First-Year Research in Earth Sciences: Dunes

FYRES: Dunes Research Report: Leisman, Hans, Rachel Commons, Noah DenBleyker, Josh DeVries, Jake Mulder, Kyra Schofield, and Abby Voskuil. 2019. "Investigating a Natural Blowout: The Beginning of a Comparison Study." FYRES: Dunes Research Report #34. Grand Rapids (MI): Department of Geology, Geography and Environmental Studies, Calvin College. 24 p.

Abstract: A pair of blowouts in the Kitchel-Lindquist-Hartger Dunes Preserve near Grand Haven, MI, provides a unique location for a comparison study of how blowouts change. Our study focused on the north blowout as a potential control site if management takes place on the south blowout. Our study objectives were to investigate blowout characteristics, measure wind and sand movement, and record vegetation patterns. Methods included GPS mapping, a stadia rod survey, wind measurements, erosion pins to track surface changes, and a vegetation survey. The 16-meter high blowout has an overall rounded "saucer" shape but a deep depression and steep slopes that are more typical of trough blowouts. We documented sand movement on the windward slopes of the blowout, which had other evidence of being the most active part of the dune such as the presence of pioneering species of vegetation and more open sand. In contrast, the slipface is significantly vegetated with many established groups of shrubs and even trees anchoring the slope. This suggests that although the windward slope still experiences sand movement and is active, the slipface of the blowout is stabilizing. To set up the blowout as a control site, we established reference locations to measure dune advance. We also recommend that managers remove some ineffective sand fences on the blowout's windward slope.