

## First-Year Research in Earth Sciences: Dunes

**Conference Presentation:** Schumerth, Noah, Kelly Adamovicz, Simon E. Detmer, David Martinez Vasquez, Jessie VandeKieft, Madelyn Vander Veen, Catherine Worthington. 2019. “Distribution of *Tsuga Canadensis* and *Adelges Tsugae* Infestation on a Michigan Coastal Dune.” Annual Meeting of the Michigan Academy of Science, Arts, and Letters, Alma College (Alma, MI), 1 March 2019.

**Abstract:** Eastern Hemlock (*Tsuga canadensis*), a species of climactic vegetation found in mature forests on dune systems in western Michigan, has been preyed upon by hemlock woolly adelgid (*Adelges tsugae*) since the arrival of the insect in coastal Michigan in 2015. This study investigates the distribution of hemlocks and the prevalence of hemlock woolly adelgid (HWA) on a parabolic dune system in P.J. Hoffmaster State Park. This study identified the location of individual hemlocks and concentrated hemlock stands using GPS receivers. Tree diameter, stand density, health, and environmental characteristics of hemlock trees and stands were collected. Particular attention was paid to evidence of symptoms of HWA infestation throughout the dune system. Hemlocks were only found in mature forests on the arms of the parabolic dune and scattered along the dune slipface; they were not discovered on the windward slope of the blowout or along the crest of the dune. A higher density of hemlocks was found on the southern arm of the dune, particularly concentrated on slopes with a northern aspect. Several trees exhibited symptoms of early stages of HWA infection. Widespread loss of hemlocks on Michigan dune systems could result in diminished soil stability and elevated exposure to wind erosion.