

# Michigan's Wildlife Action Plan: Assessing Coastal Dune/Beach Systems

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# **What is the Wildlife Action Plan?**

**The action plan provides a common strategic framework and information resource to aid in conservation of Michigan's aquatic and terrestrial wildlife.**

***The action plan comprehensively assesses:***

- associations between wildlife species of greatest conservation need (SGCN), the habitats they use and threats to both within 4 terrestrial ecoregions and 4 Great Lakes basins
- conservation actions needed to address threats at multiple scales

***The action plan will help to conserve all wildlife by:***

- using a coarse-filter (landscape features) to address habitat needs for SGCN and more common species
- using a fine-filter to address needs of SGCN that cannot be conserved through habitat alone
- identifying conservation needs that can be implemented by any conservation partner, at any scale
- improving communication and cooperation between conservation partners within the action plan's framework

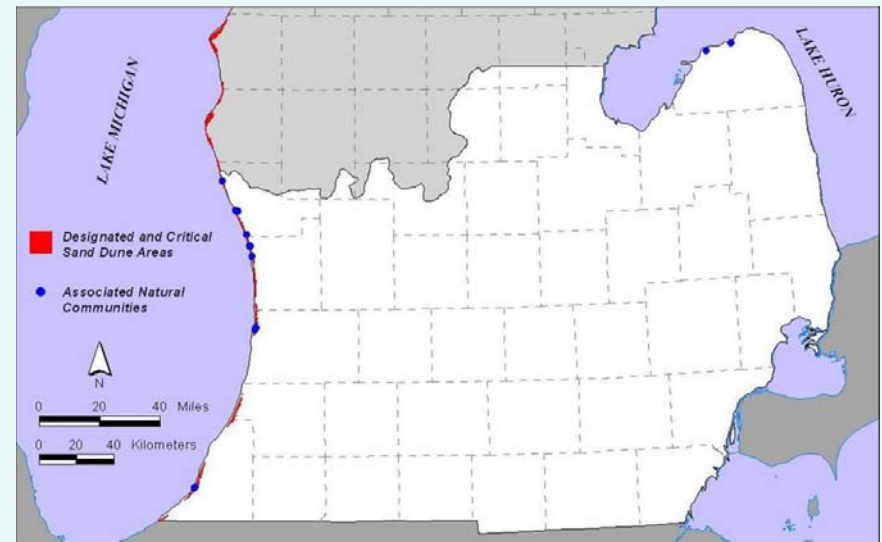
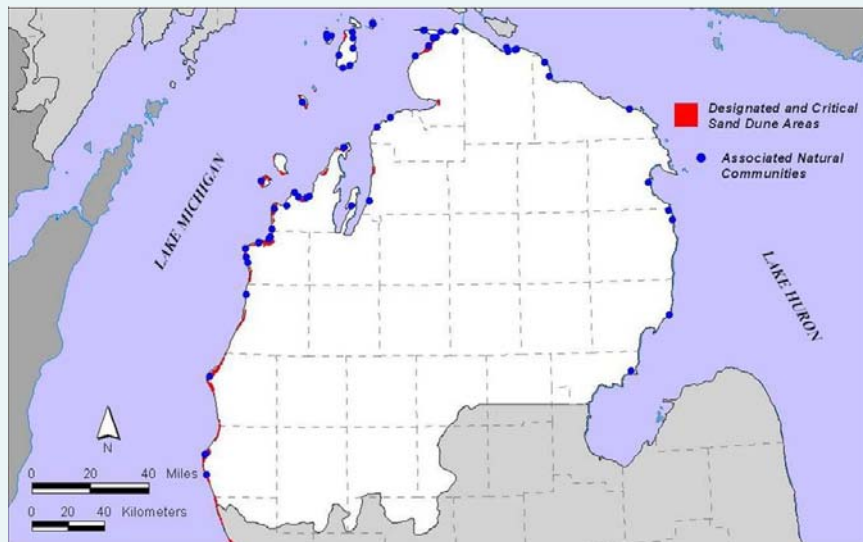
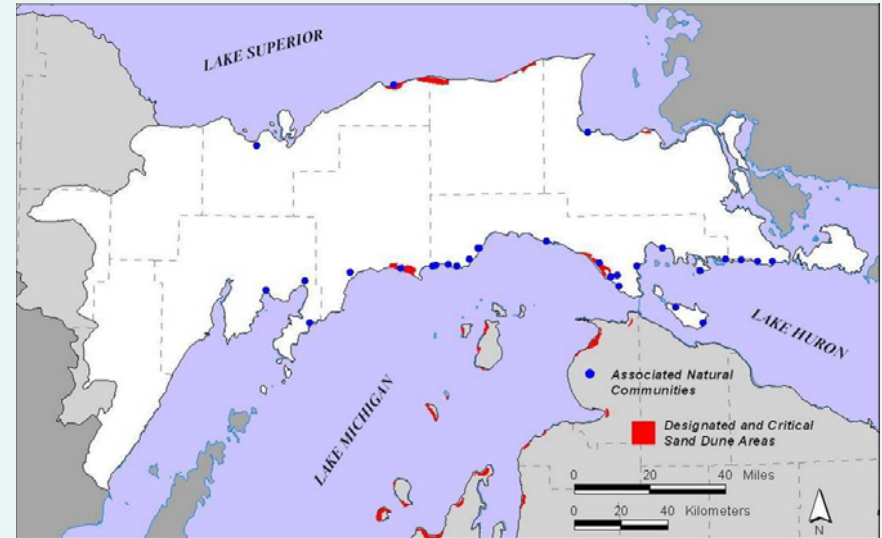
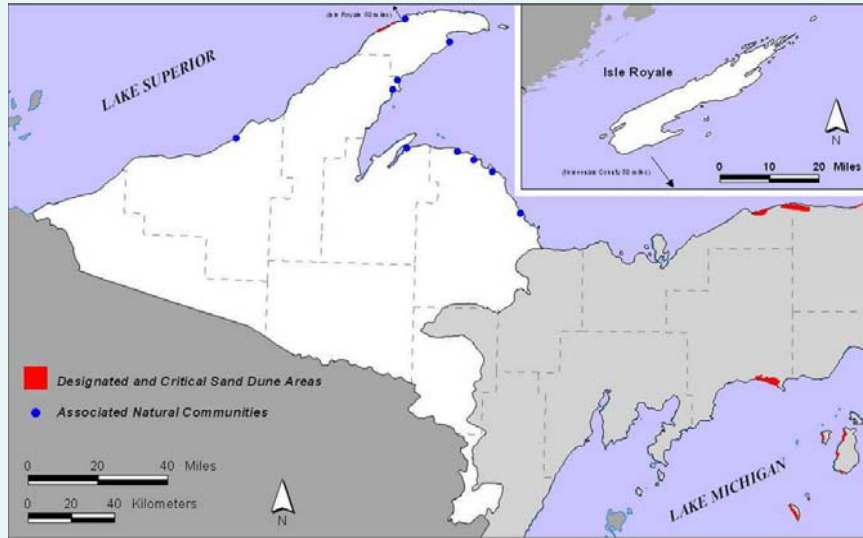
# **Coastal Dune/Beach Landscape Feature**

The Coastal dune/beach feature is one of 48 terrestrial and 43 aquatic landscape features that were used as the primary organization units in the action plan. Assessments of landscape features within ecoregions and lake basins were based primarily on opinions of natural resource professionals.

## **Associated Natural Communities**

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

# Known Distribution of Feature



# Threats to Feature

Within ecoregions, level of susceptibility of landscape features to threats was not assessed, just presence or absence. There were no notable differences between ecoregions in the assessment of threats to the Coastal dune/beach feature.

## ***HABITAT CONVERSION***

- **Industrial, residential, and recreational development:** Residential and recreational prevalent
- **Wetland modifications**
- **Dredging and channelization**
- **Incompatible natural resource management:** Historically diking, but recent declines

## ***CONSUMPTIVE BIOLOGICAL RESOURCE USE***

- **Mining practices:** Sand mining
- **Removal of non-timber flora:** Beach raking and grooming may alter vegetation community composition

# Threats to Feature - continued

## ***NON-CONSUMPTIVE BIOLOGICAL RESOURCE USE***

**Non-consumptive recreation:** High tourist densities and concentrated use leading to path formation, dune destabilization, and grass degradation; uncontrolled ATV and ORV use; human foot traffic and pets; transport of watercraft through these areas; boating and swimming

## ***POLLUTION***

**Urban, municipal, and industrial pollution:** Dumping of trash

## ***BIOLOGICAL INTERACTIONS***

**Invasive plants and animals:** Species like baby's breath (*Gypsophila paniculata*) and Asian carp (*Hypophthalmichthys* spp. and *Ctenopharyngodon idella*) may alter community composition; accumulation of zebra mussel (*Dreissena polymorpha*) shells; exotic plant species

**Other biological interactions:** Gulls (*Larus* spp.) may out-compete less common species for nest sites

## ***MODIFICATION OF NATURAL PROCESSES***

**Altered hydrologic regimes:** water extraction projects may have an impact on lake levels; bank stabilization (e.g., breakwaters) may alter water flow

**Fragmentation**

## **Coastal Dune/Beach Species of Greatest Conservation Need (SGCN)**

Four-hundred four (404) Michigan wildlife species were identified as having small or declining populations or other characteristics that make them vulnerable. Coastal dune/beach was identified for twenty (20) of these species as the principally or primarily used, essential, optimal and/or most preferred landscape feature. Assessments of SGCN throughout their Michigan ranges were based primarily on scientific literature and opinions of species experts.

# Coastal Dune/Beach SGCN

## **SNAILS**

eastern flat-whorl (*Planogyra asteriscus*)  
tapered vertigo (*Vertigo elatior*)  
deep-throat vertigo (*Vertigo nylanderi*)  
pleistocene catinella (*Catinella exile*)

## **INSECTS**

Atlantic-coast locust (*Psinidia fenestralis*)  
Lake Huron locust  
(*Trimerotropis huroniana*)  
delicate meadow katydid  
(*Orchelimum delicatum*)  
a tiger beetle  
(*Cicindela hirticollis rhodensis*)  
little white tiger beetle (*Cicindela lepida*)  
a tiger beetle (*Cicindela macra*)  
dune cutworm (*Euxoa aurulenta*)

## **AMPHIBIANS**

Fowler's toad (*Bufo fowleri*)

## **REPTILES**

eastern fox snake (*Elaphe gloydi*)  
eastern hognose snake  
(*Heterodon platirhinos*)  
six-lined racerunner  
(*Apidoscelis sexlineatus*)

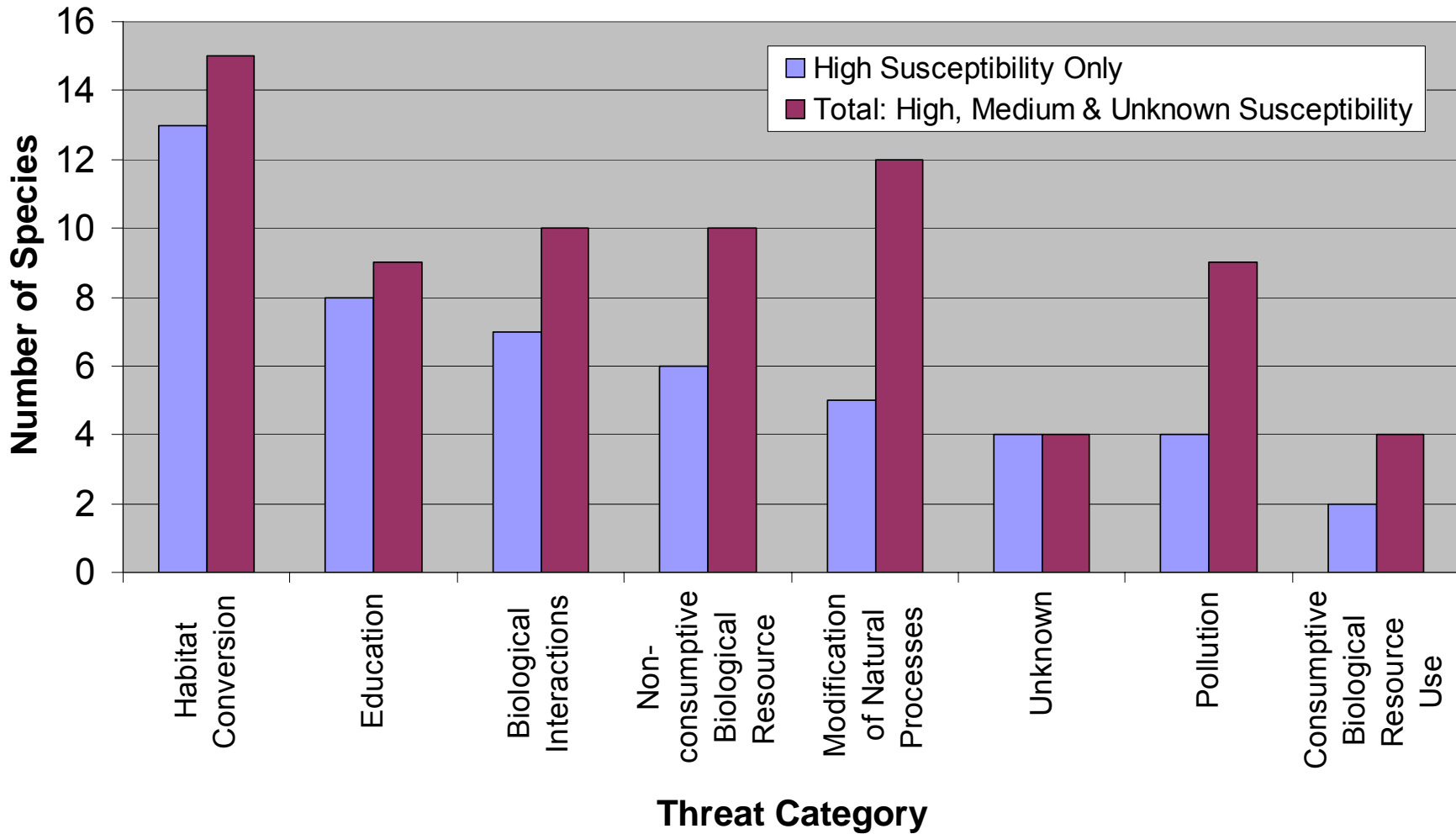
## **BIRDS**

Bald Eagle (*Haliaeetus leucocephalus*)  
Piping Plover (*Charadrius melodus*)  
Caspian Tern (*Sterna caspia*)  
Common Tern (*Sterna hirundo*)  
Prairie Warbler (*Dendroica discolor*)



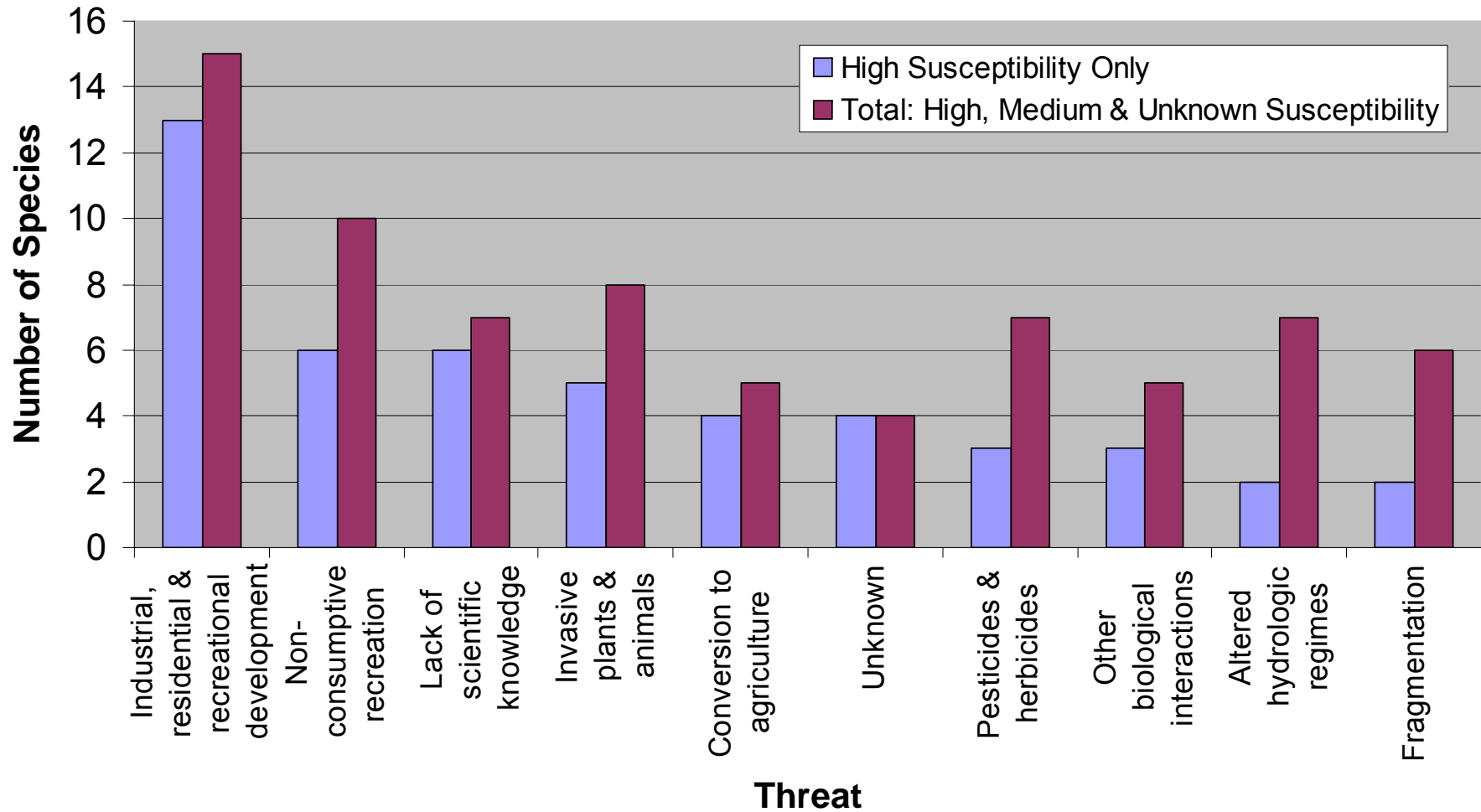
# Threats to SGCN

**Threat Categories: Number of Coastal Dune/Beach SGCN Susceptible to Threats within Each Category**



# Threats to SGCN - continued

## Specific Threats: Threats with the Greatest Number of Susceptible Coastal Dune/Beach SGCN



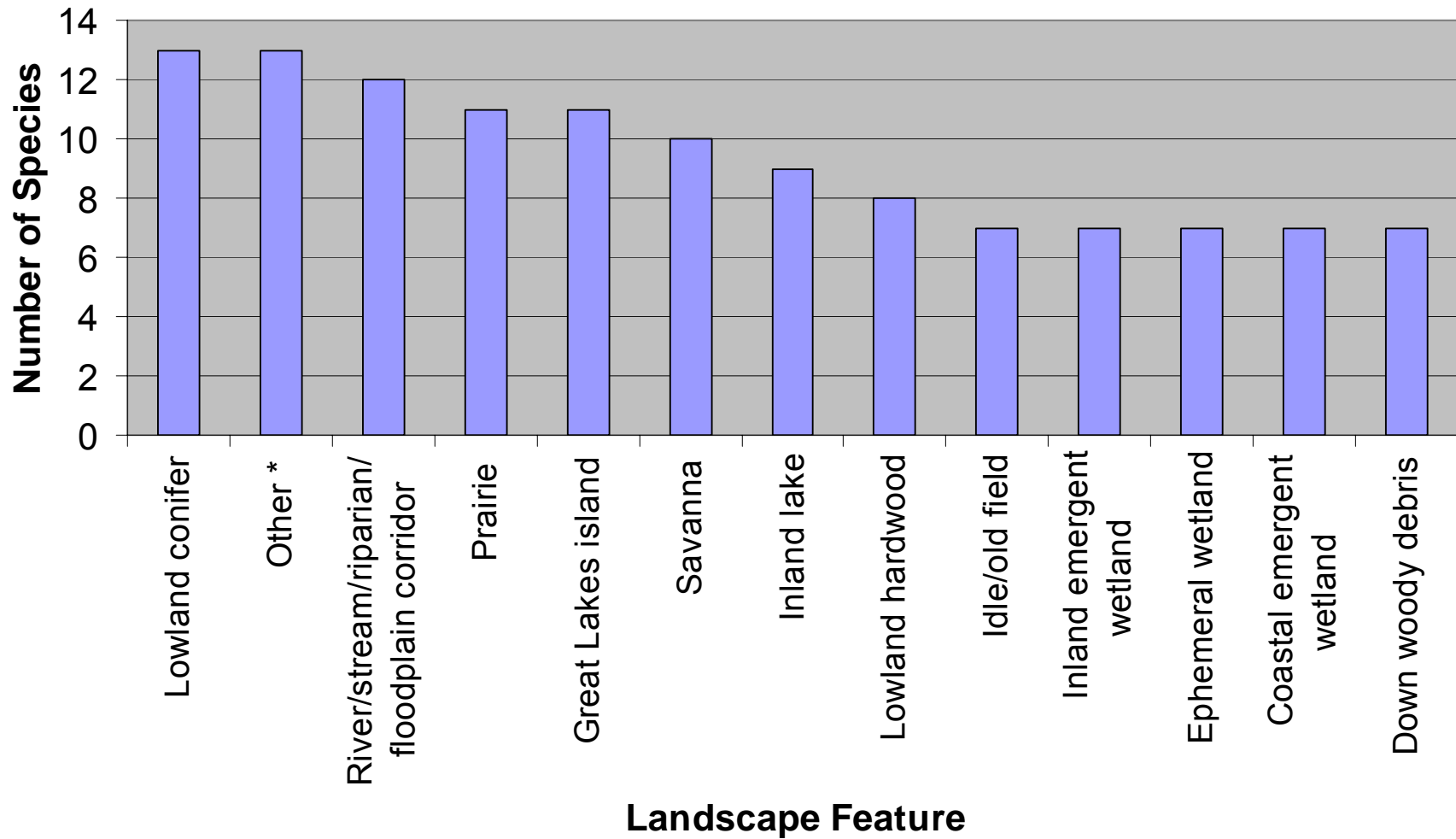
# Conservation Needs

## **Landscape Mosaics**

The landscape features in the following graph were also identified for Coastal dune/beach SGCN as principally or primarily used, essential, optimal and/or most preferred landscape features. Therefore, it may be important to consider conservation of these features in proximity to Coastal dune/beach features.

# Landscape Mosaics - continued

## Landscape Features with the Greatest Number of Associated Coastal Dune/Beach SGCN



# Recommended Conservation Actions

A statewide assessment of threats to wildlife and their habitats and conservation needs was also completed. Actions identified to address threats at the statewide level are not included here.

## ***LAND & WATER PROTECTION***

- Promote protection of significant coastal dune/beaches through purchase, easement or other economic incentives.

## ***LAND, WATER & SPECIES MANAGEMENT***

- Manage to approximate natural disturbance regimes by restoring natural water flow patterns.
- Assess management goals to ensure that they provide for a diversity of communities across the landscape.
- Work with land managers to develop priorities for coastal dune restoration and management.
- Institute invasive species monitoring, prevention and control programs.
- Coordinate trash and litter collection efforts to remove illegally dumped waste materials.
- 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.
- Support Landowner Incentive Programs to foster conservation on private land.

# Recommended Conservation Actions - continued

## ***LAW & POLICY***

- Develop new or enforce existing legislation, regulations or ordinances, where necessary, to:
  - regulate or limit draining or development of coastal dune and beach systems
  - retain larger parcel sizes in Great Lakes dune complexes
  - mitigate sand mining operations
  - regulate dumping of waste materials in Great Lakes coastal areas, and
  - curtail recreational activities that cause significant damage.
- Work with municipalities to promote planning and zoning insuring adequate protection for dune and beach systems.

## ***EDUCATION & AWARENESS***

- Educate the general public and residential developers on the benefits to wildlife of leaving unmaintained (not groomed) yard and beach areas along Great Lakes coastal areas.
- Create awareness in the general public of the value of beach and dune natural vegetation communities to wildlife.

## ***RECREATION***

- Promote responsible beach use, especially ATV and ORV use.

# Recommended Conservation Actions - continued

## ***RESEARCH AND SURVEY***

- Identify invasive species that may degrade the value of coastal dune and beach systems for wildlife. Develop techniques to control these species.
- Identify and quantify sources of disturbance. How does recreational use affect dune and beach communities? What are the natural disturbance factors and what are their periodicities?
- Identify the characteristics of dune and beach systems that provide benefits to wildlife and which species may be affected by changes to 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.
- Develop a better understanding 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.
- Track the amount and density of coastal beaches and dunes.

# **Acknowledgements**

Development of the action plan was coordinated by the DNR, but made possible by participation of many conservation partners, including State, Federal and tribal agencies, local governments, conservation organizations, academic institutions, private landowners, and other interested individuals.

Funding was provided in part by the Michigan Nongame Fish and Wildlife Fund, and the U.S. Fish and Wildlife Service through the Wildlife Conservation and Restoration and State Wildlife Grants Programs.