Citizen Scientists help improve human and wildlife safety on Highway 3

Highway 3 in Southern Alberta is in a recognized fracture zone for wildlife in the Canadian Rocky Mountains. Miistakis Institute and partners recommended key areas where highway mitigation (for example underpass and fencing) would help wildlife move safely across the highway and reduce the number of animal vehicle collisions (AVC).

Alberta Transportation implemented recommended mitigation strategies at Crowsnest/Emerald Lake site by installed fencing to tie into an existing underpass and jump-outs in 2016. We aimed to understand if these measures are effective in reducing AVCs and helping wildlife move safely across the highway.

Methods

We developed Collision Count, a citizen science program, were participants walk specified routes at three mitigation sites one a week and report observations of animal carcasses using a smartphone application.

Results

Collision Count participants walked 1,052 transects over 4 years and reported 60 animal carcasses off the highway right of way. While highway maintenance contractors drove the road daily and reported 41 animal carcasses on the highway right of way.

- There was an increasing statistically significant trend in roadkill reports by highway maintenance contractors over the study time period at three sites along Highway 3.
- Mitigation seems to be successful (non-statistical) at the Crowsnest/Emerald Lakes site as collisions have reduced from a mean of 5/year before mitigation to 1/year after mitigation.
- Findings from BACI analysis (statistical) to determine the effectiveness of mitigation at the Crowsnest/Emerald Lakes site indicates at least one more year of data should be collected before forming final conclusions about mitigation effectiveness.
- The ratio of wildlife found by highway maintenance personnel (on right of way) and wildlife reported to Collision Count (off-highway right of way) was 1:1.5. This finding supports applying a correct factor to highway maintenance roadkill data at a minimum of 1.5 per reported roadkill observation.

Lessons learned

- Collision Count Participants have contributed to a dataset along Highway 3 that has enabled advancement to the field of road ecology.
- These citizen science findings help justify investment in mitigation strategies to ensure wildlife move safely across Highway 3.

Program goals

Miistakis Institute developed Collision Count, a citizen science program to:
- Undertake pre- and post-mitigation monitoring to evaluate the effectiveness of highway mitigation;
- Assess the cost effectiveness of investment in mitigation infrastructure along Highway 3; and
- Establish a correction factor for highway maintenance personnel roadkill reports and roadkill found off the highway right of way.

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