

First-Year Research in Earth Sciences: Dunes

Conference Presentation: Paquette, Alissa J., Shira Davis, Mallory H. Hoatlin, Hannah M. Spaulding, Camille VanderVeen (2017). “Investigating a boardwalk’s effects on a Lake Michigan coastal dune.” Annual Meeting of the Michigan Academy of Science, Arts, and Letters, Western Michigan University (Kalamazoo, MI), 10 March 2017; poster.

Abstract: Boardwalks are a management strategy that protect dunes from negative human impacts. There has been little study, however, of how boardwalks themselves may harm dune vegetation. We studied this at a boardwalk on a Lake Michigan coastal dune in P. J. Hoffmaster State Park, Michigan. We recorded boardwalk characteristics of the two sections that were built along the dune crest and arm in 1975, and of the section that was built up the slipface in 2016. Other methods included GPS mapping, measuring light intensity under the boardwalk, measuring surface soil moisture, and recording vegetation characteristics. The newer section of the boardwalk has effective signage and barriers to prevent people from leaving the boardwalk. The older sections have insufficient signage and barriers. There are unmanaged trails stemming from the older sections, but not the new section. The condition of vegetation generally improves as distance from the boardwalk increases. This correlates with light intensity and the height of the boardwalk above the dune surface. Therefore, while the boardwalk reduces trampling along the ridge, it does not fully prevent trampling on other parts of the dune surface and there is a narrow corridor of vegetation impairment along the boardwalk.