

Sustainability in the City and Beyond

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Encouraging wildlife use of existing crossing structures along roads: Which factors require improvement?

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As landscapes in North America become increasingly impacted by roadways and heavy traffic, not only is an increase in wildlife-vehicle collisions being experienced, but native wildlife species are also subjected to habitat fragmentation and genetic isolation. While the implementation of wildlife crossing structures and fencing have proven to be effective mitigation methods, their expensive installation and maintenance costs restrict their construction throughout most of North America. Therefore, this study aims to evaluate existing human-purpose underpasses in the Appalachian region of Quebec as potential crossing structures for large- to medium-size mammals. Nine underpasses, consisting of water culverts with a minimum height and width of 1.8 meters, low-traffic roadways, and train underpasses, have been continuously monitored by 36 motion-detection and infrared trail cameras for periods spanning up to two years. Structural and environmental factors are being analyzed to determine their influence on wildlife presence, including human activity near and within the monitored underpasses, ground substrate, water levels, culvert dimensions, weather conditions, and time of day. This research intends to deduce how these underpasses can be altered to accommodate a maximum number of species, while also providing insights into which factors must be considered when designing future projects and infrastructures that encourage safe wildlife crossings in the region.



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