

**Aspects of the Impacts of Mouse (*Mus musculus*)  
Control on Skinks in Auckland, New Zealand.**

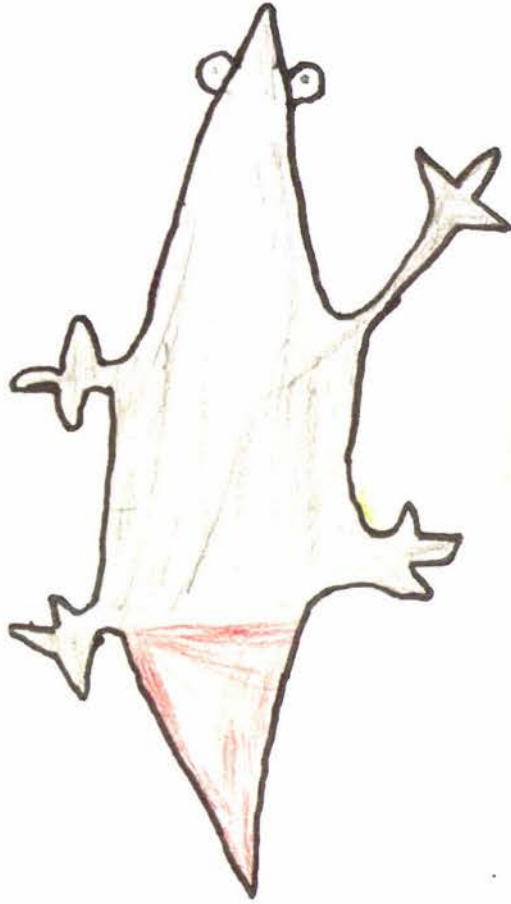
*A thesis presented in partial fulfillment of the requirements for the degree of*

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in  
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*Shore skink*  
*By Oscar*  
*Matakana Primary School (2007).*

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## Abstract

Conservation in New Zealand has a strong focus on pest control and eradication. However, a growing number of eradication attempts have failed to extirpate, or prevent reinvasions of house mice (*Mus musculus*). This thesis experimentally examined aspects of lizard ecology in relation to mice and the use of brodifacoum for mouse control.

Shore skinks (*Oligosoma smithi*) were surveyed in three grids under different levels of mouse control (long term, LT, short term, ST and uncontrolled, UC). Skink capture rates, demographics and body condition were recorded on a monthly basis (November 2006 to June 2007). Skink capture rates were highest in the LT and lowest in the UC grid. Twice as many juveniles were caught in the LT than ST and UC sites; however proportions of neonates were not significantly different. Proportions of recaptured skinks within LT and UC grids peaked in February, whereas the ST grid showed peaks corresponding with troughs in mouse abundance. Mice were snap-trapped and gut contents were analysed from 50 per month (February to May). Skink remains were identified from 14 mice.

Impacts of brodifacoum on shore skinks *in situ* as well as rainbow skinks (*Lampropholis delicata*) in captivity were investigated. Skink visitation rates to brodifacoum bait stations were quantified using tracking cards. Skinks were assessed for signs of ill health. Shore skink tracking rates reached 81%. One skink was observed consuming bait directly. Rainbow skinks showed higher tracking rates inside stations without bait than baited. Neither species indicated any sign of ill health. Captive rainbow skinks were supplied with brodifacoum cereal blocks or brodifacoum-loaded

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mealworms. Rainbow skinks were not observed to directly ingest brodifacoum and showed no effects on weight gain or behaviour.

Results suggest that mice are predators of skinks, particularly during and shortly after skink birthing period. This has important implications for mainland conservation efforts where mice are more difficult to control, and particularly for rare and cryptic lizard species. Native lizards may be significant vectors of brodifacoum, where they are abundant. Although mouse eradications should be attempted when possible, further research into acute toxicity and sub-lethal effects of brodifacoum is urgently required.

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