

# Investigating the Relationship Between Deer and Trails on Coastal Sand Dunes

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Although scientists have studied the impacts of deer browsing and trampling on coastal dune vegetation, few studies have been done on the impacts of deer on trails. We investigated the relationship between deer presence and trail characteristics in North Ottawa Dunes, Michigan over a three-week study period. We first recorded deer evidence (i.e. tracks and scat) on both an open dune area and a wooded dune area. At the same sites, we mapped trails and documented their features including width, slope, direction, length and surface condition. In the open dune area, we identified numerous trail segments and evidence of deer, with most of the deer evidence concentrated on the lower windward slope. In the wooded area, we also recorded the most trails and deer evidence on the lower slopes although the observed amounts were much smaller because of the thick leaf litter. The spatial pattern of trails and deer evidence indicates a positive relationship between deer presence and trail location. Our results suggest that deer activity contributes to disturbances such as trails that affect coastal dune dynamics.

The impact of deer on dunes is not known, although some studies have shown that deer contribute to the lack of vegetation, which can lead to increased or sustained dune activity [1, 2]. The relationship between deer activity and trails on dunes remains unclear. Our study investigated deer evidence and trails at a dune system on the coast of Lake Michigan.

Our study objectives were to:

- Find evidence of deer presence.
- Record trail characteristics and observe trends.
- Identify trails that can be attributed to deer activity.

