

Identifying Natural Areas for Conservation in Michigan's Thumb

SOUTHERN LAKE HURON ASSESSMENT

OVERVIEW The Southern Lake Huron Assessment asked: How can the resources of the Lake Huron coastal area be enhanced and leveraged to benefit residents of and visitors to Michigan's Thumb Area, support local economies, and maintain environmental quality? One strategy is to conserve a network of natural areas for water quality, public access and recreation. This fact sheet describes one step toward this goal — an analysis to prioritize conservation efforts.

Michigan's Thumb contains a variety of natural areas such as forest, wetland, shoreline, inland lakes and streams that could be lost or degraded without additional protection. Conserving these remaining natural areas could enhance local communities. Michigan Sea Grant evaluated remaining natural areas to help natural resource managers, land conservancies and local decision makers identify important conservation opportunities and wisely invest their limited resources.

FOCAL QUESTION With limited resources, which areas in the Thumb should be prioritized for conservation in order to maximize habitat protection and ecosystem services?

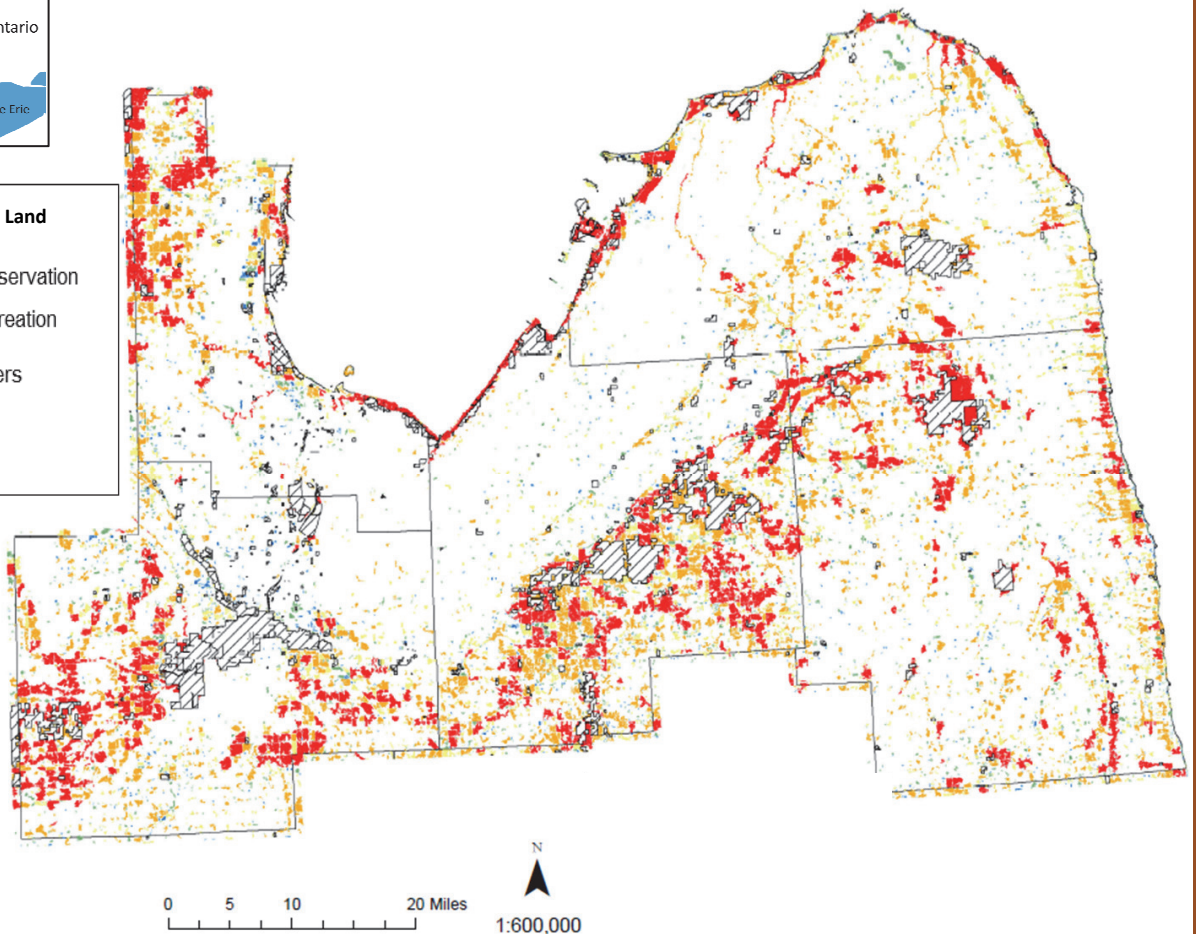
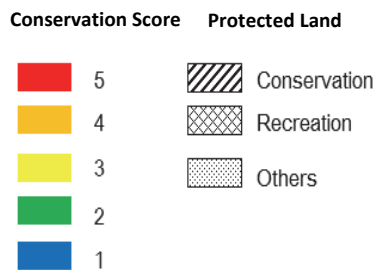


Figure 1. Map of study area and conservation scores (with 5 being the highest priority) for undeveloped land in the Thumb. Natural areas are color coded based on their value for fish and wildlife habitat.

PROJECT DESCRIPTION The project team identified natural areas that are currently unprotected but provide important habitat for fish and wildlife in Michigan's Thumb Area. Geographic information was used to evaluate the natural areas and give each site a score based on its physical characteristics and its potential value for fish and wildlife. The research team produced an overall map, 12 township maps, an inventory of high-priority conservation opportunities, and data indicating why certain areas are worthy of additional protection. Land conservancies, parks and public officials can use this information to engage landowners and the public and guide conservation decisions.

RESULTS The study identified 33,771 undeveloped patches of land, totaling 413,224 acres — about 17.1 percent of the study area. These natural areas were distributed mostly in coastal zones or river corridors. Approximately 41.6 percent of the undeveloped land (by area) and 7.17 percent of the study area in the Thumb received the highest conservation score in this analysis. This illustrates that there are many opportunities to conserve land in Michigan's Thumb to benefit wildlife, water quality, recreation and local communities.

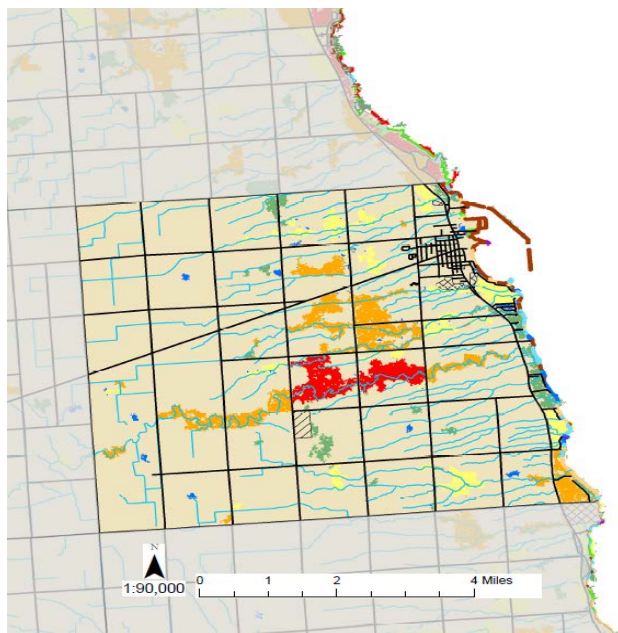
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HOW THE AREAS WERE EVALUATED Michigan Sea Grant conducted a series of analyses using Geographic Information System (GIS) software and a variety of data including the location, size and shape of wetlands, forests, streams, roads and parks in the region. Undeveloped patches of land in Michigan's Thumb were given an overall score, with 5 being the highest and 1 being the lowest priority for conservation based on the following:

- **Habitat Scores** Each patch of undeveloped land was evaluated based on its ability to provide habitat for five different animal groups: fish, amphibians and reptiles, raptors, waterfowl and shorebirds. For example, undeveloped lands within 0.4 km of Lake Huron provide a stop-over site for migrating landbirds and raptors and, therefore, received a higher habitat score. The five animal-specific scores were averaged creating a composite habitat score for each natural area.
- **Landscape Scores** Twelve different landscape and land cover characteristics were also used to evaluate the undeveloped patches of land. For example, natural areas that were large, adjacent to parks, contained streams and were surrounded by farms rather than pavement received a higher score because the site could provide a range of benefits for recreation, water quality and animals if adequately protected.
- **Overall Conservation Score** The habitat and landscape scores were added together, with each contributing equally to the final conservation scores shown in the maps. Statistical software was used to divide the natural areas into five groups based on their overall conservation score. Natural areas that received a high conservation score are seen as "hotspots" or high priorities for future conservation efforts.

SAND BEACH TOWNSHIP

Sand Beach has a population of about 1,470 people with the majority of people working in agriculture, forestry, fishing, hunting and health care. The township features some conservation and recreational areas in close proximity to high priority land; this protected land could be expanded to include additional land for conservation and recreation. Nearly 17 percent of the undeveloped land in the township is considered high priority for conservation in part because of the large forested and grassland areas and extensive sandy shoreline. As you can see from the map and tables, only 0.6 percent of the land is already protected for conservation and recreation while 13 percent is undeveloped and unprotected.



Sand Beach Township Statistics

Total land area 23,303 acres

Landuse in township	Area (acres)	Proportion
Developed land	1,105	5%
Farmland	15,036	65%
Grassland	3,710	16%
Forest	2,548	11%
Wetland	747	3%
Openwater	10	0%
Total *	23,156	100%

Natural areas * 3,029 acres
13% of total area

Conservation Score	Area (acres)	Proportion
5	510	17%
4	1,259	42%
3	804	27%
2	378	12%
1	78	3%

Protected lands 143 acres
0.6% of total area

Shore type	Length (m)	Proportion
Rock	10,974	54%
Gravel	1,665	8%
Sand and Gravel	3,120	15%
Sand	3,424	17%
Wetland/Vegetation	601	3%
Artificial	591	3%
Total shore length	20,374	100%

* Land patches smaller than 4 acres were not evaluated.

Figure 2. Map and summary data about Sand Beach Township, illustrating areas that are important conservation opportunities.