



Food and Agriculture
Organization of the
United Nations



SWM SUSTAINABLE WILDLIFE MANAGEMENT PROGRAMME



The road towards wildlife friendly transport infrastructure

IMPACTS OF ROADS ON WILDLIFE



DIRECT IMPACTS

- **Roadkill:** can cause declines in species attempting to cross the road.
- **Barrier effect:** can cause declines in species unable to cross the road (e.g. avoiding noise or open space) for lack of access to water, food or mates.
- **Noise:** affects the quality of habitat around the road for certain species (e.g. birds depending on sound for breeding).
- **Light** (opening forest/lights): affects species adapted to closed habitats for their survival.
- **Water pollution:** negatively affects aquatic species communities, but also terrestrial species through drinking water.
- **Air pollution:** affects habitat quality (lower productivity of leaves covered in dust), among others.



INDIRECT IMPACTS

- **Secondary development** (agriculture, housing, etc): leads to further habitat loss and impacts as listed in "Direct impacts".
- **Hunting:** increases barrier effects along roads, with wildlife avoiding hunted areas or not surviving road crossing attempts.



THE SWM ROAD PROJECT 2019

PROJECT OBJECTIVES

Determine the impacts of roads in the Rupununi on terrestrial wildlife & assess practical means of mitigation.

WHERE?

Region 9 (see map) with a focus on two unpaved roads:

- North Rupununi: Georgetown - Lethem Road between Surama and Lethem.
- South Rupununi: Lethem - Aishalton main gravel road.

WHEN?

- Field work: February and June 2019.

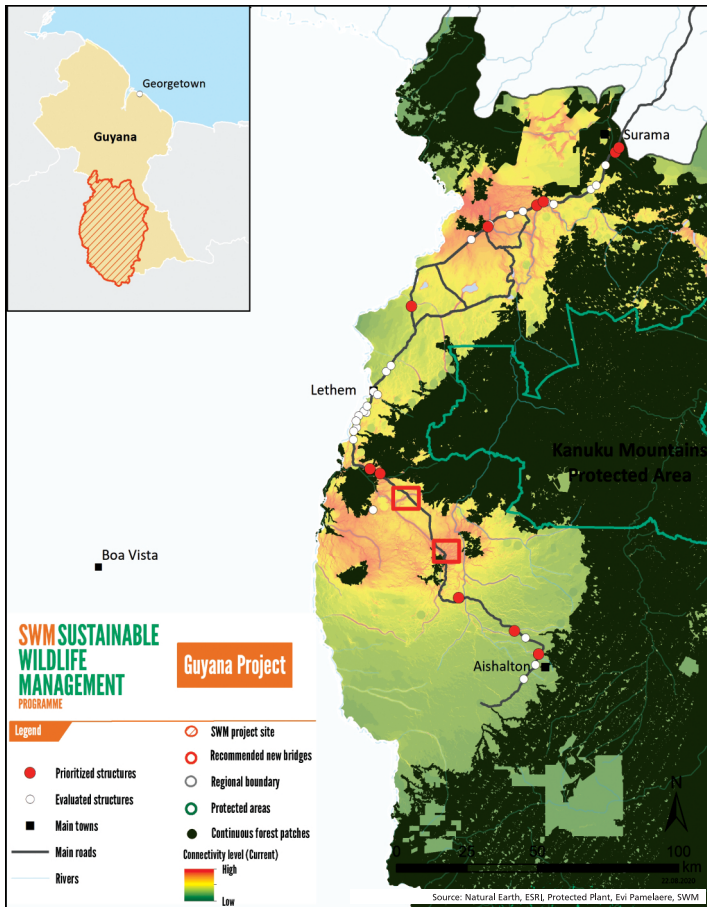
HOW?

- Priority species (17sp) based on conservation status, importance in hunting and tourism – categorized by their response to roads and habitat needs (Jacobson et al. 2016).
- Road surveys for roadkill, live animals.
- Evaluation of bridges and culverts on selected roads.
- Expert-based spatial models predicting wildlife movements and potential road crossing hotspots based on priority species.

Limitations: This assessment did not include the impact on fish, or on species requiring highly specific habitat features (e.g. spider monkeys).

RECOMMENDATIONS

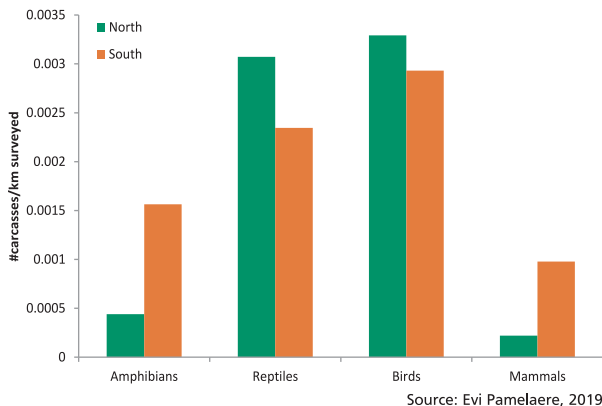
Ensuring wildlife friendly bridges at the priority sites identified in our study would be a great step forward to Guyana's wildlife friendly approach.



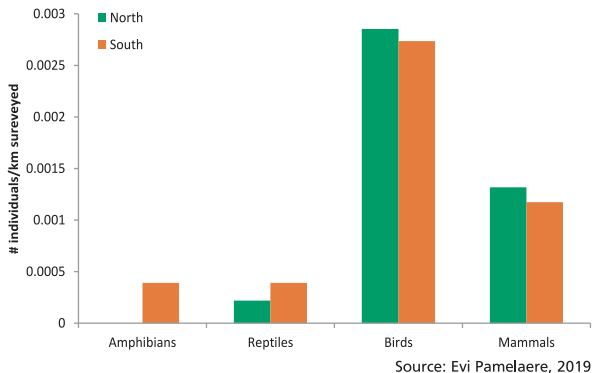
DISCLAIMER: The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of FAO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers and boundaries. Dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

RESEARCH RESULTS

Graph 1: Roadkill: unsuccessful wildlife crossings



Graph 2: Live sightings: successful wildlife crossings



ROADKILL:

- There was a low number of roadkill, as expected due to low traffic volumes in an open habitat. This is expected to increase with traffic volume, especially for sensitive species such as the Giant Anteater.

LIVE ANIMALS:

- Live sightings were found to occur mostly before peak traffic.

POTENTIAL WILDLIFE

UNDERPASSES:

- Bridges and culverts existed at most key wildlife crossing points.
- At 2 sites in South Rupununi existing culverts were insufficient for predicted animal crossings.
- A few bridges were too short to promote wildlife crossing (See inside poster).

WHICH ANIMALS FAIL AT CROSSING?



SPEEDER

The tayra is a speeder (runs away from danger): speeders are typically hit when traffic speed is high, and traffic volume is low to intermediate.



PAUSER

Southern naked-tailed armadillo, a 'pauser' (stops in face of danger): pausers are easy roadkill victims and together with 'non-responders' they are the most likely to show population declines from collisions with traffic. When traffic volume becomes too high, pausers will no longer enter the road surface and the road becomes a barrier, causing population isolation and declines.



NON-RESPONDER

Pseudoboa sp., likely a 'non-responder' (continues to move as traffic approaches): non-responders are even more likely to be killed on roads, because they will enter the road surface regardless of traffic volume or speed.

SUPPORTED BY:



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