

Locating Possible Piping Plover Nest Sites in the Upper Peninsula of Michigan

By Michelle Kane



Abstract

This project used the ArcGIS program to locate possible piping plover nesting sites in Michigan's Upper Peninsula. Piping plovers are an endangered shorebird and their habitat needs to be protected. The map produced portrays several possible beaches that fit plover habitat criteria set forth by the Fish and Wildlife Service (FWS).

Introduction

Piping plovers are an endangered species of shorebird. The population that nests in the Great Lakes is especially threatened. As of the summer of 2014, there were only 70 nesting pairs in the Great Lakes population. Piping plovers nest on beaches on the Great Lakes shoreline and many of their known nesting habitats are in the Upper Peninsula. According to a FWS habitat model in a similar project done in Maine, piping plovers require beaches with a surface area greater than 28,500 m². Piping plover nests can be damaged by humans. ATVs, pets, trash, and walking on beaches can disturb plovers and destroy nests. This project identified possible nesting sites and highlighted ones that were at risk of being harmed by humans.

Methods

Raster data with the land cover of Michigan's Upper Peninsula was obtained from the Michigan Geographic Data Library. Sand land categories were selected and converted into vector data. Then sand covered sites larger than 28,500 m² were selected and used to create a new layer. Beach sites were selected by selecting sand sites that intersected the Great Lakes shapefiles downloaded from the Michigan Geographic Database Library. These sites compose the possible nesting sites shown in yellow on the map. Then urban areas were selected from the raster data and converted into vector data. Beach sites within an easy walk of an urban area (200 m) were selected and designated at risk, since these sites are easily accessible by humans. These sites were symbolized in red.



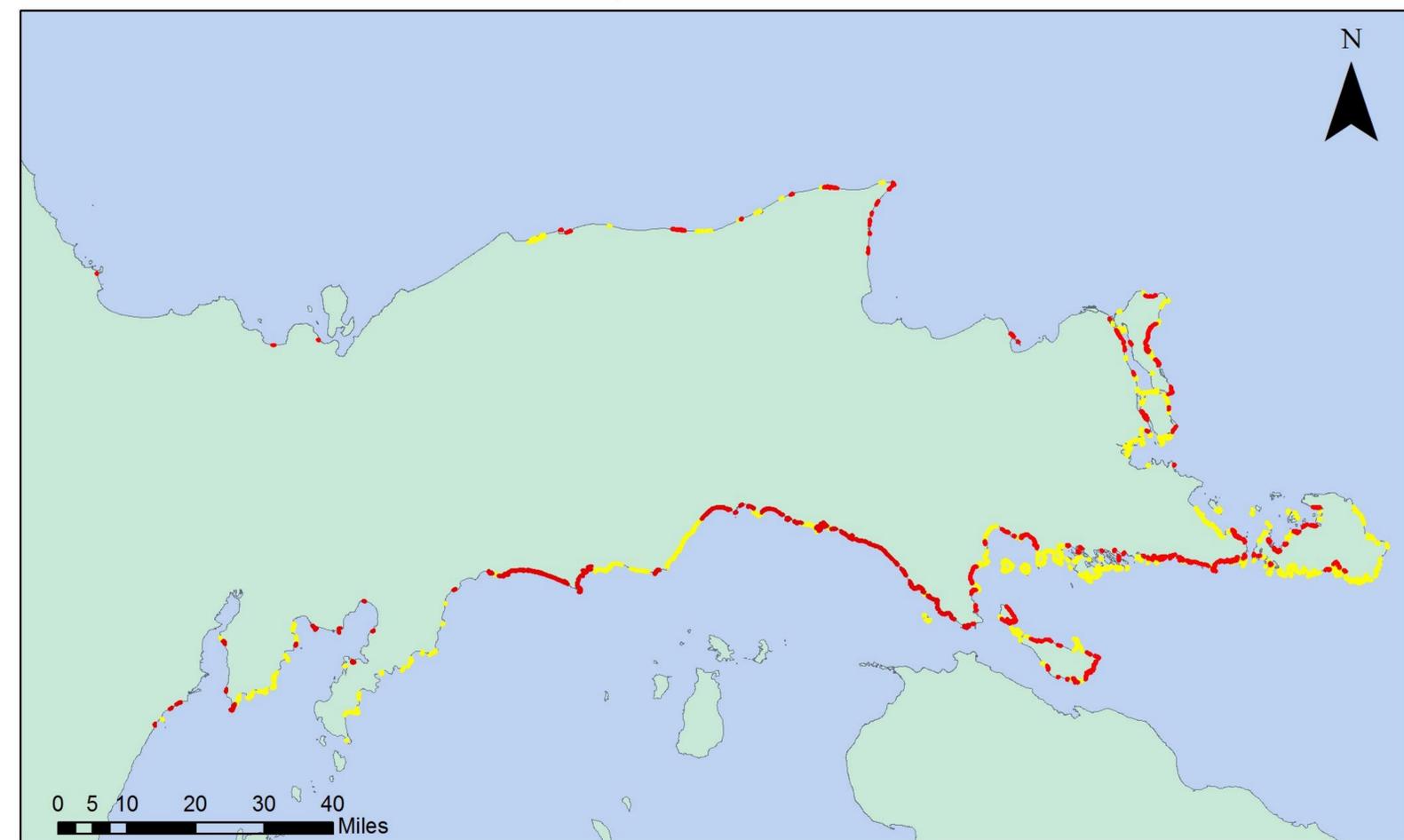
Conclusions

This analysis showed that much of the Upper Peninsula's beaches (over 200) fit piping plover habitat criteria. The majority of these beach sites were located within an easy walking distance or urban areas, like towns and roads. This puts plovers that nest at these sites at a higher risk of humans tampering with nests. As a future field project, these nest sites could be investigated to determine if there is any plover activity. Special focus could be given to at risk sites and piping plover monitors, volunteers or employees who help protect the birds from predator and human disturbance, could be stationed at these sites. A future GIS project could incorporate more plover habitat criteria, once more is understood about how plovers choose their nest sites.

Results

Possible Piping Plover Habitat in the Upper Peninsula of Michigan

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Legend

- Possible Nesting Sites Designated At Risk
- Possible Nesting Sites

Data was obtained from the Michigan Geographic Data Library. Nesting sites were designated at risk if they were within 200 meters of an urban area. These sites were designated at risk because they are under greater threat from human impact, since they are within walking distance of urban areas.

Sources

Data obtained from the Michigan Geographic Data Library
Banner A. and S. Schaller. 2001. Piping Plover Habitat Model. USFWS.