



Project update June 2018 – Feb 2019

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Feral cat with GPS collar

Control of stray and feral cats

Conrad Daniels and Paul Hansson of Bruny Farming, continue to monitor and control stray and feral cats focussing within and around the Neck Game Reserve (including the Simpsons Bay and Alonnah areas). Since May 2018 another 23 stray and feral cats have been managed bringing the total number since the program began (in late 2016) to 102 cats. Three quarters are classified as stray cats, that is, they are not owned but rely on food from people and/or refuse around settled areas. Due to the work of the Ten Lives Cat Centre approximately 41% of these stray cats have been socialised, vaccinated and rehomed off the island.

Our trapping work is being compared with independent monitoring of feral cats within the Lutregala Marsh reserve (immediately south of the Neck) by the Tasmanian Land Conservancy (TLC). In November 2018 they identified around 3 to 5 cats in their reserve which supports our current monitoring. This number has reduced from 2015 when TLC recorded between 5-14 individual cats.



Trials of trapping baits, timing and locations - as expected the most successful time for trapping feral cats in the Neck Game Reserve is immediately after the shearwaters leave the rookery in April and are no longer available as prey. Compared with KFC, tuna in oil or rabbit, tuna in spring water is proving to be most effective lure for catching feral cats. It stays fresher for longer and attracts fewer ants, possums and quolls.

Compared with trapping in dry open bush or at the base of a tree, where quolls or possums are often abundant, setting a trap on an open track about 1m away from the bush edge or dune is resulting in fewer non-target captures. Setting traps well away from ant nests will also help prevent echidnas getting caught. These amazing creatures can dig their way through a trap's base and stroll off unharmed, leaving the trap totally destroyed!

Diet of Bruny's feral cats - the stomach contents of the feral and stray cats that have been trapped and euthanased are currently being analysed by the University of Tasmania. Previous analysis of 42 feral cats trapped on Bruny found mostly native species, (especially woodland birds, short-tailed shearwaters and swamp rats) and some rabbits.



Trap destroyed by escaping echidna

Over summer while the shearwaters are present, the ground work is being done for intensive trapping in autumn-winter. It is estimated that at least 75% of the feral cats identified at the Neck between March and July 2017 have been trapped, however a few cats that can't be lured into a trap remain and slowly new cats are moving into the Neck area as territory becomes available. The movement patterns of these cats are being assessed so autumn trapping will be as effective as possible.

Elevated platform trial – in partnership with DPIPW we are also testing whether a method successfully developed in WA to catch 'trap-wary' cats may be effective on Bruny. The idea is that cat specific lure placed on a raised platform entices cats (but not other species) to jump up onto platform where a concealed padded leg-hold trap is set. The use of an elevated platform helps to reduce the impact on non-target species (such as quolls, possums, birds-of-prey) compared to traps set on the ground. The trial is approved by the Tasmanian Ethics Committee and the platforms are being trialled without the traps to first identify what species jump up onto the platforms.

*Example of a platform being trialled on Bruny.
The sticks help direct cats into the middle of the trap.*



Pilot school-based apprenticeship program – Blake Lovell started an apprenticeship in Conservation and Land Management in June last year and he is spending one day a week with Conrad learning about cat management on Bruny. The program is being co-ordinated through weetapoonna Aboriginal Corporation with the aim to provide trainees for a future Bruny Island Aboriginal Ranger program. We are working towards Council partnering with wAC and PWS to help build the program and envisage that the Ranger will provide a local presence to help implement Council's new Cat By-law, along with dog control and vegetation management (including vegetation removal and weeds).



Management of domestic cats

Bruny Island Cat By-law - a current focus of the project is to consult with the Bruny community about the By-law and to support cat owners to comply when it is introduced in July this year.

Bruny Island residents and rate-payers are invited (until Monday 11th March) to give feedback on the By-law which aims to help foster responsible cat ownership, protect the welfare of pet cats and manage stray cats. The By-law includes compulsory desexing and microchipping of domestic cats, keeping cat/s within an owner's property boundaries, a limit of two cats without a permit and the prohibition on feeding stray cats.

The By-law can be viewed at www.kingborough.tas.gov.au/engaging-bruny-island-community and feedback can be provided through oursay.org/kingborough-council/bruny-island-cat-by-law or by emailing or writing to the General Manager at kc@kingborough.gov.au or Civic Centre, 15 Channel Hwy, Kingston.

Assistance to Bruny cat owners - with extra funds from BICA, BIEN and the Ten Lives Cat Centre, Council is offering assistance to Bruny cat owners to plan and build containment options for their cats (e.g. enclosures, cat flaps, fence-top systems). Pete Willows of PWSC Services has worked with several Bruny cat owners including Sue and Neil at Alonnah to create a delightful new home for Buddy. Buddy's story can be viewed at:

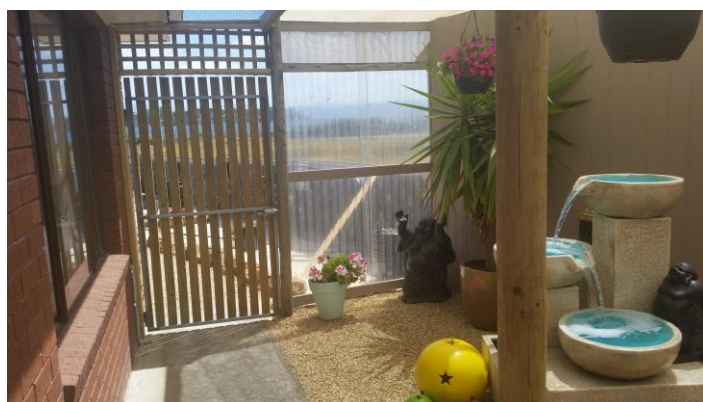
<https://www.kingborough.tas.gov.au/helpingcatownersbruny/>

Advice on helping cats make the transition is also available from an animal behaviourist and vet Katrina Ward. And generously the Ten Lives Cat Centre has provided free microchipping, desexing and health care for many Bruny cats!

Under the By-law all cats owned by Bruny residents or that regularly visit the island will need to be **registered with Council**. While Council has now made contact with over 35 cat owners, we encourage any others to contact Council as soon as convenient.

Bruny cat holding facility - funded by Council and the Ten Lives Cat Centre a small facility has been built off-site and is due to be installed at the Alonnah depot in March. The facility will provide a place for the community to bring stray and feral cats for assessment and care. It will also offer a place where vets can perform de-sexing and micro-chipping of domestic cats.

Buddy's new home at Alonnah



Community engagement

Community engagement report - the report has been prepared by Lynette McLeod (from New England Uni). Lynette has extensive experience in invasive species management and community engagement. The report draws on experience from other island communities to explain why and how an island community should be engaged to ensure successful cat management. It reviews the activities undertaken on Bruny including community attitudes towards the program and makes recommendations for future community engagement activities. The report can be found on Council's website at www.kingborough.tas.gov.au/engaging-bruny-island-community

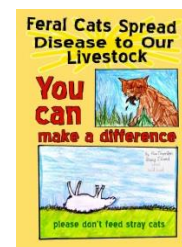
The 2018 Bruny Life survey found nearly 90 percent support for domestic and feral cat management among the 691 respondents. However the survey also found some concerns among a small number of respondents, including about mandatory 'cat containment'; what will happen to rat and Eastern Quoll numbers as feral cats decline; and the need to also focus on other issues such as managing dogs, land clearing and rodent control.

Bruny Island cat management online survey - in order to better understand and address community concerns and find ways to effectively involve the community, Bruny Islanders are encouraged to complete an online survey by Monday 18 March www.oursay.org/kingborough-council/cats The survey asks people's opinions on methods to control feral cats, how best to implement the Bruny Island Cat By-law, and if and how the community wants to be involved in cat management.

Bruny Island District School – last year the students created delightful posters promoting responsible cat ownership. These have been made into a banner, bumper sticker and fridge magnets and are being distributed to Bruny Islanders and accommodation venues. It is hoped that these will increase the profile and support for the program. Free copies of the magnets and stickers are available at Dennes Point Café, the Post Office, Pharmacy and Adventure Bay store.



Premier Will Hodgman with Bruny School students and their responsible cat ownership banner



Field Day for land owners - in partnership with Tas Land Conservancy people who have been monitoring wildlife or would like to learn about creating and protecting habitat on their land are invited to attend a Field Day in April.

Monitoring and research

Below is a summary of some of the recent monitoring and research undertaken by the project.

Feral cat density and distribution on North Bruny (research by Matt Pauza - DPIPWE Invasive Species Branch)

In 2018 remote cameras were deployed across nineteen sites on North Bruny to monitor for the presence of feral cats and other invasive and native species. Each site had 6 cameras (approximately 200m apart) which were deployed for at least 35 days. We wish to thank all the landowners who provided access to their properties.

No Eastern Barred Bandicoots, Southern Brown Bandicoots or Tasmanian Bettongs were detected despite suitable habitat and the extensive survey. Based on this survey and records over the past 20 years it is considered unlikely that these species reside on North Bruny.

Eastern Quolls and Long-nosed Potoroos were detected at all sites. This is very positive given the Eastern Quoll is extinct on mainland Australia, listed as threatened in Tasmania and the Bruny Island population is considered to be an important refuge population. In addition the Long-nosed potoroo has experienced recent declines across its Australian range.

The survey detected more feral cats on North Bruny than previously assumed based on earlier research and reports of cat sightings by the community. While more accurate numbers are still to be calculated, Figure 1 indicates the pattern of distribution. No cats were detected across a large portion of the central and northern areas while south of Great Bay more cats were recorded. This is expected given the close proximity to the Neck and Cape Queen Elizabeth seabird colonies and the high number of cats recorded within these colonies.

This is likely to be the best case scenario however, because remote cameras will not detect all cats in the landscape. For example, the male cat in Figure 2 (below) was not detected on any camera north of Great Bay, despite spending significant time in this area.

The information from the remote camera monitoring in combination with GPS tracking will be used to more accurately estimate the density of feral cats across North Bruny and at the Neck.

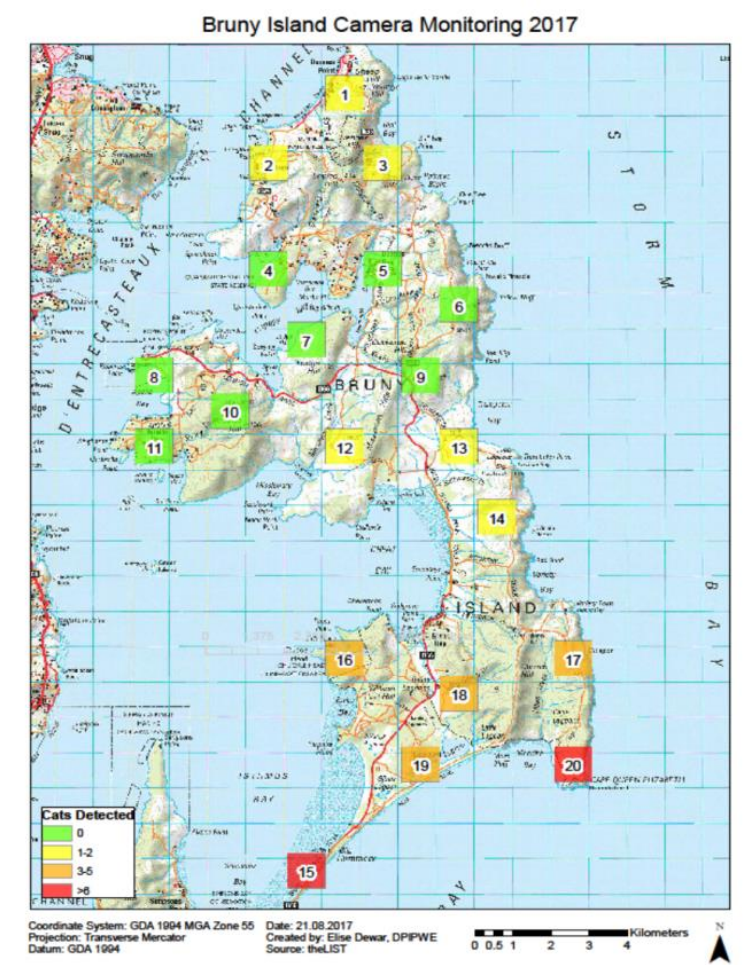


Figure 1: Number of cat detections on remote cameras
(courtesy of DPIPWE, Invasive Species Branch)

Tracking feral cats at the Neck Game Reserve

The GPS tracking of feral cats is providing invaluable information to help target control.

A further 3 cats were tracked in the second half of 2018, making a total of six cats now tracked using GPS collars which records their location every 2 hours. All the feral cats tracked to date spend significant time in the Neck and Cape Queen Elizabeth (CQE) seabird colonies throughout the year, even when the shearwaters are absent. This is likely due to the abundant presence of invasive rodents as prey.

Males range much further than females and move to and from the colonies to either forage or search for females.

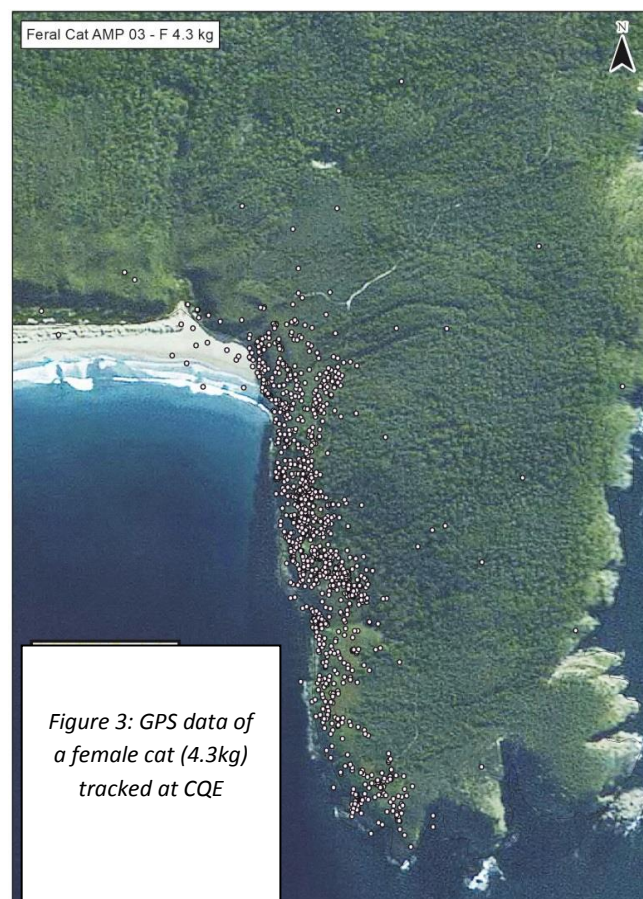
The area covered by the male (Figure 2) was recorded at 5000ha (50km²). He regularly moves between CQE and north of Barnes Bay, a distance of more than 19km! This is a large area compared with some of the mean home ranges recorded for male feral cats across Australia (1.5 to 32 km²)(Moseby et al 2009; McGregor et al 2015). Larger ranges generally occur in arid and semiarid areas where prey and feral cats are less abundant.

As prey is abundant across North Bruny one explanation for this larger than expected territorial range may be the lower density of feral cats in the north.

In comparison, multiple females have been found to inhabit either the Neck or CQE seabird colonies year round (Figure 2) with small home ranges that overlap.

The tracking work highlights that the shearwater colonies at the Neck and CQE are magnets for feral cats that travel long distances across North Bruny and into the northern part of South Bruny. It is therefore likely that control at these sites will help limit the dispersal of feral cats well beyond the colonies themselves.

The timing and intensity of trapping is critical however and will need to be maintained for a many years before impacts can be measured.



Bruny Island feral cat management feasibility study

John Parkes of Kurahaupo Consulting John has recently completed the feasibility study. John has over 40 years' experience as a research scientist in conservation management specializing in invasive species. He has worked on eradication projects around the world including many island projects focusing on feral cats.

The study highlights the significant financial costs and complexities of feral cat management, particularly on an island the size of Bruny. It reinforces that any management decisions must be based on sound evidence that determines that overall benefits far outweigh the costs.

His study indicated that cats are likely contributing to the rarity of several small mammal species on Bruny Island and that removing feral cats would benefit native species, especially small marsupials, skinks and nesting seabirds. He advised that densities of common prey species (rodents and rabbits) are unlikely to change if feral cats are eradicated, while competitors (e.g. Eastern Quolls) may increase a little.



The study found that island-wide feral cat eradication would likely take 14-21yrs and cost approximately \$2 million per year (up to \$42 million in total) depending on how it is rolled out. It will require use of control methods which are currently banned in Tasmania. These include padded leg-hold traps and possibly localised baiting. While most other successful island cat eradication programs have used these methods, John warned that the risks of leg-hold traps and baiting on Bruny must first be assessed in research trials.

An effective and safe feral cat eradication program will require that a number of risks and constraints are first addressed. These include the critical need for up-front funding and long term commitment from key government and partner organisations; approval of all required control methods; a full understanding and ability to manage any risks to non-target species and any adverse impacts due to increases in invasive predators (such as rodents). It will also require sustaining 100% responsible pet cat ownership and effective and ongoing biosecurity to prevent, detect and manage any immigrant cats.

The study also described the process required to effectively manage feral cat impacts over time at key sites (such as the Neck Game Reserve) should eradication not be feasible or attempted.

Further information and a full copy of the Feasibility can be found on Council website:

<https://www.kingborough.tas.gov.au/monitoring-and-research/>

Conservation assessment of feral cat management on Bruny Island

In order to assist future decision making, research was undertaken in 2018 to help quantify the potential benefits of feral cat control for priority native species and to prioritise management locations that give the best "bang for buck". Lachlan Francis from the Threatened Species Recovery Hub (University of QLD) undertook his Honours research in conjunction with researchers from the Universities of QLD and Tasmania. They assessed five species - the threatened Eastern Quoll, Hooded Plover and Forty-spotted Pardalote and the culturally significant Little Penguin and Short-tailed Shearwater. Using published research, expert knowledge and information on the species'

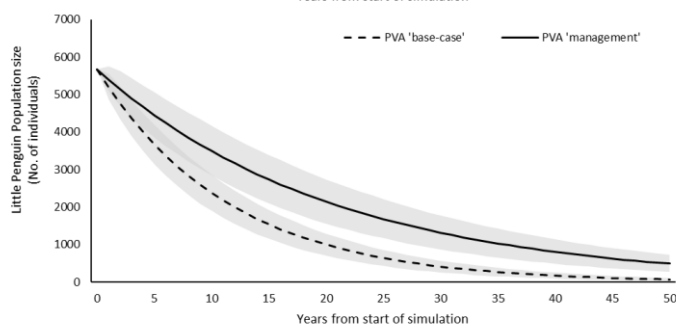
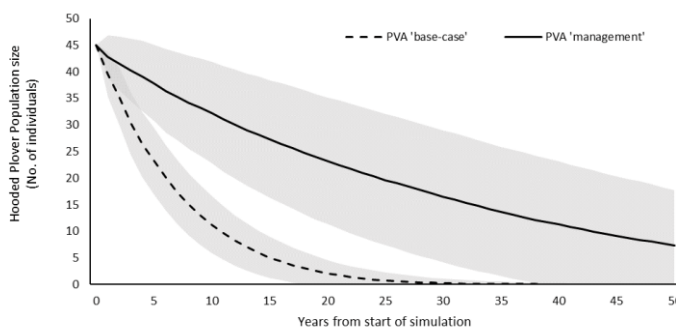
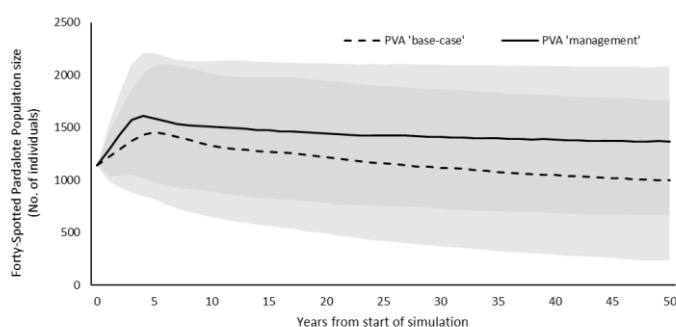
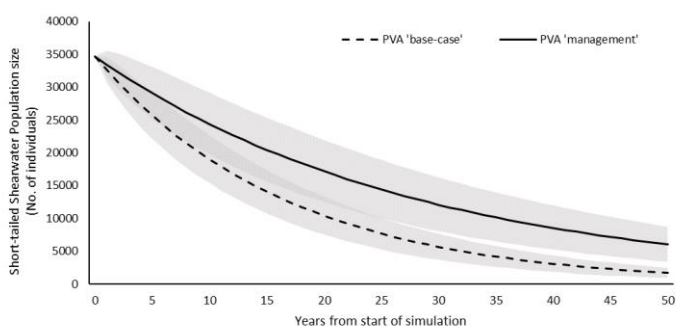
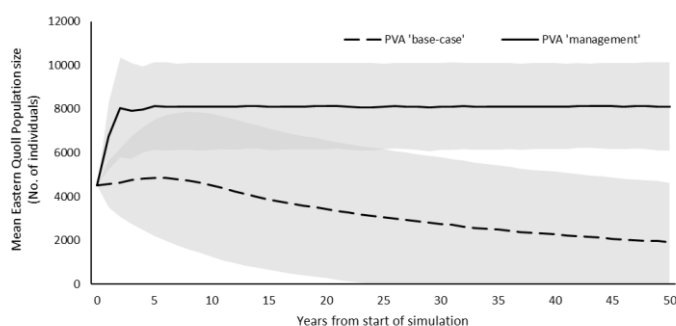
populations, ecology and threats they modelled how each species would fare over the next 50 years with and without feral cat management.

The modelling is best-case scenario. With more funding future models could incorporate other factors such as habitat quality and quantity, other threats and interactions with other species that may change as a result of cat management.

The study indicated that cat management offered most benefit to Hooded Plovers, as it will significantly improve population survival well beyond 50 years. However, cat management alone will not secure the long term survival of this vulnerable species on Bruny. For the Eastern Quoll, cat predation on juvenile quolls is a major threat and the study indicated that cat management would help maintain their population on Bruny over the long term. For the other study species the benefits were less apparent. Cat management will alter the population decline of the Little Penguin and Short-tailed Shearwater, but will not stop their overall declining trend given the severity of other threats they experience. There is very little information on cat predation on Forty-spotted Pardalote, but more significant are the other key threats this endangered species face.

Based on current distribution, the study also identified priority sites for future feral cat eradication or ongoing control. The study was conclusive that feral cat management at the Neck offers the greatest conservation benefit for the five species and the best value for money overall. Dennes Hill Reserve/North Bruny gave the next highest conservation benefit due to their importance for the threatened Eastern Quoll and the Forty-spotted Pardalote.

The results of these studies generally confirm the findings of the 2016 benefit:cost study for cat management on Bruny Island (Park and Roberts 2016). This has formed the basis of our current monitoring and control work focussing on the Neck, adjacent areas and across North Bruny.



*Graphs courtesy of Lachlan Francis
University of QLD*

Further information about the study can be found on Council website:

<https://www.kingborough.tas.gov.au/monitoring-and-research/>

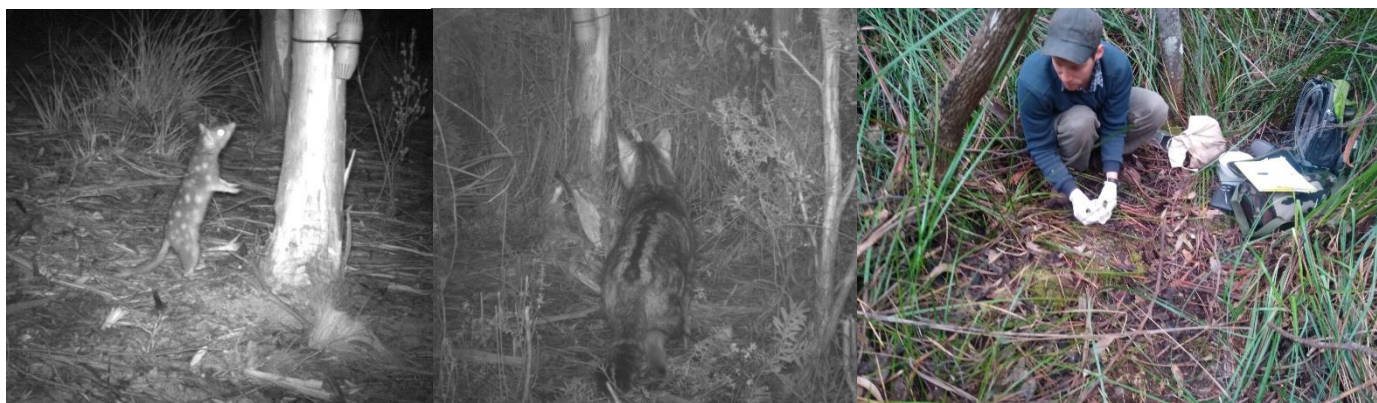
University of Tasmania (School of Biological Sciences) PhD Research

Cyril Scomparin commenced his PhD in April 2018 and is being supervised by Menna Jones (Associate professor), Christopher Johnson (Professor) and Hugh McGregor (Postdoctoral Research Fellow). Co-funding for the PhD research has been generously provided by Pennicott Wilderness Journeys and Bruny Island Coastal Retreats.

The overall focus of Cyril's work is on food webs with a particular interest in the interactions between carnivores. He has set up 14 sites covering the key habitats across the island (including 8 on South Bruny) where he is studying the presence of mammalian carnivores (cats, quolls and rats) along with other mammals, birds and reptiles. This is critical work to help us understand the likely impacts of feral cat control on the rest of the ecosystem on Bruny.

Cyril's research will also assess to what extent the presence of black rats support feral cat populations on Bruny and if control of black rats at the Neck will also help control feral cats. Importantly his work will further study the factors which drive the abundance of Eastern Quolls and feral cats across the Island by examining their diet and distribution. It will also help inform where future efforts to control feral cats on South Bruny should be focussed.

Cyril extends his sincere thanks to Robert Pennicott (Pennicott Wilderness Journeys) and Michael Haines (Bruny Island Coastal Retreats) for their financial support; Richard and Stephen Mount who provided him with accommodation; along with Parks and Wildlife Service and all the private land owners who are allowing access and research on their properties.



Photos courtesy of Cyril Scomparin UTAS

Future directions and funding opportunity

The findings from the research and work to date were considered at the project's November 2018 Steering Committee meeting. While the meeting agreed that the benefits of cat management to threatened species on Bruny are important, broader objectives associated with whole-of-island benefits and environmental health need to also be considered in future decision making.

These benefits and considerations were discussed and include Bruny's diverse habitats and high biodiversity values and relative vegetation and landscape 'intactness'. These attributes make it an ideal location for the protection of species that have and will become threatened or extinct within their Tasmanian mainland range. In the face of other threats, including climate change, a lack of cat

management may play a role in adversely impacting on a range of the island's species, such as small localised seabird colonies. In addition, feral cat management will bring important economic, tourism and livestock production benefits to Bruny Island.

Importantly the Bruny cat management project has achieved significant research and management outcomes and offers substantial learning and application to other cat management programs around Tasmania. It is also a great example of the benefits of collaboration between organisations and community groups. The Steering Committee is keen to ensure that the substantial financial, organisational and human investment will not be wasted.

To this end the Committee agreed to work with NRM South to prepare a proposal to the Regional Land Partnerships Program (RLP) which due this month. While the funding is not guaranteed and will be very competitive we are giving it our best efforts. The proposal addresses outcomes for threatened species on the island (particularly the Eastern Quoll) and will intensify work at the Neck and across North Bruny and importantly work to engage land managers. This proposal will build on the investments to date and ensure that the program's momentum can be continued, including the long term goal to progress feral cat eradication.

More information & videos on the project: <https://www.kingborough.tas.gov.au/cats-bruny-island/>

THE BRUNY ISLAND CAT MANAGEMENT PROGRAM IS GENEROUSLY SUPPORTED BY MANY PARTNERS



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