



Great Lakes/Coastal: Coastal dune/beach

Description

The Coastal dune/beach feature is generally represented by areas associated with Great Lakes shorelines that have sand, gravel or cobble substrates. These areas include lakeshore beaches and open dunes. Beach communities can be divided into three separate areas with distinct vegetative associations, the lower, middle and upper beaches. The lower beach is hard-packed and under the constant influence of waves. The middle beach is influenced by waves only during storms. The upper beach is usually dry and highly influenced by blowing sand. Coastal sand dunes are found immediately inland from the beach. They are created, maintained, and influenced by water and wind erosion and the deposition of blowing sand. Dune communities include foredunes, perched dunes, blow outs, barrier dunes, Great Lakes barrens, interdunal wetlands, and wooded dune and swale complexes. Vegetation changes significantly across dune areas and over time as dunes stabilize. Dominant plants and community structure vary depending on the degree of sand deposition, sand erosion, and distance from the lake.

General Condition of Feature

About 45% of the coastal dune or beach area in the Northern Lower Peninsula is considered to be in fair to good condition and about 10% is considered to be in excellent condition. The remaining areas are considered degraded or very degraded. Coastal dunes and beaches include natural communities that are rare, uncommon, or imperiled in the State.

Associated Natural Communities

Cobble Beach	Open Dunes
Great Lakes Barrens	Sand/Gravel Beach
Interdunal Wetland	Wooded Dune and Swale Complex

Associated Species of Greatest Conservation Need

SNAILS

eastern flat-whorl (*Planogyra asteriscus*)
tapered vertigo (*Vertigo elatior*)
deep-throat vertigo (*Vertigo nylanderii*)

INSECTS

Lake Huron locust (*Trimerotropis huroniana*)
a spittlebug (*Philaenarcys killa*)
a tiger beetle (*Cicindela hirticollis rhodensis*)
little white tiger beetle (*Cicindela lepida*)
a tiger beetle (*Cicindela macra*)
dune cutworm (*Euxoa aurulenta*)
3-striped oncocnemis (*Oncocnemis piffardi*)
aweme borer (*Papaipema aweme*)

AMPHIBIANS

Fowler's toad (*Bufo fowleri*)

REPTILES

northern ringneck snake (*Diadophis punctatus edwardsii*)

REPTILES cont.

eastern fox snake (*Elaphe gloydi*)
eastern hognose snake (*Heterodon platirhinos*)
eastern massasauga (*Sistrurus catenatus catenatus*)
eastern box turtle (*Terrapene carolina carolina*)

BIRDS

Bald Eagle (*Haliaeetus leucocephalus*)
Piping Plover (*Charadrius melodus*)
Killdeer (*Charadrius vociferus*)
Caspian Tern (*Sterna caspia*)
Common Tern (*Sterna hirundo*)
Common Nighthawk (*Chordeiles minor*)
Prairie Warbler (*Dendroica discolor*)
Savannah Sparrow (*Passerculus sandwichensis*)

MAMMALS

deer mouse (*Peromyscus maniculatus gracilis*)

Associated Threats

MODIFICATION OF NATURAL PROCESSES

- Altered hydrologic regimes: The use of bank stabilization (e.g., breakwaters) may alter water flow.

HABITAT CONVERSION

- Industrial, residential, and recreational development
- Dredging and channelization

CONSUMPTIVE BIOLOGICAL RESOURCE USE

- Removal of non-timber flora: Beach grooming may alter community composition.
- Mining practices: Sand mining may have an impact on these systems.

NON-CONSUMPTIVE BIOLOGICAL RESOURCE USE

- Non-consumptive recreation: Uncontrolled ATV and ORV use may impact coastal dunes and beaches.

BIOLOGICAL INTERACTIONS

- Invasive plants and animals

Conservation Actions Needed [Threats addressed]

LAND & WATER PROTECTION

- Expand conservation easement programs [variety of threats]
- Support and expand conservation purchase of high quality occurrences [variety of threats]

LAND, WATER & SPECIES MANAGEMENT

- Manage to approximate natural disturbance regimes by restoring water flow patterns. [Altered hydrologic regimes]
- Institute invasive species monitoring, prevention and control programs. [Invasive plants and animals]
- Where possible, motorized vehicle trails should be located a minimum of 100 feet (and preferably more than 500 feet) from rivers, streams, lakes and other wetlands except at designated crossings. [Non-consumptive recreation]
- Support Landowner Incentive Programs to foster conservation on private land [variety of threats]

LAW & POLICY

- Work with municipalities to promote planning and zoning insuring adequate protection for dune and beach systems. [Industrial, residential, and recreational development]
- Develop new and enforce existing regulations for mitigation of sand mining operations. [Mining practices]
- Develop and enforce regulations to curtail recreational activities that cause significant damage. [Non-consumptive recreation]

EDUCATION & AWARENESS

- Create awareness in the general public of the value to wildlife of beach and dune vegetation and the impacts of beach grooming. [Removal of non-timber flora]

RECREATION

- Promote responsible ATV and ORV use. [Non-consumptive recreation]

Research and Survey Needs

- Identify invasive species that may degrade the value of coastal dune/beach for wildlife. Develop techniques to control invasive species.
- Identify and quantify sources of disturbance. How does recreational use impact dune and beach communities? What are the natural disturbance factors and what is their periodicity?
- Identify the characteristics of dune and beach systems that provide benefits to wildlife and which species may be affected by changes in these characteristics.
- Assess the impact of beach stabilization practices, such as plantings, on wildlife habitat quality of dune and beach communities.
- Evaluate the impact of sand mining on the wildlife value of dune and beach communities.
- A better understanding is needed of the dynamic nature of the shoreline zone.
- Identify and evaluate restoration activities that are currently underway in dune and beach systems.

Monitoring

- Track the density and distribution of development in dune and beach systems with attention to differences between areas protected with critical dune designations and unprotected areas.