐	open wetland community is dominated by sedges and grasses.

4 - What is the Site like? (Ecological character description)

4.1 - Ecological character

The present landscape of the Ramsar Site began to take form about ten thousand years ago as shallow bays of post-glacial Lake Michigan filled the lowlands now holding the conifer swamps, shrub-carrs and emergent wetlands of the site. Over time, sand deposited by long shore currents filled the mouths of these shallow bays restricting water movement in and out of the bays. Eventually lower lake levels and isostatic rebound of the land gradually exposed these sand deposits. Wind action combined with establishment of beach grasses and pioneer species created and stabilized the dunes and ridges present today. Behind these ridges and swales, the embayed lowlands developed over time into the wide palustrine white cedar swamp forests and emergent wetlands.

The Ramsar Site includes the following community types: great lakes ridge and swale, northern wet, wet-mesic, and mesic forest; boreal forests of white spruce and balsam fir; emergent aquatic; northern sedge meadow; boreal rich fen; embayment lakes (such as Europe, Clark, and Kangaroo lakes); and springs and spring runs. While not wetland, the mesic forests of Newport Conifer Hardwoods State Natural Area are important to mention because this State Natural Area also comprises nearly 0.5 mile of Lake Michigan shoreline protecting high quality great lakes alkaline rockshore habitat.

4.2 - What wetland type(s) are in the site?

Marine or coastal wetlands

Wetland types (code and name)	Local name	Ranking of extent (1: greatest - 4: least)	Area (ha) of wetland type	Justification of Criterion 1
F: Estuarine waters		4		
H: Intertidal marshes		4		
Zk(a): Karst and other subterranean hydrological systems		4		

Inland wetlands

Wetland types (code and name)	Local name	Ranking of extent (1: greatest - 4: least)	Area (ha) of wetland type	Justification of Criterion 1
M: Permanent rivers/ streams/ creeks		4		
N: Seasonal/ intermittent/ irregular rivers/ streams/ creeks		4		
O: Permanent freshwater lakes		3		
Tp: Permanent freshwater marshes/ pools		4		
Ts: Seasonal/ intermittent freshwater marshes/ pools on inorganic soils		4		
U: Permanent Non-forested peatlands		3		
W: Shrub-dominated wetlands		2		Representative
Xf: Freshwater, tree-dominated wetlands		1		Representative
Xp: Permanent Forested peatlands		2		Representative
Y: Permanent Freshwater springs; oases		4		

Habitat connectivity	

4.3 - Biological components

4.3.1 - Plant species

Other noteworthy plant species

Scientific name	Common name	Position in range / endemism / other
Adlumia fungosa		
Asplenium adulterinum		
Calamagrostis recta		
Carex capillaris		
Carex platyphylla		
Deschampsia cespitosa		
Draba arabisans		
Eleocharis quinqueflora		
Gymnocarpium robertianum		
Osmorhiza chilensis		
Platanthera hookeri		
Primula mistassinica	bird's-eye primrose	
Ribes lacustre		
Triglochin palustris		
Viola rostrata		

4.3.2 - Animal species

Other noteworthy animal species

Phylum	Scientific name	Common name	Pop. size	Period of pop. est.	% occurrence	Position in range /endemism/other
ARTHROPODA/INSECTA	Epiaeschna heros					
CHORDATA/MAMMALIA	Myotis keenii					
CHORDATA/MAMMALIA	Myotis lucifugus	little brown bat				

4.4 - Physical components

4.4.1 - Climate

The Door Peninsula Coastal Wetlands Ramsar Site and surrounding Focus Area has a growing season of approximately 150 days with an average precipitation of 76 – 81 centimetres (30 to 32 inches) that includes average snowfall of 152 centimetres (60 inches). Extreme minimum winter temperatures are moderated by Lake Michigan but can reach minus 34 degrees C (-30 degrees F) (Albert 1995).

4.4.2 - Geomorphic setting

a) Minimum elevation above sea level (in metres): 180

a) Maximum elevation above sea level (in metres): 189

- [ ] Entire river basin
- [ ] Upper part of river basin
- [ ] Middle part of river basin
- [x] Lower part of river basin
- [ ] More than one river basin
- [ ] Not in river basin
- [ ] Coastal

Please name the river basin or basins. If the site lies in a sub-basin, please also name the larger river basin. For a coastal/marine site, please name the sea or ocean.: Mink River and Lake Michigan

4.4.3 - Soil

- [x] Mineral
- [ ] Organic
- [ ] No available information

Are soil types subject to change as a result of changing hydrological conditions (e.g., increased salinity or acidification)? Yes ○ No ◉

Please provide further information on the soil (optional): The Ramsar Site comprises several important natural features. More information on the soils and physical features is described in the annexes.

4.4.4 - Water regime

Water permanence

Presence?	Changes at RIS update
Usually permanent water present	No change

Source of water that maintains character of the site

Presence?	Predominant water source	Changes at RIS update
Water inputs from rainfall	☐	No change
Water inputs from surface water	☐	No change
Water inputs from groundwater	☐	No change

Water destination

Presence?	Changes at RIS update
To downstream catchment	No change

Please add any comments on the water regime and its determinants (if relevant). Use this box to explain sites with complex hydrology: The Door Peninsula Coastal Wetlands Ramsar Site is part of a karst hydrologic system where aquifer recharge is accelerated because of the fractured rock pathways taken by surface and groundwater to quickly reach discharge points.

Connectivity of surface waters and of groundwater:

Stratification and mixing regime:

4.4.5 - Sediment regime

Significant erosion of sediments occurs on the site ☐

Significant accretion or deposition of sediments occurs on the site ☐

Significant transportation of sediments occurs on or through the site ☐

Sediment regime is highly variable, either seasonally or inter-annually ☐

Sediment regime unknown ☐

Please provide further information on sediment (optional):	
Water turbidity and colour	
Light - reaching wetland	
Water temperature	

4.4.6 - Water pH

Acid (pH ☐

Circumneutral (pH: 5.5-7.4) ☐

Alkaline (pH>7.4) ☐

Unknown ☐

Please provide further information on pH (optional):	

4.4.7 - Water salinity

Fresh (☐

Mixohaline (brackish)/Mixosaline (0 .5-30 g/l) ☐

Euhaline/Eusaline (30-40 g/l) ☐

Hyperhaline/Hypersaline (>40 g/l) ☐

Unknown ☐

Please provide further information on salinity (optional):	

Dissolved gases in water	

4.4.8 - Dissolved or suspended nutrients in water

Eutrophic ☐
Mesotrophic ☐
Oligotrophic ☐
Dystrophic ☐
Unknown ☐

Please provide further information on dissolved or suspended nutrients (optional):	
Dissolved organic carbon	
Redox potential of water and sediments	
Water conductivity	

4.4.9 - Features of the surrounding area which may affect the Site

Please describe whether, and if so how, the landscape and ecological characteristics in the area surrounding the Ramsar Site differ from the site itself: i) broadly similar ◉ ii) significantly different ○

4.5 - Ecosystem services

4.5.1 - Ecosystem services/benefits

Regulating Services

Ecosystem service	Examples	Importance/Extent/Significance
Maintenance of hydrological regimes	Groundwater recharge and discharge	High
Pollution control and detoxification	Water purification/waste treatment or dilution	High
Erosion protection	Soil, sediment and nutrient retention	High
Hazard reduction	Flood control, flood storage	High

Cultural Services

Ecosystem service	Examples	Importance/Extent/Significance
Spiritual and inspirational	Cultural heritage (historical and archaeological)	High
Recreation and tourism	Nature observation and nature-based tourism	Medium
Recreation and tourism	Picnics, outings, touring	Medium
Scientific and educational	Educational activities and opportunities	Medium
Scientific and educational	Important knowledge systems, importance for research (scientific reference area or site)	Medium
Recreation and tourism	Recreational hunting and fishing	Medium

Supporting Services

Ecosystem service	Examples	Importance/Extent/Significance
Biodiversity	Supports a variety of all life forms including plants, animals and microorganizms, the genes they contain, and the ecosystems of which they form a part	High

Other ecosystem service(s) not included above:

Within the site:

Outside the site:

Have studies or assessments been made of the economic valuation of ecosystem services provided by this Ramsar Site? Yes ○ No ○ Unknown ◉

4.5.2 - Social and cultural values

i) the site provides a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland ☐

ii) the site has exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland ☐

iii) the ecological character of the wetland depends on its interaction with local communities or indigenous peoples ☐

iv) relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland ☐

4.6 - Ecological processes

Primary production	
Nutrient cycling	
Carbon cycling	
Animal reproductive productivity	
Vegetational productivity, pollination, regeneration processes, succession, role of fire, etc.	
Notable species interactions, including grazing, predation, competition, diseases and pathogens	
Notable aspects concerning animal and plant dispersal	
Notable aspects concerning migration	
Pressures and trends concerning any of the above, and/or concerning ecosystem integrity	

5 - How is the Site managed? (Conservation and management)

5.1 - Land tenure and responsibilities (Managers)

5.1.1 - Land tenure/ownership

Public ownership

Category	Within the Ramsar Site	In the surrounding area
Provincial/region/state government	☑	☐

Private ownership

Category	Within the Ramsar Site	In the surrounding area
Commercial (company)	☐	☑
Foundation/non-governmental organization/trust	☑	☑
Other types of private/individual owner(s)	☑	☑

Provide further information on the land tenure / ownership regime (optional):

a) within the Ramsar site:
The Ramsar Site comprises 4,629 hectares (11,443 acres). This includes 22 hectares (54 acres) owned Door County; 186 hectares (461 acres) owned by Door County Land Trust; 1,291 hectares (3,192 acres) owned by The Nature Conservancy; 570 hectares (1,409 acres) owned by The Ridges Sanctuary; 277 hectares (686 acres) owned by the University of Wisconsin – Green Bay (Toft Point) 2,228 hectares (5,508 acres) owned by the Wisconsin Department of Natural Resources. Also included in the Ramsar Site are two properties with lands permanently protected by easements - 9 hectares (23 acres) owned by George and Sharon Cobb and 44 hectares (110 acres) owned by Ed and Sandy Miller.

b) in the surrounding area
Much of the surrounding Focus Area is in private ownership and is rural with a mixture of large and some smaller tracts including some with residential developments. Outside of the Focus Area there are villages, businesses and other commercial enterprises

5.1.2 - Management authority

Please list the local office / offices of any agency or organization responsible for managing the site:

1.The Nature Conservancy of Wisconsin; 2.Door County Land Trust; 3.The Ridges; 4. Wisconsin Department of Natural Resources Sanctuary; 5. University of Wisconsin- Green Bay.

Provide the name and title of the person or people with responsibility for the wetland:

1. Mike Grimm; 2. Dan Burke; 3.Steve Leonard; 4.Joe Henry; 5.Robert Howe

Postal address: 1. 242 Michigan Street Ste B103, Sturgeon Bay, WI 54235
2. PO Box 65, Sturgeon Bay, WI 54235
3. PO Box 152, Baileys Harbor, WI 54202
4.2984 Shawano Avenue, Green Bay WI, 54313-6727
5. 2420 Nicolet Drive, Green Bay, WI 54311

E-mail address: wisconsin@tnc.org

5.2 - Ecological character threats and responses (Management)

5.2.1 - Factors (actual or likely) adversely affecting the Site ' s ecological character

Human settlements (non agricultural)

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area		
Housing and urban areas		Low impact	☐	No change	☑	No change
Tourism and recreation areas	Medium impact		☐	No change	☑	No change

Biological resource use

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area		
Logging and wood harvesting	Medium impact		☐	No change	☑	No change

Invasive and other problematic species and genes

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area		
Invasive non-native/ alien species	Medium impact		☑	No change	☑	No change

Climate change and severe weather

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area		
Habitat shifting and alteration		High impact	☑	No change	☑	No change

Please describe any other threats (optional):

Phragmities australis, giant reed grass, is the major invasive species, however WDNR along with all partners tackled the early invasion of Phragmites within the entire Ramsar site and continues to monitor and remove newly established plants. The partners are also working on invasive species control efforts on other species found in much lesser amounts than Phragmites, such as European Marsh thistle, Japanese knotweed and black swallowwort.
global climate change will likely threaten the ecological integrity of the wetlands, although it is uncertain how. The Wisconsin Initiative on Climate Change Impacts has investigated climate change impacts to Wisconsin and predicts the following:
• a 90 percent probability of a 4 degree F rise in annual temperatures
• warmer winters
• more extreme rain events
• fewer nights below 0 degrees F.
global climate change will likely threaten the ecological integrity of the wetlands, although it is uncertain how. The Wisconsin Initiative on Climate Change Impacts has investigated climate change impacts to Wisconsin and predicts the following:
• a 90 percent probability of a 4 degree F rise in annual temperatures
• warmer winters
• more extreme rain events
• fewer nights below 0 degrees F.

Some of the impacts on the Ramsar Site could include changes in groundwater levels and Lake Michigan levels, changes in pH and nutrient cycling, and declines in species richness and diversity.

The Door Peninsula ' s unique landscape and beauty make it a highly desired location for vacation homes, a trend which has sharply accelerated over the past 30 years. The average number of housing units added per year during 1980-2000 (200 units) increased by almost 13 times over the previous 50 years; a greater than 900% increase. In three northern Door County townships, seasonal housing now accounts for more than 50% of the total housing units.

Rural residential development threatens wetlands in several ways. The fractures, sinkholes, and other karst features of the area transport surface water very quickly, with little or no soil filtration, into the groundwater that recharges the wetlands. This allows inputs of contaminants and excessive nutrients from private septic systems as well as lawns, driveways, roofs, roads and other impervious surfaces into the wetlands. Impervious surfaces contribute to erosion and sedimentation in wetlands due to decreased infiltration and increased runoff.

5.2.2 - Legal conservation status

National legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
State Natural Area			partly
Wilderness State Park	Newport State Park		partly
National Natural Landmark	Ridges Sanctuary-Toft ' s Point-Mud Lake Area National Natural Landmar		partly

Non-statutory designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Important Bird Area	Mink River Estuary-Newport State Park		partly
Other non-statutory designation	Bird City - Baileys Harbor Township	http://www.birdcitywisconsin.org/	partly

5.2.3 - IUCN protected areas categories (2008)

- Ia Strict Nature Reserve ☑
- Ib Wilderness Area: protected area managed mainly for wilderness protection ☑
- II National Park: protected area managed mainly for ecosystem protection and recreation ☐
- III Natural Monument: protected area managed mainly for conservation of specific natural features ☐
- IV Habitat/Species Management Area: protected area managed mainly for conservation through management intervention ☑
- V Protected Landscape/Seascape: protected area managed mainly for landscape/seascape conservation and recreation ☐
- VI Managed Resource Protected Area: protected area managed mainly for the sustainable use of natural ecosystems ☑

5.2.4 - Key conservation measures

Legal protection

Measures	Status
Legal protection	Implemented

Habitat

Measures	Status
Catchment management initiatives/controls	Implemented

Species

Measures	Status
Control of invasive alien plants	Implemented

Human Activities

Measures	Status
Communication, education, and participation and awareness activities	Implemented
Research	Implemented

Other: Wisconsin Department of Natural Resources has 452 hectares (1,118 acres) of privately owned land within their project boundaries and The Nature Conservancy has 1,335 hectares (1,335 acres) within their project boundaries. Door County Land Trust is establishing a preserve at Ephraim Swamp and will be acquiring land there.

The conservation partners within the Ramsar Site will continue to acquire land for conservation, manage the lands they own, negotiate conservation easements, educate local landowners and visitors about the ecological importance of the site, and collaborate to secure funding for additional land acquisition and management activities. Parcels acquired will be added to the Ramsar Site.

5.2.5 - Management planning

Is there a site-specific management plan for the site? Yes

Has a management effectiveness assessment been undertaken for the site? Yes ○ No ◉

If the site is a formal transboundary site as indicated in section Data and location > Site location, are there shared management planning processes with another Contracting Party? Yes ○ No ◉

Please indicate if a Ramsar centre, other educational or visitor facility, or an educational or visitor programme is associated with the site: he Ridges Sanctuary, which has a visitor center and offers regular educational opportunities. In 2010, more than 5,300 guests visited the Sanctuary (Ridges 2010). During the summer season, The Ridges Sanctuary offers a wide variety of hikes, workshops, lectures, and field experiences as part of its mission including twice-daily hikes through their preserve, half-day workshops for children, and Thursday evening guest lectures by specialists or retired professors followed the next day with lecturer-led workshops. The hikes, workshops, and lectures cover a range of topics including dragonflies, bird migration, nature variety, and the importance of wetlands.

URL of site-related webpage (if relevant):

5.2.6 - Planning for restoration

Is there a site-specific restoration plan? Please select a value

<no data available>

5.2.7 - Monitoring implemented or proposed

Monitoring	Status
Plant species	Implemented

Phragmities australis, giant reed grass, is the major invasive species, however WDNR along with all partners tackled the early invasion of Phragmites australis within the entire Ramsar site and continues to monitor and remove newly established plants.

The partners are also working on controlling other invasive species that are found in much lesser amounts than Phragmites australis, such as European Marsh thistle, Japanese knotweed, and black swallowwort. Private contractors, partner staff and volunteers are conducting the management.

6 - Additional material

6.1 - Additional reports and documents

6.1.1 - Bibliographical references

Aiken et al. 2003. A Guide to Significant Wildlife Habitat and Natural Areas of Door County, Wisconsin

Albert, Dennis A. 1995. Regional landscape ecosystems of Michigan, Minnesota, and Wisconsin: a working map and classification. Gen. Tech. Rep. NC-178. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station. 250 p.

Becker, George 1983. Fishes of Wisconsin, University of Wisconsin Press.

Boronow, George, Supervisor of Lake Michigan Fisheries, Wisconsin Department of Natural Resources. Personal Communication.

Epstein, Eric, Community Ecologist. Wisconsin Department of Natural Resources, Bureau of Endangered Resources. Personal communication.

Ewert, Dave. 1999. The Nature Conservancy Great Lakes Program. Great Lakes bird ecoregional planning: A final report. (Unpublished).

Frederick, Lynn 1982. Ecology of Juvenile Whitefish (Coregonus clupeaformis) in Lake Michigan East of Door County, Wisconsin. Doctoral thesis, University of Wisconsin-Madison.

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Judziewicz, Emmet and David Kopitzke. WDNR. Wisconsin Lake Michigan Island Plant Survey-II 1998 and 1999.

Kroeff, Tim, Fisheries Technician, Lake Michigan Sub-team, Sturgeon Bay. Personal communication.

Mossman, Mike, Ornithologist, Wisconsin Department of Natural Resources, Bureau of Science Services. Personal communication.

Natural Heritage Inventory. 2001. A Data Compilation and Assessment of Coastal Wetlands of Wisconsin ' s Great Lakes.

The Nature Conservancy. 1999. Great Lakes Ecoregional Plan.

The Nature Conservancy – Wisconsin Chapter. 2000. Site Conservation Plan for the Northern Door Peninsula

Smith, William, Zoologist. Wisconsin Department of Natural Resources, Bureau of Endangered Resources. Personal communication.

United States Environmental Protection Agency. 2000. SOLEC 2000 Biodiversity Investment Areas Integration Background Paper

United States Fish and Wildlife Service. 2004. Important Bird Areas Program
Wisconsin Bird Conservation Initiative Fact Sheet.
http://www.wisconsinbirds.org/iba/docs/IBAFactsheet.pdf

United States Fish and Wildlife Service. 1999. Hine ' s Emerald Dragonfly Draft Recovery Plan

United States Fish and Wildlife Service. 2006. Hine ' s Emerald Dragonfly Fact Sheet.
http://www.fws.gov/midwest/endangered/insects/hed/hinsfct.html

6.1.2 - Additional reports and documents

i. taxonomic lists of plant and animal species occurring in the site (see section 4.3)

<no file available>

ii. a detailed Ecological Character Description (ECD) (in a national format)

<no file available>

iii. a description of the site in a national or regional wetland inventory

<no file available>

iv. relevant Article 3.2 reports

<no file available>

v. site management plan

<no file available>

vi. other published literature

<3 file(s) uploaded>

6.1.3 - Photograph(s) of the Site

Please provide at least one photograph of the site:

Ramsar (Ramsar, 01-02-2015)

6.1.4 - Designation letter and related data

Designation letter

<1 file(s) uploaded>

Date of Designation: 2014-06-10