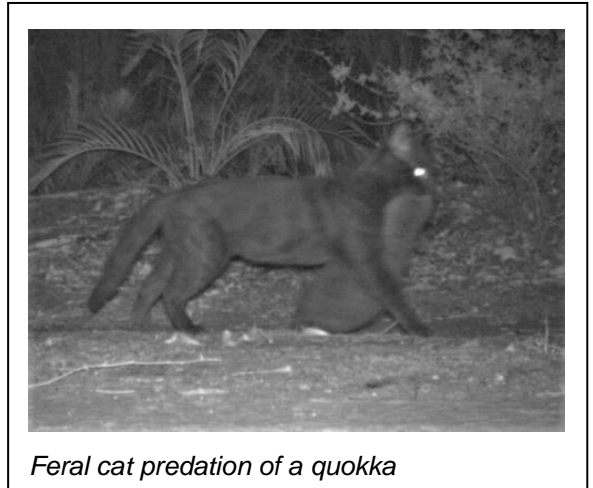


# Felixer™ grooming trap trials for conservation in the jarrah forest

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## 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. Reducing feral cat numbers and their threats to vulnerable native wildlife is critically important to the conservation of many species and is challenging, especially over large areas. Existing control methods include exclusion fencing, baiting, cage trapping and shooting. However, other methods are needed because of the limitations these existing methods have (i.e., no one method is effective everywhere, all the time). The Felixer™ cat grooming trap (referred to as 'Felixer' hereafter) is a novel method of controlling feral cats that takes advantage of their compulsive grooming behaviour. Felixers (v3.1) use a series of LiDAR sensors at various heights to identify if the animal is a target cat. If a target is identified, the Felixer shoots a sticky gel that contains 1080 poison (sodium monofluoroacetate) onto the animal's fur. When a targeted cat grooms this gel from their fur, they ingest the poison and die.



This project investigated the effectiveness of Felixers to reduce feral cat numbers in WA's jarrah forest. The project received funding from the Australian Government's National Landcare Program and was a collaboration between South West NRM (SWNRM), the Department of Biodiversity, Conservation and Attractions (DBCA) and the Blackwood Basin Group (BBG).



There were four main aims of this project:

- 1) Safety Assessment: determine the safety of the Felixer for use in the presence of non-target species present in the jarrah forest.
- 2) Test: determine whether Felixers can reduce feral cat densities at a meso-spatial scale (~14,000 hectares) in the jarrah forest.
- 3) Optimise: improve the efficiency and effectiveness of Felixers by refining the deployment design.
- 4) Sustain: identify how to maintain a reduction in feral cat densities to allow for the recovery of native prey species.

## Findings

Based on our results, Felixers are safe to use in the presence of native species in the jarrah forest. None of the more than 9,000 native animals detected by the Felixer were harmed. While 0.02% and 0.7% of detections were misidentified as targets when the Felixer was in conservative and standard targeting mode, respectively, the species involved (woylie, yongka or western grey kangaroo, tamar wallaby, and kwara or western brush wallaby) were not at risk of being harmed. These species do not have the same

compulsive grooming habits that cats do and even if they were to consume all of a single 8mg dose of 1080 from a Felixer gel, they would not be in danger given their natural and relatively high tolerances to 1080. More than 7 to 238 doses would need to be consumed by an average-sized adult individual of these species within a short period to be lethal. Safety provisions in the use of the Felixers make these scenarios impossible. None of the 868 detections of numbat or 503 detections of chuditch were mis-identified by the Felixer as a target.

Felixers identified feral cats as targets 31% and 42% of the time they were detected in conservative and standard targeting modes, respectively. The Felixers targeted 4–17 feral cat individuals in toxic mode in each of four experimental field trials (9.6–15.1 weeks per trial), which represented 33–68% of the individuals estimated to have passed in front of a Felixer in conservative targeting mode and 100% of individuals that passed in front of a Felixer in standard targeting mode.

There was substantial spatial and temporal variation in cat detection rates from remote sensor camera arrays (49-50 per site) deployed at comparative reference and treatment sites before, during and after the Felixer trials. There was a significant reduction in feral cat detections compared to the reference site, at only one of the four experimental treatment sites. There was evidence that reinvasion of the treatment areas can occur rapidly, which may explain the lack of significant change in some trials. Detection histories of individual feral cats that could be readily distinguished, demonstrated there is a high probability that individuals targeted by the Felixers died as a result of their encounters.

While there were some seasonal differences in feral cat detection rates, any time of year may be suitable for targeting feral cats in the jarrah forest. Feral cat detection rates were higher closer to farmland, wetter areas and lower elevations, in some cases. However, the importance of landscape factors varied considerably between sites and only explained a very small amount of the variation in feral cat detection rates (<10%).

## Management implications

- Felixers are safe to use in the presence of native fauna in the jarrah forests of Western Australia.
- Early indications are that Felixers can remove a substantial proportion of the feral cats present at a meso-spatial scale (~14,000 hectares), and therefore can be an important complementary tool to deliver improved conservation outcomes for threatened species vulnerable to feral cat predation in the jarrah forest.
- The effectiveness of Felixers and other control methods can be improved by targeting parts of the landscape with higher feral cat activity. While some of this may be predictable, contemporary intelligence (e.g., from camera trapping) may be especially important to optimise the effectiveness of control efforts.
- Specific aspects of site selection, Felixer set up, and technical features of the Felixer may also help to substantially improve the effectiveness of these devices (for example, selecting natural funnels for cat movement, concealing the Felixers, and improving the power supply and storage for units deployed in winter).
- Security and safety risks from human interference is a constraint for the deployment of Felixers that needs to be considered.
- Sustaining reductions in feral cat populations using Felixers in areas ~14,000 hectares will require long-term deployment to continue to target feral cats that may rapidly move into the areas where cats have been removed.
- When used as part of integrated introduced predator threat abatement programs that co-ordinate management of multiple drivers of population change, including control of introduced species (predators and prey) using multiple methods, Felixers could significantly improve the conservation of affected threatened species in the Jarrah Forest.

Further information: Wayne AF, Chambers B, Maxwell MA, Sullivan D, and Ward CG (2023) Felixer™ grooming trap trial, 2020–23: Feral cat control for threatened fauna conservation in the southern jarrah forests, Western Australia. Final report. Department of Biodiversity, Conservation and Attractions. (Manjimup, Western Australia)