Kingborough

May 2018

Control of stray and feral cats

Conrad Daniels of Bruny Farming started work with Cat Management Program in December 2017. His role is to undertake control and monitoring of feral cats and community liaison. Conrad's land management experience and knowledge of the island and the Bruny community has already been a great asset to the project. His full-time presence on the island means we are better able to respond to community information about the presence of stray and feral cats and to build cat management skills on the island. This will help foster long term community involvement and program success.

We are also delighted that Brett Woodruff who was the Field Officer for the project in 2017 continues to be available for advice and to be involved in on-ground control work when he is back in Tasmania. He recently worked with Conrad to pass on cat tracking and shooting skills.

Since the program commended in late 2016, 77 stray and feral cats have been managed from the Neck, Simpsons Bay and Alonnah areas. The majority are stray cats that have been rehomed off the island and some have been euthanized due to poor health or temperament. It is estimated that 30-50% of the feral cats identified at the Neck (by remote cameras monitoring) between March and July 2017 were removed in 11 days of trapping last winter (2017).

Trapping of feral cats at the Neck and North Bruny intensified again in May once the shearwaters left for the winter and were no longer available as prey. In the first 12 days of trapping in the Neck Game Reserve seven feral cats have been euthanased and an additional three cats collared for GPS tracking. The tracking of feral cats at the Neck is providing invaluable information that is helping us to target our control efforts.

Remote camera monitoring across 20 sites on North Bruny is nearly complete and has identified more feral cats in the north than previously assumed based on earlier research and reports of cat sightings from the community. The preliminary tracking data also suggests that the Neck will continue to be an important control site for both feral cats that spend a lot of time in the area and those that range large distances north and south of the Neck.

Management of domestic cats

The **Bruny Island Cat By-law** has been finalised and the Regulatory Impact Statement has been finalised for submission to the Director of Local Government and public consultation. We continue to work with cat owners in preparation for the introduction of the By-laws in June 2019. Funds from BICA and Ten Lives Cat Centre are providing free microchipping, desexing and rehoming of cats and will assist with containment.

The 2016/2017 survey of Bruny cat owners found that while most domestic cats are desexed and micro-chipped, 59% of respondents may require assistance with cat containment. Consultation with individual cat owners is now being undertaken and builders and an animal behaviourist have been engaged to provide the necessary building, technical and personal advice on how to contain people's cats. A forum for cat owners is also being held in June.

In a very exciting step Council has partnered with weetapoona Aboriginal Council, NRM South, STEPS and Work and Training to develop a pilot school-based apprenticeship program in Conservation and Land Management. The apprenticeship will commence in June and the Bruny Cat Management Program will provide the key work experience component. The program will provide trainees and leadership for the **Bruny Island Aboriginal Community Ranger program** which will commence in June 2019 and undertake community liaison, education and enforcement of the domestic cat by-laws.

Monitoring and research

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

Surveys of Short-tailed Shearwaters, Little Penguins and Hooded Plovers

Birdlife Tasmania is undertaking annual field surveys of Short-tailed Shearwaters, Little Penguins and Hooded Plovers to establish baseline breeding population estimates at the Neck (intervention site) and Whalebone Point seabird colonies and beaches (control site). The aim is to assess the impact of feral cat control on populations over time.

Baseline data from the sites indicate a slight decrease in Hooded Plovers at Cloudy Beaches and the Neck Beach since 1980/81, and data from 2012-2017 indicates considerable annual variation in the breeding populations of Short-tailed Shearwaters and Little Penguins at the Neck and Whalebone colonies.

The data is also being compared with other data sets from around the region and state to establish if the Bruny Island populations are representative of broader trends.

Investigating feral cats and other predators at the Neck

A 2017 University of Tasmania Honours project (Caitlan Geale supervised by Associate Professor Menna Jones and Professor Chris Johnson) deployed remote cameras at and adjacent to the Neck and Whalebone Point seabird colonies. The aim was to collect baseline data on the density and distribution of feral cats and other native and introduced predators. This information will help predict how different predator species may respond to feral cat control and the resulting beneficial and adverse impacts.

High cat densities were recorded at the Neck, both during (51cats/km2) and after (47cats/km2) shearwater breeding, indicating that feral cats use the Neck rookery as a major food source both when shearwaters are present and absent. It suggests that invasive rodent and penguin populations may be high enough to maintain cat presence in the rookery throughout the year.

The Neck with its high density of nesting seabirds, long sections of coastline and a past history of stray cats being fed in the area would contribute to the high cat densities observed in the study.

In comparison to feral cats, the key native mammalian predators, eastern quolls and water rats were detected at much lower frequencies at the Neck and Whalebone Point colonies, indicating that seabirds are likely not a major food source for these species. It suggests that any potential increase in eastern quolls and water rats as a result of feral cat control (due to lower predation and competition by cats) is unlikely to adversely impact on seabird populations. The finding supports other research that shows that quolls prefer agricultural land and dry eucalypt forest.

In contrast, invasive rodents (black rats and mice) were detected very frequently at all sites (including the seabird colonies), though their density was not estimated. This is an important finding as invasive rodents can cause population declines of seabirds through predation on eggs, chicks and adults. If rodent numbers were to increase significantly as feral cats are removed this could potentially negate the benefits of cat removal and would require the simultaneous control of rodents.

A University of Queensland Honours project is now underway to estimate the density of invasive rodents at the Neck so that as feral cat control progresses any changes in density and potential for adverse impacts can be investigated.

The study also found that the highest detections of feral cats, invasive rodents, quolls and shearwaters in the seabird colonies were recorded in medium-height vegetation (tussock grass and bracken fern), likely reflecting the preference of prey species for this habitat. This is very useful information when planning future monitoring and control activities.

Tracking feral cats at the Neck Game Reserve and feral cat density and distribution on North Bruny

Matthew Pauza (Wildlife Biologist with DPIPWE's Invasive Species Branch) is tracking the movement of feral cats that have been captured in the Neck area. To date six feral cats have been fitted with GPS collars and every 2 hours their location is logged. This data gives us an idea of the cat's movement routes, how far they roam and where they spend most of their time. We can also determine if these patterns change for the cats during different seasons. This information will help to identify future control sites and when best to target control efforts.

Tracking data for three of the cats is shown on the map below and some of the important information that it is providing, includes:

- Each feral cat has their clearly defined territory however all of them spend significant time in the Neck seabird colony.
- As is commonly the case, the males are ranging further than the female. The 4.2kg male cat regularly travels long distances between Cape Queen Elizabeth through the Neck and down towards Adventure Bay. His home range is estimated to be around 7km^2.
- In contrast, the female stays mostly around the boardwalk area and her home range is estimated at about 0.3km^2. She appears to have a few favourite spots which are probably her main refuge and breeding sites.
- The data also confirms that the feral cats spend time at the Neck in winter after the seabirds have left the rookery. This is likely due to the presence of invasive rodents within the rookery that provide a ready food source for the cats all year round.
- The 3 cats commonly use the beach for travelling between their feeding and refuge sites. The data also shows that they spend time on the beach during low tides, likely feeding on washed up marine life such as fish, mussels, crabs, limpets, algae etc.
- The 4.2kg male cat spends a lot of time near Mars Bluff and Little Lagoon within the Neck Game Reserve, indicating the presence of important local food sources.

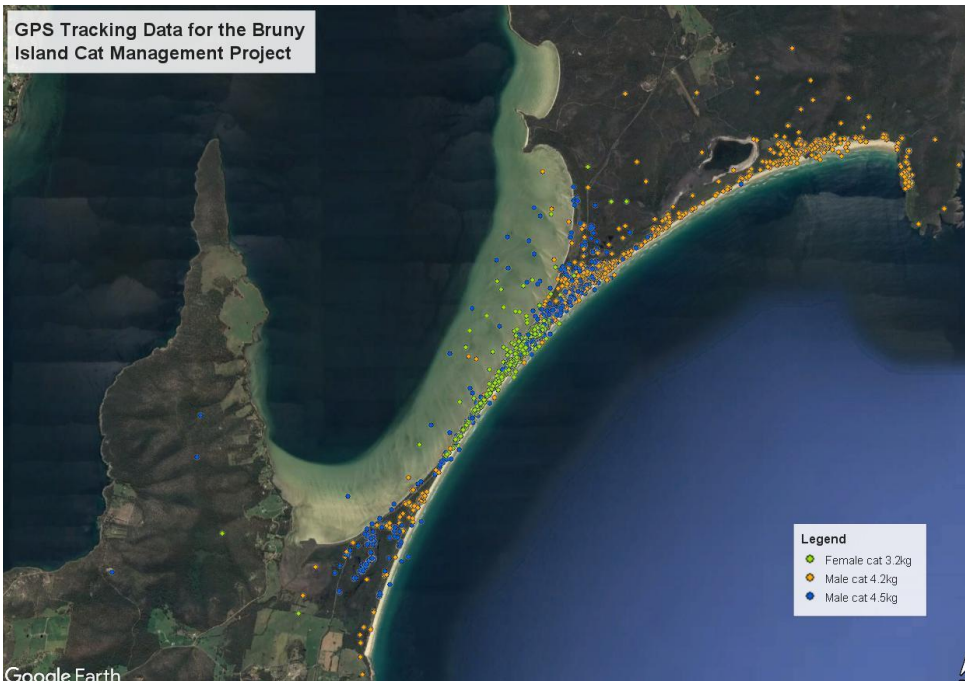
Remote cameras have also been deployed across twenty sites on North Bruny to monitor for the presence of feral cats and other invasive and native species. Photos (of individual feral cats) from these remote cameras in combination with the tracking data is helping to more accurately estimate the density of feral cats across North Bruny and at the Neck.

North Bruny camera data to date indicates that feral cats numbers are higher in the North than previously assumed based on earlier research and reports of cat sightings by the community.

Feral cat with GPS collar

The preliminary tracking data suggests that the Neck will continue to be an important control site for both feral cats that spend a lot of time in the area and those that range large distances north and south of the Neck. We are investigating if this control work will play a key role in limiting the dispersal of feral cats to North Bruny where their numbers are much lower than on South Bruny.

GPS data of 3 feral cats tracked at the Neck Game Reserve
(courtesy of DPIPWE, Invasive Species Branch)



Investigating the diet of feral cats at the Neck

Wildlife biologists Nick Mooney and Barbara Triggs analysed the gut contents of 12 feral cats trapped by PWS around the Neck area. They looked for visual evidence of bone, nails, scales, shell, hair and feathers. Not surprisingly, all species found are relatively common. Of the 12 cats, Short-tailed Shearwater feathers were identified in the stomach contents of half the cats. In four cats the presence of Little Penguin feathers or the fur of Long-nosed Potoroo, Tasmanian Pademelon or rabbit were found. Other contents included cat fur, plastic rubbish, fish bone, seaweed and grass.

These results provide an indication of what those cats ate in the 24 hours prior to capture and suggest the range of animals likely directly impacted by cat predation. It is probable that DNA analysis would identify the presence of other species, such as insects, millipedes, worms and grubs or the soft tissue of large carcasses. These are not readily detectable by physical examination as there are no bones, fur or feathers to identify.

Feral cat with shearwater

Throughout the remainder of the project the diet of all feral cats will continue to be analysed which will also help inform the impacts of cat management on key species.

Cat management feasibility study

A study is currently being undertaken by John Parkes of Kurahaupo Consulting. John is assessing whether island wide eradication is feasible using currently available methods without causing unacceptable legal, social or environmental risks. The study will outline the methods, risks and costs of a range of options, from island wide eradication to the sustained management of feral cats in priority areas across the Island. This information will inform the long term Cat Management Strategy being developed for the island.

Successful feral cat eradication and cat management relies not only on effective control of feral cats but also importantly on community support. The project commissioned questions in the recent Bruny Life survey and found 90% support among Bruny residents and rate payers for feral cat eradication and domestic cat management. We are currently planning focus groups to further explore community attitudes, including towards different feral cat control methods and strategies to build long term community involvement and ownership of the program.

Future research

A University of Tasmania (School of Biological Sciences) PhD project has just commenced. The PhD will build on the research undertaken to date. It will improve our scientific understanding of the distribution and ecology of feral cats across the entire island (especially South Bruny) to inform long term management and the likely impacts of cat control on the rest of the ecosystem.

Co-funding for the PhD research has been generously provided by Pennicott Wilderness Journeys and Bruny Island Coastal Retreats.

Kaylene Allan- Cat Management Office, Kingborough Council