First-Year Research in Earth Sciences: Dunes

Conference Presentation: Karsten, James, Gabriel LePage, Michael Messina, Daniel Shisler, Jory Smith (2013). "Sand transport and vegetation on two Lake Michigan coastal blowouts." North-Central Section of the Geological Society of America (Kalamazoo, MI), 2-3 May 2013.

Abstract: Sand transport and vegetation are very important influences on blowout evolution, but not much research has been done on how these two elements affect Lake Michigan coastal blowouts. This study investigated the patterns of vegetation and sand transport on two large, saucer-type blowouts in Fall 2012. The study location was Kitchel-Lindquist Dunes Preserve in Ottawa County, Michigan, which is separated from Lake Michigan by a road and a row of houses. A variety of methods were used including erosion pins, sand traps, GPS mapping, and observation and classification of vegetation. The two blowouts are active, with significant sand movement over the rims from the southwest in the direction of the prevailing winds. There was no sand observed moving into the dune system from the west, so any sand transported was being reworked locally. The wind patterns and areas of erosion and deposition within the blowouts were variable. The floors of the blowouts were bare sand and the vegetation was concentrated on the rims and leeward slopes. The vegetation observed was mostly American Beach Grass (*Ammophila brevilugata*) and Little Bluestem (*Schizachyrium scoparium*). The plant communities suggest the blowouts are relatively young(less than 200 years old) and the area was stable before blowout development. The geomorphology of the Kitchel-Lindquist blowouts and others like them is dynamic, and more study is needed to better understand the processes at work in these coastal landforms.