A report of capture myopathy in the Tasmanian pademelon (Thylogale billardierii)

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Abstract

In Tasmania, a small island state of Australia, wildlife is under increasing pressure from anthropogenic activities. Multiple species of native herbivores compete directly for resources with humans, such that wildlife populations are regularly managed to reduce their impact on agricultural and forestry landscapes. There is an increasing need to quantify the impacts of such wildlife management strategies on localised populations of Tasmania’s iconic fauna. Gathering this information often requires capture and restraint of animals, but due to a paucity of published information on responses of wildlife to such techniques, regulatory bodies overseeing research do not always have complete information upon which to base decisions. In our study, the regulatory body designated manual restraint over chemical immobilisation as the preferred method, but current prescribed techniques can result in capture-related injuries including myopathy. To encourage dialogue on this welfare issue, we present observations on capture and restraint of the endemic Tasmanian pademelon (Thylogale billardierii). Three of 19 animals that were trapped as part of a research study exhibited symptoms consistent with capture myopathy. Results suggest that techniques involved with capture and manual restraint can be problematic for pademelons, and we present recommendations for preventative measures, including chemical immobilisation, to limit myopathy-related deaths.

Keywords: animal welfare, capture myopathy, chemical immobilisation, macropod, Tasmanian pademelon, wildlife

Introduction

Currently, the world is experiencing a human-induced loss of biodiversity known as the sixth great extinction, driven primarily by habitat modification, climate change and invasive species introductions. Tasmania (Australia) is one example of a place where human activities are affecting wildlife. This island hosts a unique and diverse fauna which is under increasing stress from anthropogenic activities. Humans and the endemic Tasmanian pademelon (Thylogale billardierii) are in direct conflict, such that pademelon numbers are regularly managed through methods of lethal and non-lethal control (eg Coleman et al 1997; Wiggins et al 2010) to reduce their impact on agricultural and forestry landscapes. Managing interactions between humans and animals requires an in-depth understanding of animal biology and environmental use. Studying wild animals often relies upon capture and restraint to obtain information on diet, physiology and habitat use. Capture and restraint are not without their difficulties and researchers have a responsibility to take into account the welfare of captured individuals. This includes minimising negative impacts of capture-related injuries, including capture myopathy, a common problem in small prey species such as pademelons (Holz 2007). However, given the risk of capture-related injuries to pademelons, little has been published on the impacts of capture/restraint methods.

Capture myopathy is a potentially fatal disorder which may occur in captured and restrained wildlife as a result of physiological imbalances related to over-exertion and stress (Chalmers & Barrett 1982; Spraker 1993; Williams & Thorne 1996; Vogelnest & Portas 2008). Cases of myopathy vary in severity yet treatment and/or cures remain poorly understood in a number of species. Although work exists on related species and instances of capture myopathy in several species of macropods (eg Vogelnest & Portas 2008), there is a paucity of accessible information on capture myopathy in the endemic Tasmanian pademelon. As a result, regulatory bodies overseeing research activities do not have a complete background upon which to base decisions.

We present findings on the capture and restraint of 19 wild-caught pademelons in Tasmania. The pademelons were caught and restrained to fit GPS collars in a study of habitat use (Wiggins et al 2010). We monitored the incidence of capture myopathy in order to provide some recommendations to regulators and researchers, intended to lower myopathy rates.