

Improving broad-scale feral cat management: Eradicat[®] baiting trials in Queensland

In brief

Feral cats have impacted numerous species of Australian wildlife, and cat control across vast landscapes with traditional strategies has proven difficult.

We conducted the first broad-scale trial of Eradicat[®] baiting in eastern Australia. Eradicat[®] is a chipolata-style sausage bait containing sodium fluoroacetate (1080 compound), which has been successfully used in Western Australia for the control of feral cats.

We deployed 5530 Eradicat[®] baits by helicopter at a density of 50 baits/km² at Taunton National Park (Scientific) in central Queensland. A network of 90 camera traps in baited and non-baited control areas were also set up to monitor changes in the feral cat population. Additional cameras were used to monitor which other animals took baits at the baited site. Similarly, we also conducted several small-scale baiting trials in other areas in Queensland to assess potential risk to non-target species.

Collectively, our results suggest that Eradicat[®] is more efficacious than fresh meat baits (when used as prescribed), with up to a 40% reduction in the cat population at Taunton and no significant changes in the abundance of key non-target species.

The population of the endangered bridled nail-tailed wallabies at Taunton National Park (Scientific), known to be limited by feral cat predation, continues to increase following the baiting, and with ongoing intensive predator control and other recovery actions by Queensland Parks and Wildlife Service (QPWS).

Eradicat[®] baits have several advantages over fresh meat baits we have tested, most notably they are highly palatable and can be used efficiently over a large area. Eradicat[®] has become an additional tool for feral cat control at Taunton National Park (Scientific), and registration for its use in suitable areas of eastern Australia is being explored.



*A feral cat in Queensland.
Image: Joe Scanlan*

Background

Feral cats are recognised as a major threat to biodiversity in Australia, with feral cats thought to threaten more Australian native species than any other invasive predator. Enhanced control of feral cats is a conservation management priority for many threatened species, but the options available for the broad-scale control of feral cats are limited.

Control of feral cat populations using intensive measures such as trapping, shooting and exclusion fencing can be effective. But these techniques are expensive, time consuming and generally unsuitable for use across vast landscapes. Baiting is generally the most effective method for feral cat control when seasonal conditions are suitable and there is a low risk posed to non-target species.

Eradicat[®] is a sausage-type meat bait that was developed in Western Australia to reduce feral cat populations. This small, chipolata-style bait contains sodium fluoroacetate (compound 1080), which is a naturally occurring toxin found in some native Australian plants. Eradicat[®] baits have shown some success in broad-scale aerial baiting control programs in western, southern and central Australia, but their effectiveness had not previously been tested in eastern Australia.

Background (continued)

In 1973, bridled nail-tailed wallabies (*Onychogalea frenata*) were rediscovered on Taunton, a grazing property in Central Queensland. Prior to this, the species was considered extinct. Subsequently, the Queensland Government purchased Taunton and later an adjoining property with the aim of protecting the endangered wallaby and other threatened flora and fauna within the Brigalow Belt. Predation by feral cats is thought to be a key threat to the recovery of the wallaby, so broad-scale cat control is an important conservation action. The Queensland Parks and Wildlife Service have been conducting targeted, intensive feral cat control using baiting, trapping and shooting, on the Park since 2013.

Aims

In this project, we aimed to determine the effectiveness of broad-scale baiting with Eradicat® for feral cat control at Taunton National Park (Scientific) in Queensland. We also investigated if there were any significant impacts from baits on animals other than feral cats.



Bridled nail-tailed wallabies.

Image: Bernard DUPONT from FRANCE, CC BY-SA 2.0, Wikimedia Commons

What we did

Baiting trials were completed in Taunton National Park (Scientific) - hereafter Taunton – 150 km west of Rockhampton, Queensland. The park contains remnant and regrowth brigalow (*Acacia harpophylla*) forest, and open grassy eucalypt woodland. These were the first trials of Eradicat® in eastern Australia.

We had previously undertaken feral cat control trials in Taunton using 776 fresh kangaroo meat baits containing 1080 in 2016. From these trials we learnt that ground baiting with fresh meat baits distributed at the prescribed rate (5 baits/ km) along service roads and firebreaks was unlikely to be effective at controlling feral cat populations as cats rarely used roads, and the bait rate was too low for feral cats to readily encounter the baits. Fresh meat baits rapidly became unpalatable, or were removed by other species, reducing bait availability and acceptance to feral cats. As a result, our trial focused on aerial baiting at a higher bait rate with a palatable bait (Eradicat®) across the entire landscape, rather than just on tracks.

We defrosted and 'sweated' the frozen Eradicat® baits in the sun before applying Coopex®, a residual insecticide (permethrin). This was to prevent ants from infesting the baits and reducing palatability of the baits to cats.

In July 2017, we aerially deployed 5530 Eradicat® baits at a density of 50 baits/km² across Taunton using a helicopter.

We set up a network of 90 camera traps across Taunton, and at a nearby non-baited area, to monitor changes in the feral cat population due to the baiting.

Additional cameras were used to monitor which other animals were taking the baits on the baited site. GPS collars were fitted to feral cats captured before we deployed the baits, and were used to monitor feral cat mortality following baiting. The GPS collars provided additional information on the habitat use, range size and feral cat activity patterns which will be used to improve management and monitoring strategies.

The potential impacts of Eradicat® baiting on native birds was also assessed. We conducted a series of bird counts before and after baiting on Taunton and compared this to bird counts undertaken on a nearby unbaited site.

During spring 2017, we conducted small scale trials at Culgoa Floodplain National Park in south-western Queensland to assess the potential risk of Eradicat® to non-target species. 100 Eradicat® baits were deployed along tracks to simulate ground baiting, and off-track to simulate aerial baiting. Camera traps were set to monitor each individual bait.

In 2018, we also carried out small-scale bait monitoring trials at Currawinya, Main Range and Girraween National Parks to further assess the potential risk of Eradicat® to non-target species. 100 to 125 Eradicat® baits were deployed at each location and baits were monitored with camera traps for 14 days. We also installed 50 cameras across Moorrinya National Park (northern Queensland) during autumn 2018 to assess any potential risk of Eradicat® baits to Julia Creek dunnarts (*Sminthopsis douglasi*).

Preparing Eradicat baits at Taunton National Park.
Image: Matt Gentle



What we found

The camera traps and cat-borne mortality collars indicated a significant reduction in feral cat abundance at Taunton following the baiting. Four out of the ten GPS collared cats died from the baiting, and there was up to 38% reduction in the feral cat population on Taunton based on the camera monitoring. This represented a marked improvement over the fresh meat baits we had trialled in 2016, where only 11% of collared feral cats were killed and there was no significant reduction in feral cat abundance in the park.

The bait uptake rates from our small-scale trials at Culgoa Floodplain National Park in 2017 and Currawinya, Main Range and Girraween National Parks in 2018 were similar to those obtained at Taunton. We found bait uptake rates to be generally consistent across the 14 day monitoring period, with approximately 32% of baits removed in the first three days, increasing up to 55% by day 12.

The Eradicat® baits appear to be palatable to feral cats for longer periods than fresh meat baits. 1080 concentrations in Eradicat® start to degrade within two weeks, but the baits retain a lethal dose while still palatable to cats. Fresh meat baits appeared to be more susceptible to rapid desiccation and ant infestation than Eradicat® baits, quickly reducing their palatability to cats. For more detail on potential contributing factors to the poor recorded efficacy of fresh meat baits, please see Fancourt et al. (2021).

Impacts on other species

At Taunton, the bait uptake monitoring cameras identified that corvids (ravens and crows) interacted the most with Eradicat® baits, followed by the common brush-tailed possum. However, the bird counts and camera monitoring indicated that there was no significant impact of the baiting on the local populations of these animals. The total bird density appeared to increase following baiting at Taunton in 2017 and decreased at the non-baited site. However, statistical tests indicated there was no significant difference between densities of potentially

susceptible bird species at Taunton before and after baiting or at the non-baited site. It is likely that fluctuations in bird counts are due to bird species movements in response to available food and water.

At Culgoa Floodplain National Park, varanids (goannas) removed 19 of the 55 baits taken, with birds removing a further five baits. Baiting during winter when goannas are less active would help minimise this impact. A total of 34 feral cat detections were recorded at Moorrinya National Park, however no Julia Creek dunnarts were detected on camera.

Implications and recommendations

We found Eradicat® baits to have several advantages over fresh meat baits. The baits can be distributed at a higher density across the landscape by aircraft than fresh meat baits. This allows pest managers to target all areas of the landscape at the same time. The high-density application means that feral cats are more likely to find them quickly while the bait is still palatable.

We recommend baiting during cooler periods of the year when goannas are less active. This will minimise potential impacts to non-target animals and make more baits available to the feral cats. This recommendation is also in agreement with the best practice management of baiting in winter when prey abundance is low and bait uptake by feral cats is generally highest.

Following the results from this trial, the Queensland Parks and Wildlife Service (QPWS) are now permitted to use Eradicat® at Taunton for aerial and ground baiting up to two times per year.

Biosecurity South Australia initiated a project in early 2020 to collate information and assess the potential for registration of Eradicat® for use across eastern Australia. Data gathered from multiple collaborators, including our team, were used for this assessment. This information will also inform usage guidelines and risk assessments for the effective and safe use of Eradicat® baits. If registration is successful, Eradicat® will provide an additional tool for the broad-scale control of feral cats in eastern Australia.



Eradicat® baits drying in the sun after application of Coopex® insecticide to prevent ants from infesting the baits. Image Matt Gentle.

Baiting is assisting recovery of bridled nail-tailed wallaby

The bridled nail-tailed wallaby was a common species inhabiting parts of Queensland, New South Wales, Victoria and South Australia at the time of European settlement. The only naturally occurring wild population of the bridled nail-tailed wallaby is now within Taunton and surrounds, where the wallaby lives in acacia communities and open grassy woodland. Known threats to the wallaby include habitat loss and predation from feral cats, foxes and wild dogs. The recovery plan for this endangered animal highlights predator control as a priority for the species' conservation.

QPWS has put in place several long-term initiatives to manage feral cats and wild dogs at Taunton. The rangers have also been undertaking a range of other recovery actions for the benefit of the wallabies. These include drought feeding, control of invasive buffel grass (*Cenchrus ciliaris*) and various techniques to encourage the growth of forbs and succulents, which are the preferred food of the wallabies. Results to date show that the wallabies are benefiting from these initiatives and the feral cat control at Taunton.

QPWS previously used capture-mark-recapture surveys to estimate the wallaby population size, but have moved to spotlight surveys due to the increasing size of the population, which is currently estimated at approximately 1500 across the park. Ongoing intensive predator control efforts, including the Eradicat® baiting, have been an important contributor to the recovery of the population at Taunton.

BELOW: Preparing Eradicat® baits. Image James Speed.

Cited material

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Further Information

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