

First-Year Research in Earth Sciences: Dunes

Conference Presentation: Swineford, Jacob T., Issac J. Jacques, Manny L. Schrotenboer, Matt Wierenga, and Grant Hoekwater (2015). “Long-term effects of planted *Ammophila breviligulata* on North Beach dune.” Annual Meeting of the Michigan Academy of Science, Arts, and Letters, Andrews University (Berrien Springs, MI), 13 March 2015; poster.

Abstract: *Ammophila breviligulata* is a beach grass commonly planted for dune management because of its burial tolerance and effectiveness in sand stabilization. The long term effect of planted beachgrass is not fully understood. This study investigated the vegetation health, distribution, and density of planted *A. breviligulata* in relation to site characteristics. The study location is North Beach dune, which has been moving towards the only access road for many shoreline homes. To stabilize the dune, Ottawa County Park staff and volunteers have been planting *A. breviligulata* periodically over the past ten years. Our investigation included comparing photographs from 2004 to 2014 and using GPS to map vegetated areas. We divided the study area into 9 sections to measure plant health, maximum height, and density within randomly selected quadrats. The photographs showed that the planted beach grass has spread across much of the windward slope of the dune. Grass near sand fences was taller and healthier than grasses in transition areas between bare sand and full vegetation. Areas with steeper slopes had generally taller, healthier plants than areas with gentle slopes. Our results suggest that 5-10 years after planting, *A. breviligulata* was moderately healthy and offering greater protection to the dune surface.