

# First-Year Research in Earth Sciences: Dunes

**Conference Presentation:** LePage, Gabe, Bastian Bouman, Benjamin Johnson, Ryan Kiper, and Madison Smith (2015). “Boardwalk interactions with a Lake Michigan dune system.” Annual Meeting of the Michigan Academy of Science, Arts, and Letters, Andrews University (Berrien Springs, MI), 13 March 2015.

**Abstract:** Boardwalks enable visitors to enjoy the dunes in a way that protects the sensitive dune environment, but a tension remains as boardwalks themselves alter the dune system. This study investigates how a boardwalk in Hoffmaster State Park, Michigan interacts with a dune’s processes as the boardwalk brings visitors to a lookout over Lake Michigan. Methods included mapping the boardwalk and evaluating the quality of its features. Human impacts were investigated by documenting unmanaged trails and visitor activity. Erosion pins were used to detect dune surface change. Ecological communities were mapped, and vegetation conditions by the trails were recorded. The boardwalk ends at two viewing platforms and is worn but functional. A network of unmanaged trails indicate that people leave the boardwalk, and erosion pins measurements revealed surface change along these trails. The boardwalk and the unmanaged trails interrupt the ecological communities. While boardwalks enable enjoyment of the dune and protect the environment, they also provide destination and departure points which encourage the formation of unmanaged trails and influence dune processes. Understanding the spatial patterns of human interaction with the dune will be important as park staff plan to reconstruct the boardwalk next fall.