



## 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 half of the coastal dune or beach area in the Southern Lower Peninsula is considered to be in fair to good condition. Most of the remaining areas are considered degraded or very degraded (~45%). 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

#### INSECTS

Atlantic-coast locust (*Psinidia fenestralis*)  
Lake Huron locust (*Trimerotropis huroniana*)  
woodland meadow katydid (*Conocephalus nemoralis*)  
delicate meadow katydid (*Orchelimum delicatum*)  
a spittlebug (*Philaenarcys killa*)  
a leafhopper (*Dorydiella kansana*)  
a tiger beetle (*Cicindela hirticollis rhodensis*)  
little white tiger beetle (*Cicindela lepida*)  
a tiger beetle (*Cicindela macra*)  
dune cutworm (*Euxoa aurlenta*)

#### 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*)  
six-lined racerunner (*Apidoscelis sexlineatus*)  
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*)

### Associated Threats

#### MODIFICATION OF NATURAL PROCESSES

- Altered hydrologic regimes: Ecoregion water extraction projects impact lake levels.

#### HABITAT CONVERSION

- Industrial, residential, and recreational development: Development for residential and recreational use is prevalent in these systems.
- Wetland modifications

#### POLLUTION

- Urban, municipal, and industrial: Dumping of trash occurs in these systems.

#### CONSUMPTIVE BIOLOGICAL RESOURCE USE

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

#### NON-CONSUMPTIVE BIOLOGICAL RESOURCE USE

- Non-consumptive recreation: High tourist densities and concentrated use may lead to path formation, dune destabilization, and grass degradation.

**MICHIGAN'S WILDLIFE ACTION PLAN**  
**TERRESTRIAL SYSTEMS: SOUTHERN LOWER PENINSULA**

*BIOLOGICAL INTERACTIONS*

- Invasive plants and animals: Species like baby's breath (*Gypsophila paniculata*), Asian carp (*Hypophthalmichthys* spp. and *Ctenopharyngodon idella*) may alter community composition.
- Other biological interactions: Gulls (*Larus* spp.) may outcompete less common species for nest sites.

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 using restoration of natural water flow patterns. [Altered hydrologic regimes]
- Assess management goals to ensure that they provide for a diversity of communities across the landscape. [Removal of non-timber flora; Other biological interactions]
- Institute invasive species monitoring, prevention and control programs. [Invasive plants and animals]
- Coordinate trash and litter collection efforts to remove illegally dumped waste materials. [Urban, municipal, and industrial pollution]
- 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*

- Develop new legislation and ordinances, where necessary, to regulate or limit draining or development of coastal dune and beach systems. Enforce existing regulations concerning draining and development of dune and beach systems. [Industrial, residential, and recreational development; Wetland modifications]
- Enforce ordinances regarding dumping of waste materials in Great Lakes coastal areas. [Urban, municipal, and industrial pollution]
- Develop and enforce regulations to curtail recreational activities that cause significant damage. [Non-consumptive recreation]

*EDUCATION & AWARENESS*

- Educate the public and residential developers on the benefits to wildlife of leaving unmaintained yard and beach areas along Great Lakes coastal areas (e.g., not grooming beaches). [Removal of non-timber flora]

*RECREATION*

- Promote responsible beach use. [Non-consumptive recreation]

Research and Survey Needs

- Identify invasive species that may degrade the value of coastal dune and 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 value to wildlife 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.