

First-Year Research in Earth Sciences: Dunes

Conference Presentation: Stratz, Jared M., Rian R. Bylsma, Sydney B. Carrick, Hannah M. Damsteegt and Timothy J. Nykamp (2012). "Interactions between blowouts and trails in a Lake Michigan coastal system." Annual Meeting of the Michigan Academy of Science, Arts and Letters, Alma College (Alma, MI), 2 March 2012; poster.

Abstract: Previous dune research has shown that trails on dunes can influence blowout development, but there are no studies of the interactions between trails and blowouts on Lake Michigan dunes. In the fall of 2011, a study was undertaken to investigate relationships between trails and blowouts on a dune ridge in P.J. Hoffmaster State Park. We documented the characteristics of all trails and blowouts in a 1.2-km section of the dune ridge. Recorded blowout characteristics included height, length (parallel to shore) and width (perpendicular to shore); and for each trail, we recorded vegetation density, average width and orientation. We mapped the locations of each trail and blowout using GPS, and visually represented the data using GIS software. Results show spatial patterns of trails and blowouts within the study area. There are more trails than blowouts but most blowouts have trails running through them. A high percentage of blowouts have trails with orientations perpendicular to the shoreline. Such results suggest that blowouts are more likely to occur where trail orientation makes the dune surface vulnerable to erosion by southwesterly winds. Understanding the relationship between blowouts and trails can help to identify potential areas where greater human impact can occur.