

First-Year Research in Earth Sciences: Dunes

FYRES: Dunes Research Report: Burkley, Katie, Abigail Hocking, Barak Howell, Eric Medema, Joel Newswanger, Cal Thorne, and Angela Tiemeyer (2014). “Blowouts and Unmanaged Trails in Hoffmaster State Park, Michigan.” FYRES: Dunes Research Report #11. Grand Rapids (MI): Department of Geology, Geography and Environmental Studies, Calvin College. 18 p.

Abstract: Dune systems in public parks can be exposed to the pressures of high recreational use, but few studies have investigated the resulting changes to the dunes. Our study focused on human impacts at Hoffmaster State Park, MI by investigating the unmanaged trails and blowouts along a dune ridge. We mapped all trail segments with GPS, recorded their characteristics, and categorized each segment as either leading into a blowout, near a blowout, or not near a blowout. We mapped all blowouts with GPS including their deflation and deposition areas, recorded blowout characteristics and categorized each blowout as either saucer or trough. We analyzed the data to see if there were any relationships between the unmanaged trails and blowouts. Our study area contained 54 trail segments and 23 blowouts. Trail segments were mostly wide and bare of vegetation. The trails “not near” blowouts had a greater vegetation height than the trails near or through blowouts. Most blowouts were saucer-shaped and had at least one trail. Blowouts which contained one or more trail intersections tended to have larger deflation areas. Our results suggest that human disturbance along the dune ridge can cause larger amounts of instability on the dune surface.