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The Old School, Brewhouse Hill, Wheathampstead,
Hertfordshire AL4 8AN, UK
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Short-term welfare implications of capture-mark-recapture trapping of medium-sized mammals: the brushtail possum (*Trichosurus vulpecula*) as a case study

P Cowan, G Forrester and B Warburton*

Landcare Research, PO Box 69040, Lincoln 7640, New Zealand

* Contact for correspondence and requests for reprints: cowanp@landcareresearch.co.nz

Abstract

*Capture-mark-recapture (CMR) repeated at intervals is a commonly used method of population estimation of mammals. Most guidelines for the use of wild mammals recommend adequate measures to ensure a captured animal has food and water available, as needed, until it is released. Small mammals are often highlighted as needing special care, but recommendations are either less clear or absent for medium- and large-sized mammals. We therefore examined the short-term welfare implications of CMR trapping of medium-sized mammals, using the marsupial, brushtail possum (*Trichosurus vulpecula*) as a case study. Possums were caught in cage traps baited with circa 30 g of food and set for three consecutive days at monthly intervals. Timing devices on the traps measured when traps were sprung. Possums were confined in traps for, on average, 89% of each night they were trapped, plus a further 2–6 h between sunrise and the actual time of release from the traps. They lost 3–8% of their bodyweight on average, depending on the number of captures in a trapping session. A recently developed framework for humaneness assessment, based on five welfare domains, gave an overall welfare impact of mild-moderate for cage trapping of possums. The short-term solutions to these welfare impacts would be, at a minimum, to provide trapped possums with adequate additional food and water, and minimise their time spent in the traps. Guidelines for the use of wild animals in research and management could also be more prescriptive regarding the provision of food and water in studies of medium-sized mammals that involve repeated capture.*

Keywords: activity patterns, animal welfare, mark recapture, possum, *Trichosurus vulpecula*, weight loss