

First-Year Research in Earth Sciences: Dunes

Conference Presentation: Hilbrands, Nathan, Afua A. Brantuo, Samuel Fyneweever, Isaiah J. Hageman, Benjamin J. Kielar, and Robin Kollar. 2020. "Spatial distribution of Pitcher's thistle on a Lake Michigan blowout." Annual Meeting of the Michigan Academy of Science, Arts, and Letters, Virtual Conference hosted by Lawrence Technological University (Southfield, MI), 26 September 2020; presentation.

Abstract: Spatial distribution of a species is an important factor for success and frequently not well understood in areas with small-scale environmental variation. Our study investigated the distribution of Pitcher's thistle (*Cirsium pitcheri*), a nationally threatened species, in an active blowout within a Lake Michigan dune system. We compared this distribution to local dune characteristics of erosion, vegetation, and slope angle. We classified and mapped Pitcher's thistle into four categories: seedling, juvenile, flowering, and dead. We collected erosion data using erosion pins and surveyed vegetation communities using GPS and vegetation quadrats. Our study area contained 444 individual Pitcher's thistle which gave an average density of .053 plants per square meter. Pitcher's thistle, in all four age groups, was frequent in areas of sparse vegetation and mild erosion. It was also found in areas of dense vegetation and shrubs/trees. Pitcher's thistle was not found in areas of bare sand and heavy deposition. These results could be used to look for ideal locations for Pitcher's thistle management or reintroduction. As well, the presence of Pitcher's thistle could be used as an indicator of dune activity and environmental conditions.