

First-Year Research in Earth Sciences: Dunes

Conference Presentation: Maike, Chris A., Kyle K. Whalley, Gideon E. Berghuis, Luke K. Cousino, John Elenbaas, James W. Karsten, and Jessica A. Trojanowski (2012). “Interactions between topography and Oriental Bittersweet at Castle Park Dune, Michigan.” Annual Meeting of the Michigan Academy of Science, Arts and Letters, Alma College (Alma, MI), 2 March 2012.

Abstract: The dunes along Lake Michigan are interesting sites for studying the interactions between invasive species and topography. This study explores the relationships between dune characteristics and the invasive species Oriental bittersweet on a 50-meter tall dune in Castle Park Preserve near Holland, MI. During the fall of 2011, we investigated dune topography, activity, surface conditions and the locations of invasive species. We used erosion pins and sand traps to identify areas of dune activity, a total station to survey dune topography, and Trimble GPS units to map Oriental bittersweet. The Castle Park Dune is an active blowout with sand moving over the crest of the dune. There were 279 Oriental Bittersweet plants mostly concentrated within 3 main areas on the leeward slope of the dune. The leeward slope receives inputs of sand but is currently stabilized by the Oriental bittersweet. Management efforts to remove the Oriental bittersweet are underway, but our analysis of dune activity suggests the dune slope may become unstable without the plants. We recommend that park managers plant an appropriate native species in the place of the invasive species.