



Felixer™ Grooming Trap Non-Target Safety Trial: Numbats

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Summary

Felixer™ cat grooming traps are a novel and potential useful means for controlling feral cats that have proven difficult, or very expensive to control by other methods such as baiting, shooting and trapping. The South West Catchments Council (SWCC) and the Department of Biodiversity, Conservation and Attractions (DBCA) plan to undertake a meso-scale trial of Felixer™ traps in the southern jarrah forest where numbats (*Myrmecobius fasciatus*) are present. Felixer™ traps have not previously been deployed in areas with numbat populations.

We tested the ability of Felixer™ traps to identify numbats as a non-target species by setting the traps in camera only mode in pens with four numbats at Perth Zoo. The Felixer™ traps were triggered 793 times by numbats with all detections classified as non-targets. We conclude that the Felixer™ trap presents no risk to numbats as a non-target species.

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1. Background

Feral cats are one of the most significant threats to native species in Australia with over 100 listed threatened species impacted by feral cats (Legge *et al.* 2017). Efforts to control feral cats have had mixed success with baiting practices having greater success in arid regions and much lower success rates in more temperate areas. This appears to be largely due to the preference of cats to take live prey, which are more consistently available in higher rainfall, more productive environments.

The Felixer™ cat grooming trap is a novel method of controlling feral cats that takes advantage of the compulsive grooming behaviour exhibited by this species. The trap consists of an auditory lure to attract cats and a series of infra-red sensors at various heights. The combination of sensors that are blocked as an animal passes in front of the trap are analysed using a series of algorithms to identify if the animal is a fox or cat, or a non-target species. If the potential target is identified as fox or cat, the trap shoots a sticky gel that contains 1080 poison (sodium monofluoroacetate) onto the animal's fur. The fox or cat will then groom this gel from their fur and in doing so will ingest the poison and die.

SWCC has been contracted by the Department of Agriculture Water and Environment through the National Landcare Program to undertake a study of the effectiveness of cat grooming traps to reduce feral cat numbers in the Upper Warren and Muir-Byenup areas in Western Australia's south west. SWCC is conducting this work in collaboration with DBCA and the Blackwood Basin Group to deliver improved outcomes. Numerous threatened species, which are also threatened by cat predation, are found in this area including the woylie (*Bettongia penciliata*), chuditch (*Dasyurus geoffroii*), numbat (*Myrmecobius fasciatus*), malleefowl (*Leipoa ocellate*) and several bittern species (*Botaurus* spp.). Many of these threatened species have suffered large declines in recent times, with predation by feral cats having been identified as a contributing factor (Wayne *et al.* 2017a, 2017b). Felixer™ traps have previously been tested in the presence of bettongs and chuditch and have been shown to reliably identify these species as non-targets (Ecological Horizons 2018; Dunlop *et al.* 2019; Read *et al.* 2019; Ecological Horizons 2020). Felixer™ traps have not yet been tested in areas with numbat populations and we therefore set out to determine if the traps would reliably identify numbats as a non-target species.

2. Methods

Felixer™ traps were set in photo-only (safe) mode in pens with four different captive numbats at the Perth Zoo. The numbats used were all adult males of various ages and sizes with weights ranging from 456 to 638 g. This range of sizes covers the size of the majority of adult numbats that generally range from 400-700g (Friend 2008). The numbats were housed in separate pens and a Felixer™ trap was set in a pen with a numbat for at least four days. The Felixer™ trap took a photo each time it was triggered as well as recording its determination of the trigger as a target or non-target. Felixer traps have a quiet period of at least two minutes between photo triggers.

A motion activated infrared camera trap (Reconyx HC600) was attached to the fence opposite the Felixer™ trap facing towards the Felixer™ to record the behaviour of numbats towards the trap.



3. Results and Discussion

A total of 841 triggers of the Felixer™ traps was recorded with 793 of these from numbats and 30 from humans. Stormy weather during the trial also resulted in three triggers from moving leaf litter and seven from the weather, primarily heavy rain. A further eight non-target triggers could not be assigned to a definite source. All triggers, including the 793 numbat triggers and 30 humans, were classified as non-targets. The vast majority of numbat detections (776) triggered the bottom blocking sensor with a further 17 detections triggering the left or right blocking sensors, presumably from the animals standing on their hind paws or with tails up (Figure 1).

The numbats were observed interacting with the traps on numerous occasions, sniffing the front of the trap and climbing on the sides of the trap (Figure 2). Two numbats were observed climbing or attempting to climb onto the top of the trap on two occasions.

These results clearly demonstrate the Felixer™ traps do not present a risk to numbats as a non-target species.





Figure 1. Numbats standing on hind paws and walking with tail raised, blocking the left or right sensor of the Felixer trap.



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Figure 2. Two individual numbats climbing on to Felixer traps.

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