

# First-Year Research in Earth Sciences: Dunes

**FYRES: Dunes Research Report:** Karsten, James, Gabriel LePage, Michael Messina, Daniel Shisler and Jory Smith (2013). “Sand Transport and Vegetation on Two Lake Michigan Blowouts in Ottawa County, Michigan.” FYRES: Dunes Research Report #8. Grand Rapids (MI): Department of Geology, Geography and Environmental Studies, Calvin College. 22 p.

**Abstract:** Sand transport and vegetation are important influences on blowout evolution, but little research has focused on their effects on Lake Michigan coastal blowouts. This study investigated the patterns of vegetation and sand transport on two large, saucer-type blowouts in Kitchel-Lindquist Dunes Preserve, Ottawa County, Michigan. 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 sand movement from exposed deflation areas over the blowout rims to deposition areas on the vegetated leeward slopes. There was no evidence of sand moving into the blowouts from the west. Blowout vegetation was concentrated on the rims and leeward slopes, with very little vegetation in the windward deflation areas. Most of the vegetation was American beach grass (*Ammophila breviligulata*) and little bluestem bunchgrass (*Schizachyrium scoparium*), along with dune-building shrubs on the leeward slopes. These plant communities are consistent with active blowouts with significant amounts of sand movement. Some of the species suggest that surfaces went through periods of stability before the present active stage. The northern blowout is less active than the southern blowout, and it might be in undergoing a period of natural stabilization. Interactions between processes and vegetation on the Kitchel-Lindquist blowouts illustrate the dynamic nature of Lake Michigan coastal dunes.