



Area, Quality and Protection of Special Lakeshore Communities - Sand Dunes

Indicator #8129 (Sand Dunes)

Note: This is a progress report towards implementing this indicator. It was last updated in 2005.

Overall Assessment

Status:	Not Assessed
Trend:	Not Assessed

Lake-by-Lake Assessment

<i>Separate lake assessments were not included in the last update of this progress report.</i>
--

Purpose

- To assess the extent and quality of Great Lakes sand dunes, one of the 12 special lakeshore communities identified within the nearshore terrestrial area

Ecosystem Objective

Maintain total area, extent and quality of Great Lakes sand dunes, ensuring adequate representation of sand dune types across their historical range.

State of the Ecosystem

Sand dunes continue to be lost and degraded, yet the ability to track and determine the extent and rate of this loss in terms of both area and quality in a standardized way is not yet feasible.

Great Lakes sand dunes comprise the world's largest collection of freshwater dunes. They are home to endemic, rare, endangered, and threatened species. Sand dunes can be found along the coasts of all the Great Lakes. Lake Michigan, however, has the greatest number of sand dunes with a total of 111,291 hectares, followed by Ontario with 8,910 hectares, Indiana with 6,070 hectares, New York with 4,850 hectares, and Wisconsin with 425 hectares. This information is not complete. No comprehensive map of Great Lakes sand dunes exists – although some work has taken place in Ontario for each lake basin.

Degree of protection varies considerably among jurisdictions so it is difficult to assess the overall loss or status of sand dunes, because although information about the quality of individual sand dunes is locally available, this information has not been collected across the entire basin. Nevertheless, conversations with local managers and environmentalists indicate a continued loss of sand dunes to development, sand mining, recreational trampling, and non-indigenous invasive species. The Lake Ontario Dunes Coalition, Michigan Dunes Alliance, and the Save the Dunes Council in Indiana are making some progress in both protecting and restoring sand dunes in their respective regions.

Pressures

Threats to sand dunes are numerous. Non-indigenous invasive species such as baby's breath (*Gypsophila paniculata*) and spotted knapweed (*Centaurea maculosa*) tend to spread rapidly if not controlled. Habitat destruction, however, is the greatest threat. In addition to sand mining, shoreline condominium and second home development level the dunes. Recreational use by pedestrians and off road vehicle use destroys vegetation, thereby causing dune erosion.

Management Implications

Many actions have been taken to protect Great Lakes sand dunes. For example, in Eastern Lake Ontario boardwalks and dune walkovers have been constructed to provide public access to beaches without compromising dune ecology. Native beach grasses have been planted to retard erosion. On the eastern shores of Lake Michigan, invasive plants have been systematically removed by dune stewards. Michigan has legislation in place to control or reduce sand mining impacts.

In order to protect sand dunes there is a need for improved communication between government agencies and stakeholders with regard to sand dune management. Public education would help alleviate stress to dunes cause by recreational trampling. Stronger

legislation could limit some damaging activities. Local government creativity in managing dune areas through creative zoning would improve the protection of sensitive and irreplaceable areas.

Comments from the Author(s)

A group of sand dune managers and scientists is organizing a conference for all persons involved in Great Lakes sand dune ecosystem ecology, management, research and education efforts. The purposes of the conference will be to compile information about sand dunes and sand dune research and management and to form the Great Lakes Sand Dunes Coalition. This group could work actively to collect available data about Great Lakes sand dunes and begin collaborative actions to protect them.

Acknowledgments

Author: Lindsay Silk, Environment Canada, Downsview, ON.

Sources

Bonanno, S. 1998. The Nature Conservancy.

Byrne, M.L. 2004. Personal communication.

Cabala, T. 2004. Personal communication.

Environment Canada and the U.S. Environmental Protection Agency. 1997. *State of the Great Lakes 1997*.

Lewis, J. 1975. Michigan Geological Survey Division Circular(#11). <http://www.geo.msu.edu/geo333/sand.html>, last accessed April 6, 2004.

Michigan Department of Environmental Quality. 2004. http://www.michigan.gov/deq/0,1607,7-135-3311_4114_4235--,00.html, last accessed April 6, 2004.

U.S. Environmental Protection Agency (U.S. EPA). 2002. Protecting and Restoring Great Lakes Sand Dunes. http://www.epa.gov/owow/estuaries/coastlines/dec02/sand_dunes.html, last accessed March 29, 2004.

Last Updated

State of the Great Lakes 2005

[Editor's Note: Updated links were not available for this publication]