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Objective

Survey roadkill to identify hotspots of wildlife mortality and implement mitigation strategies to reduce roadway impacts on wildlife connectivity.

Introduction

Animal movement and migration are instinctual behaviors that are crucial for ecosystem health. These natural patterns are damaged by modern infrastructure such as roads and highways. Fast moving vehicles have increasingly contributed to diminishing wildlife biodiversity and ecosystem health. The A2A Collaborative works to protect the ecological connection between two crucial regions in North America: Algonquin Park and Adirondack Park (Fig 1). By surveying roadkill in the area pinch point of the biological corridor that connects these two landsparks, we can locate the areas that have the most potential to preserve biodiversity. Efforts to decrease wildlife mortality can be made to create better connectivity.

Methods

The area of study was the 1000 Islands region of northern New York, which represents the narrowest part of the A2A biological corridor (Fig 1). From June to August of 2023 and 2024, our team rode bicycles along Routes 12 and 37 once a week along both sides of an approximately 12 mile stretch (Fig 2). Our team traveled during the morning to afternoon hours, avoiding days of extreme heat or rain. Each roadkill found was submitted into an ArcGIS database using the app ArcGIS online application called FieldMaps. The exact location, taxa, species type, general estimated age of carcass ranging from fresh to desicated, sex, and confidence of identification was recorded into a form on FieldMaps (Fig 3-6). A photo of each side of the roadkill and photos capturing both directions of the road were also recorded into each form on FieldMaps. The roadkill are then removed from the road to ensure they're recorded only once. One the data was verified each roadkill were plotted as a data point on a GIS map in order to visualize the patterns of the roadkill found. A buffer of 200m was created around the segments created. A spatial join of the roadkill points and the buffered points creates a roadkill join_count column in the segment attribute table. A table join of the line segment shapefile and polygon buffered shapefile was done to get the join_count column to the line segment shapefile. Hot Spot Analysis (Getis-Ord Gi*) was done, our input feature class as the line feature of the segments created at first and the input field as the count column joined from the buffer shapefile. We used the zone of indifference for the conceptualization of spatial relationships and the Euclidean method as the distance method (Fig 7).

The Algonquin to Adirondack Collaborative

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strategies for protecting the animals include modified potential to protect wildlife from the dangers of roads,

Clarkson