Bats and roads: threats, mitigation and a plea for evidence-based management decisions

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Roads and other associated land transport activities can affect a wide range of indigenous terrestrial vertebrate species. How these impacts are identified and managed in New Zealand varies and there is currently no common national framework to guide assessments of impacts or their management. Regulators and land transport operators deal with these issues on a case-by-case basis, resulting in a range of outcomes and costs. In recent years the effect of roading projects on long-tailed bats (Chalinolobus tuberculatus) has become a particularly topical issue.
Here, we review evidence of roading infrastructure impacts on bat populations and of the efficacy of mitigation approaches from around the world. We recommend that investment in mitigation of roading effects on bats in New Zealand should be based on evidence of effectiveness. Given that such evidence is rare, future investment should be guided by an adaptive management framework that is: justified by strong inferential, evidence-based logic, and; accompanied by robust, appropriately-designed monitoring that is planned, in advance, to allow an objective assessment of a method's effectiveness in mitigating an impact. Because such monitoring may be beyond what a single development project can realistically achieve, we suggest the development of a collaborative funding model for supporting the testing and development of mitigation methods. This work is likely to have a significant influence on the future planning and design of road infrastructure projects to minimise impacts of native wildlife, and bats in particular.