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South West Threatened Fauna Recovery Project: Southern Jarrah Forest

Animal Science

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Directorate	granted

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Context

The primary goal of the South West Threatened Fauna Recovery Project (SWTFRP) is to contribute to the recovery of key threatened mammal and bird species at four key sites in south-western Western Australia, through integrating feral cat baiting with existing introduced predator control programs, undertaking monitoring of threatened species and translocations to supplement and establish new, secure populations where necessary. The key sites selected were South Coast reserves, Upper Warren reserves, Dryandra Woodland and Kalbarri National Park.

This project is a component of the SWTFRP, focussing on the southern jarrah forest, which is an important area for the conservation of several mammal and bird species threatened by introduced predators. To date there has been no effective cat control within the southern jarrah forest, including the priority conservation areas within the Upper Warren region. *Eradicat*® presents an opportunity for developing an important tool within an effective cat control program that is essential to the long-term conservation of imperilled fauna threatened by introduced predators.

Aims

- To recover wild populations of western ringtail possums, woylies and numbats in the Upper Warren area, through developing effective integration of feral cat control with existing fox control in the southern jarrah forest.
- Identification of the efficacy of *Eradicat*®baiting according to current operational delivery methods (aerial and ground) and time of year.
- Quantification of the risk to potentially vulnerable non-target native mammals in the southern jarrah forest to operational use of *Eradicat*®.
- Improve live capture of feral cats in the southern jarrah forest by minimising non-target captures.
- Engaging effectively with neighbours about the control of introduced predators and the recovery of native species.

Progress

- Stage 1 of the *Eradicat*®bait uptake trials ran over 65 weeks, deployed 5,666 baits at 40 sites, and involved 54,361 camera trap nights, which resulted in 1.2 million images of fauna within the proximity of, or interacting with *Eradicat*® baits.
- Despite cat and fox occupancy in the southern jarrah forest being high (92% and 84%, respectively), encounter rates were modest (100 and 154 independent events, respectively) and bait consumption rates were low for both introduced predators. A high level of bait interference and removal by non-target fauna resulted in baits still being present on less than half of the occasions when a cat or fox visited a bait location. When a bait was available, cats and foxes consumed or removed the bait on at least 9% and 20% of occasions, respectively.
- The probability of detecting a cat or fox was substantially greater on ground transects than aerial deployment sites. Encounter rates of cats were greater closer to forest tracks and hydrographic features, while encounter rates of foxes were higher closer to private property and tracks, with more baits consumed by foxes closer to private property.
- Stage 2 investigated whether *Eradicat*® baiting effectiveness could be improved by targeting areas immediately after planned prescribed burning. Four burned and three reference sites were used (involving 1,649 baits along ground transects and 15,032 camera trap nights). There were no significant differences in encounter rates or bait removals by cats or foxes immediately after autumn burns compared with reference sites.

- Stage 3 (nine sites, 449 baits, 9800 camera trap nights) demonstrated that cat and fox encounter rates and baiting opportunities can be substantially improved having the cameras/baits on forest tracks compared with 5-20 m off track. There were no bait removals by cats, and foxes removed 19 baits, all of which were on track.
- The risks to potentially vulnerable non-target native species (chuditch and phascogale) is generally low but is being investigated further, focusing on the effects of deployment method and timing.
- Cat trapping trials using leg-hold traps with a refined elevated platform successfully reduced non-target interference but also resulted in low capture rates of cats and foxes.
- GPS-tracking of feral cats is increasing our understanding of their spatial ecology and movement patterns.
- The remote sensor camera data for this study was used to quantify the distribution, occupancy and activity of introduced and native mammal species across the southern jarrah forest, with over 1.6 million fauna images captured (69,393 camera trap nights).
- Over 40 volunteers contributed >4,000 hours (476 days) to the project.

Management implications

- Controlling feral cats in the southern jarrah forest has been shown to be challenging. The effectiveness of *Eradicat®* baiting using existing protocols has been demonstrated and provides clear direction on how further improvements can be made.
- The *Eradicat®* baits have been shown to be effective at controlling foxes, and a low risk to vulnerable species, such that they provide an additional method to complement existing methods.
- Improvements to live trapping of feral cats that vastly reduces the risks to non-target native species have been made.
- Improved understanding of cat spatial ecology through GPS-tracking will directly inform improvements in the effectiveness of future cat control efforts.

Future directions

- Complete bait uptake trial data analysis and manuscripts for publication, including bait longevity, non-target removal, cat and fox bait interaction.
- Build on the pilot spatial ecology trial to improve knowledge on the home range, fecundity and behaviour of cats in the forest to assist control methods.