

# Analysis of the impact of stoats, *Mustela erminea*, on northern brown kiwi, *Apteryx mantelli*, in New Zealand

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## Abstract

An age-structured population analysis is used to determine recruitment levels and a condition for survival which can assist management decisions and hence improve the viability of populations of northern brown kiwi, *Apteryx mantelli*, in forests on the New Zealand mainland. Currently, in the absence of predator control, recruitment rates are less than 5% due to high levels of stoat, *Mustela erminea*, predation on juvenile kiwi. Predation levels on adult kiwi are very low. The analysis predicts that a recruitment rate of 19% is required to maintain population stability. To achieve this target, stoat populations have to be reduced by about 80% in some years, and maintained at a critical residual density estimated to be a value less than two animals per square kilometre for up to nine months until immature kiwi reach a safe size of about 1200 g (50% of their adult weight). Recent predator-control initiatives indicate that stoat numbers can be reduced and maintained at low levels in relatively small areas of mainland forest (up to 1000 ha). New techniques are needed to protect kiwi over larger areas.

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