

Tasmanian Department of Primary Industries, Parks, Water and Environment submission to the House of Representatives Standing Committee on the Environment and Energy inquiry into the problem of feral and domestic cats in Australia

a. The prevalence of feral and domestic cats in Australia

Feral cats are distributed across all habitats on mainland Tasmania as well as the large inhabited islands of King, Flinders, Cape Barren and Bruny. Of the smaller 334 Tasmanian offshore islands, 30 have been recorded with cats (*Felis catus*) at some point after European settlement, with current data indicating 14 still have feral cats (refer Table 1). Successful feral cat eradications have occurred on six Tasmanian islands (i.e. Little Green, Great Dog, Macquarie, Tasman, Wedge and historically Betsey Island). Cats have likely died out from seven islands (i.e. Deal, Outer Sister, Courts, Fulham, Swan, Schouten and St. Helens Island). Possible or unconfirmed cat sign has been recorded for four other islands (i.e. Philips, Inner Sister, Little Green and Pelican Island).

The density of feral cat populations varies across the State. A number of published and unpublished reports (~28) on feral cats in Tasmania have estimated density between (0.02 – 68.20 cats/km²) (Legge et al. 2016). Generalised trends in the density estimate data suggest a gradient of relatively lower densities in the southern and western wilderness areas (~ 0.02-0.1 cats/km²) through to high densities in the eastern part of the state (~0.5- 1.5 cats /km²).

Tasmania’s offshore islands can maintain high densities (~2.0 – 68.20 cats /km²) (Legge et al. 2016). Current monitoring on Bruny Island has shown that cat densities vary significantly in association with seasonal food supply. Feral cats on Bruny Island are in extremely high densities around the island’s seabird colonies (~51 cats/km²) and virtually absent in non-bird breeding areas (~1e-05 cats/km²) (Pauza, unpublished data).

The extremely high density of feral cats, together with the high conservation value of many of Tasmania’s offshore islands highlights the need for ongoing control and/or eradication of feral cats from these islands.

Table 1. Tasmanian Islands currently known to have feral cats as of 1 July 2020.

Island	Area (ha)	Tenure
Babel Island	441	Aboriginal land
Badger Island	1,243	Aboriginal land
Bruny Island	36,200	multiple tenures
Cape Barren Island	46,460	Aboriginal land
Clarke Island	8,160	Aboriginal land
Flinders Island	133,000	multiple tenures
Hunter Island	7,060	Non-allocated Crown Land, Leasehold
King Island	110,000	multiple tenures
Little Dog Island	83	Game Reserve, Private property
Maria Island	10,127	National Park

Mount Chappell Island	323	Aboriginal land
Prime Seal Island	1,221	Non-allocated Crown Land, Leasehold
Three Hummock Island	6,966	Nature Reserve, Leasehold
Waterhouse Island	287	Private property, Conservation Agreement

Domestic cats

Australia has one of the highest rates of pet ownership in the world, and cats are the second most common pets with 29% of households owning a cat (Animal Health Alliance 2013). This equates to 15 in every 100 people in Australia having a cat. In Tasmania, it is estimated that 34% of households own a cat, the highest rate in Australia (Roy Morgan Research 2014). This highlights the fact that cats play an important role in the social fabric of Tasmanians. Whilst the prevalence of domestic cats in the Tasmanian landscape is not clear, there are, however, a range of instruments that aim to manage the numbers of domestic cats and their potential transition to the feral population. These are discussed further in Section C.

References

Animal Health Alliance (2013) Pet Ownership in Australia 2013. Canberra, ACT.

Roy Morgan Research 2014 - <http://roymorgan.com.au/findings/6272-pet-ownership-inaustralia-201506032349>

b. The impact of feral and domestic cats including on native wildlife and habitats

Wildlife Monitoring in Tasmania

The Department of Primary Industries, Parks, Water and Environment (DPIPWE), undertakes a range of wildlife monitoring throughout the Tasmanian landscape – in particular the long-running multi-species state-wide spotlight surveys and a variety of project-specific camera trap surveys.

While the purpose of these various monitoring programs is to target native wildlife, information on cat distribution is also captured through these monitoring programs. Feral cats are routinely observed in images taken by remote cameras and during spotlight surveys across Tasmania. These data represent a valuable resource when considering impacts of cats on native wildlife across Tasmania's varied landscapes and ecosystems.

Monitoring and measuring the impact of feral and domestic cats on wildlife and habitats is an important area of work for government and non-government institutions and organisations in Tasmania. Much of our current understanding of the impacts comes from the observable effects that feral cats have on offshore islands and the dramatic changes to environments and species that occur post cat eradication (Robinson et al. 2015). However, there are few published studies on the direct and indirect impacts that feral cats have on more cryptic terrestrial, birds, mammal and reptiles in Tasmania.

Importantly, feral cats are likely to have shaped our contemporary understanding of wildlife distribution and abundance due to their presence in the landscape since European settlement. Feral cat eradication and control can help to restore native wildlife and habitats.

Feral cats may impact on a range of national and state-listed threatened species, either through direct predation of individuals, competitive exclusion, or disease transmission. In the absence of hard evidence, expert opinion suggests cats are likely to cause significant negative population effects on, and impede the recovery of, nationally-listed threatened species including a range of burrowing petrel, New Holland mouse (*Pseudomys novaehollandiae*), Eastern barred bandicoot (*Perameles gunni*), King Island scrubtit (*Acanthornis magna*) and Brown thornbill (*Acanthiza pusilla archibaldi*) (M Holdsworth 2020, pers. comm., 15 July; Lazenby et al. 2019; Obendorf et al. 1996; Robinson and Copson 2014).

To better understand the population impacts for feral cats on the nationally-listed Eastern quolls (*Dasyurus viverrinus*), a range of monitoring and research actions are undertaken through the Bruny Island Cat Management Program and DPIPWE. The project aims to understand how these two predators impact one another and the ecosystem in which they reside. DPIPWE will also investigate the impact feral cat presence has on a range of small mammals and birds on Bruny Island.

Increasing academic and community interest around feral cats and their impact has led to the initiation of a number of new studies and programs (i.e. Bruny Island Cat Management Program, Three Hummock Island Cat Eradication, Hobart City Council feral cat control and a range of student projects based at the University of Tasmania) that aim to measure and mitigate the impact of feral cats in Tasmania.

References

Lazenby, B.T., Bell, P., Driessen, M.M., Pemberton, D. and Dickman, C.R. (2019) Evidence for a recent decline in the distribution and abundance of the New Holland mouse (*Pseudomys novaehollandiae*) in Tasmania, Australia. *Australian Mammalogy*, 41(2), pp.179-185.

Robinson, S., Gadd, L., Johnston, M., and Pauza, M. (2015) Long-term protection of important seabird breeding colonies on Tasman Island through eradication of cats. *New Zealand Journal of Ecology* 39(2):1-7.

Obendorf D.L., Statham. P., Driessen, M. (1996) Detection of agglutinating antibodies to *Toxoplasma gondii* in sera from free-ranging eastern barred bandicoots (*Perameles gunnii*). *Journal of Wildlife Diseases*, 32, pp. 623-626.

Impact of feral and domestic cat pathogens and disease on native wildlife in Tasmania

Feral and domestic cats have potential to be significant reservoirs of pathogens and diseases that can negatively impact wildlife in Tasmania. Multiple parasites and pathogens that infect wildlife have been identified in feral cats in Tasmania (Milstein and Goldsmid 1997). *Toxoplasma gondii* is a particularly important parasite of conservation significance spread by cats.

There are many reported deaths in Tasmanian marsupials attributed to *T. gondii* (LIMS records 2020) and anecdotal evidence has linked the parasite to range contractions in some native species (Obendorf et al. 1996). The eastern barred bandicoot (*Perameles gunni*) is particularly susceptible (Bettioli et al. 2000) though the majority of mortalities in Tasmania have been recorded in pademelons (*Thylogale billardierii*) and Bennetts wallabies (*Macropus rufogriseus*, LIMS records 2020). Toxoplasmosis and the cat parasite *Cylicospira spp.* were recently diagnosed associated with a morbidity and mortality event in eastern quolls on Bruny Island (LIMS records 2020).

It is worth noting that toxoplasmosis in marine mammals is emerging as a significant disease and cause of mortality around the world (e.g. sea otters in west coast USA (Miller et al. 2004), Hawaiian monk seals in Hawaii (Barbieri et al. 2016), Hector's dolphins (Roe et al. 2013) and NZ sea lion (Roe et al. 2017) in New Zealand, Long-nosed fur seal in NSW (Donahoe et al. 2014), etc.) due to run off of oocysts in cat faeces into waterways and subsequent long-term survival of infective oocysts in the marine environment. Whilst there is no specific data for marine toxoplasmosis prevalence in Tasmania, there is no reason to expect it would be different, given the state has been shown to have higher seroprevalence in cats than almost anywhere else in Australia and most other countries for which there are data (Fancourt and Jackson 2014).

These various studies and reports implicate cats as a significant contributor to health issues in Tasmanian wildlife, and reinforce the importance of mitigating impacts through cat control / eradication programs.

References

- Barbieri, M.M., Kashinsky, L., Rotstein, D.S., Colegrove, K.M., and others (2016) Protozoal-related mortalities in endangered Hawaiian monk seals *Neomonachus schauinslandi*. *Dis Aquat Org* 121:85-95.
- Bettiol S.S., Obendorf, D.L., Nowarkowski, M., Goldsmid, J.M. (2000). Pathology of experimental toxoplasmosis in Eastern barred Bandicoots in Tasmania. *Journal of Wildlife Diseases* 36(1): 141-144.
- Donahoe S.L., Rose K., and Slapeta, J. (2014) Multisystemic toxoplasmosis associated with a type II-like *Toxoplasma gondii* strain in a New Zealand fur seal (*Arctocephalus forsteri*) from New South Wales, Australia. *Veterinary Parasitology* 205(1-2): 347-353.
- Fancourt, B.A., Jackson, R.B. (2014) Regional seroprevalence of *Toxoplasma gondii* antibodies in feral and stray cats (*Felis catus*) from Tasmania. *Australian Journal of Zoology* 62, 272-283. *Journal of Wildlife Diseases*, 36: 141-144.
- LIMS 2020. Laboratory Information Management System. Animal Health Laboratory, Tasmania.
- Miller M.A., Grigg M.E., Kreuder C., James E.R., Melli A.C., Crosbie P.R., Jessup D.A., Boothroyd J.C., Brownstein D. and Conrad P.A. (2004) An unusual genotype of *Toxoplasma gondii* is common in Californiasea otters (*Enhydra lutris nereis*) and is a cause of mortality. *International Journal for Parasitology* 34(3): 275-284.
- Milstein T.C. and Goldsmid J.M. (1997) Parasites of feral cats from southern Tasmania and their potential significance. *Australian Veterinary Journal*, 75: 3.
- Obendorf, D.L., Statham, P., Driessen, M. (1996) Detection of agglutinating antibodies to *Toxoplasma gondii* in sera from free-ranging eastern barred bandicoots (*Perameles gunnii*) *Journal of Wildlife Diseases*, 32: 623-626.
- Roe, W.D., Howe, L., Baker E.J., Burrows, L., and Hunter SA (2013) An atypical genotype of *Toxoplasma gondii* as a cause of mortality in Hector's dolphins (*Cephalorhynchus hectori*). *Veterinary Parasitology* 192(1-3): 67-74.
- Roe, W.D., Michael, S., Fyfe, J., Burrows, E., Hunter, S.A. and Howe L., (2017) First report of systemic toxoplasmosis in a New Zealand sea lion (*Phocarctos hookeri*). *New Zealand Veterinary Journal*, 65(1): 46-50.

Predation by feral cats on seabirds

Predation by feral cats is a known threat to seabirds worldwide. Predation pressure of adults and chicks at seabird breeding colonies can be significant (e.g. references in Nogales et al. 2004). For example, it is estimated that prior to their eradication, feral cats on Tasman Island in south-east Tasmania were responsible for the death of up to 60,000 burrowing seabirds each year (Robinson et al. 2015). On Tasmania's sub-Antarctic Macquarie Island, cats, introduced to the island in the early 1800s, were implicated in the threatened status of six seabird species and the extinction of two endemic terrestrial birds (Scott 1996), and were also estimated to be killing approximately 60,000 seabirds per year (Jones 1977).

Most seabird populations in Tasmania rely on offshore islands to breed. Cat control efforts at mainland sites may require perpetual effort, as populations are continually supplemented by

immigrating animals and domestics. However, islands present a unique and achievable opportunity for eradication efforts. Feral cat populations have been successfully eradicated from a number of Tasmanian Islands, including sub-Antarctic Macquarie Island and Tasman Island and, while eradication may be a costly, resource-intensive and long-term commitment, post-eradication seabird population recovery can be rapid. The success of these types of efforts are well documented worldwide (e.g. Cooper et al. 1995, Schulz et al. 2005), Ratcliffe et al. 2010, Robinson et al. 2015).

While the impact on some Little Penguin colonies on the Australian mainland, e.g. Phillip Island (Dann 1992) may be insignificant, cat predation is considered likely to play a considerable role in determining the distribution and abundance of Little Penguins at some Tasmanian colonies (e.g. Brothers et al. 2001; Stevenson and Woehler 2007). The DPIPWE's Marine Conservation Program continues to regularly receive reports of cats observed in colonies from concerned members of the public around the state.

References

Brothers, N., Pemberton, D., Pryor, H. and Halley, V. (2001) Tasmania's offshore islands: seabirds and other natural features. *Tasmanian Museum and Art Gallery*, Hobart, 643 pp.

Cooper, J.A.V.N., Marais, J., Bloomer, P. and Bester, N. (1995) A success story: breeding of burrowing petrels (Procelariidae) before and after the eradication of feral cats *Felis catus* at subantarctic Marion Island. *Marine Ornithology*, 23: 33-37.

Dann, P. (1992) Distribution, population trends and factors influencing population size of Little Penguins *Eudyptula minor* on Phillip Island, Victoria. *Emu* 91: 263–272.

Jones, E. (1977) Ecology of the Feral Cat, *Felis catus* (L.), (Carnivora: Felidae) on Macquarie Island. *Australian Wildlife Research*, 4: 249–262.

Nogales, M., Martín, A., Tershy, B.R., Donlan, C.J., Veitch, D., Puerta, N., Wood, B. and Alonso, J. (2004) A Review of Feral Cat Eradication on Islands. *Conservation Biology*, 18: 310-319.

Ratcliffe, N., Bell, M., Pelembe, T., Boyle, D., Benjamin, R., White, R., Godley, B., Stevenson, J. and Sanders, S. (2010) The eradication of feral cats from Ascension Island and its subsequent recolonization by seabirds. *Oryx*, 44: 20-29.

Robinson, S., Gadd, L., Johnston, M. and Pauza, M. (2015) Long-term protection of important seabird breeding colonies on Tasman Island through eradication of cats. *New Zealand Journal of Ecology*, 39: 316-322.

Schulz, M., Robinson, S. and Gales, R. (2005) Breeding of the Grey Petrel (*Procellaria cinerea*) on Macquarie Island: population size and nesting habitat. *Emu*, 105: 323–329.

Scott, J.J. and Kirkpatrick, J.B. (2008) Rabbits, landslips, and vegetation change on the coastal slopes of subantarctic Macquarie Island, 1980-2007 – implications for management. *Polar Biology*, 31: 409–419.

Stevenson, C. and Woehler, E.J. (2007). Population decreases in Little Penguins *Eudyptula minor* in southeastern Tasmania, Australia, over the past 45 years. *Marine Ornithology* 35: 71-76.

Interactions between feral cats and Tasmanian Devils

Knowledge of the interaction between feral cats and Tasmanian devils may provide insight into the impact that feral cats have on biodiversity, and potential options for managing them. There are published accounts of devils modifying the behaviour of feral cats. These include observations of more nocturnal activity in feral cats in areas where there are less devils (Fancourt et al. 2015 although c.f. Cunningham et al. 2019), and feral cats being less active at camera sites occupied by devils (Lazenby and Dickman 2013). However, the 'Save the Tasmanian Devil Program' has recorded instances where cats interact positively with devils including joint scavenging of carcasses, a cat scent marking a devil within a free-range enclosure, and cats frequenting devil dens which are situated under houses.

There are also published accounts of an increase in the abundance of feral cats in areas where devil densities have declined due to devil facial tumour disease (Hollings et al. 2014, Cunningham et al. 2020).

The mechanism by which devils suppress cats is likely to be a combination of interference competition, whereby there are sometimes direct aggressive encounters between the two species, and exploitative competition whereby devils consume food resources before cats. There are anecdotal reports that devils outcompete cats for food sources derived from scavenging, which although cats are reported to prefer live prey, may nevertheless be an important source of nutrition when live prey is scarce.

Feral cats have a high probability of occupancy across habitats that the 'Save the Tasmanian Devil Program' has sampled. There is a paucity of systematic survey information in habitats comprising the far south-west of Tasmania. However, anecdotal reports indicate that feral cats occur across these habitats too.

References

- Cunningham, C.X., Johnson, C. N., Jones, M.E. (2019) Harnessing the power of ecological interactions to reduce the impacts of feral cats, *Biodiversity* 20:1, 43-47, DOI: 10.1080/14888386.2019.1585289.
- Cunningham, C.X., Johnson, C. N., Jones, M.E. (2020) A native apex predator limits an invasive mesopredator and protects native prey: Tasmanian devils protecting bandicoots from cats *Ecology* 23(4): 711-721.
- Fancourt B.A., Hawkins C.E., Cameron E.Z., Jones M.E. and Nicol S.C. (2015) Devil declines and catastrophic cascades: is mesopredator release of feral cats inhibiting recovery of the eastern quoll? *PLOS ONE* 10(3): e0119303. doi:10.1371/journal.pone.0119303
- Hollings, T., Jones, M., Mooney, N., McCallum, H. (2014) Trophic Cascades Following the Disease-Induced Decline of an Apex Predator, the Tasmanian Devil, *Society for Conservation Biology* 28(1): 63-75.
- Lazenby BT, Dickman CR (2013) Patterns of Detection and Capture Are Associated with Cohabiting Predators and Prey. *PLoS ONE* 2013 8(4):e59846. doi:10.1371/journal.pone.0059846

Cats and Orange-bellied Parrots

The 'National Recovery Plan for the Orange-bellied Parrot *Neophema chrysogaster*' identifies potential for predation by cats at some non-breeding sites.

Cats are not currently known to be present within the current breeding range of the Orange-bellied Parrots (OBPs) in south-west Tasmania.

However, given the known impacts of feral and domestic cats on native birds, particularly birds that spend significant portions of time on the ground feeding or nesting, together with the potential overlap of distribution, there is potential for impact of feral cats at historic breeding sites on the south-west coast of Tasmania.

There is also potential for predation of OBPs by feral and domestic cats along their migratory route and in their wintering range in coastal south-eastern mainland Australia.

Further work would help to determine the magnitude of impact, and efficacy of cat control to reduce the potential threat to OBPs.

c. The effectiveness of current legislative and regulatory approaches

Legislative approach in Tasmania

The *Cat Management Act 2009* (the Act) is the primary legislation supporting cat management in Tasmania. It commenced in 2012 with the development of the Cat Management Regulations 2012 (Regulations). The DPIPWE is responsible for administering the Act and its subordinate legislation.

The purpose of the Act is to provide for the control and management of cats, and in particular, to:

- promote the responsible ownership and welfare of cats, including desexing and microchipping of domestic cats; and
- provide for the effective management of cats, in particular allowing for the humane handling and management of unidentified, stray and feral cats; and
- reduce the negative effects of cats on the environment.

A review of the Act and Regulations was undertaken by DPIPWE in 2013 and led to the development of the 'Tasmanian Cat Management Plan 2017-2022'. The Plan is the first comprehensive and collaborative approach to managing cats in Tasmania. It was released with the support of the Tasmanian Cat Management Reference Group, which represents the key cat management stakeholder groups in the State. A copy of the plan can be found at: <http://dpiuwe.tas.gov.au/invasive-species/cat-management-in-tasmania/tasmanian-cat-management-plan>.

The Plan recognises that the management of cats is a shared responsibility and that the community plays a key role in the management and control of domestic, stray and feral cats. The Plan proposes that the regulatory management of cats in Tasmania occurs through a legislative framework that includes both the *Cat Management Act 2009* and the *Biosecurity Act 2019*. Domestic cats and stray cats in urban and peri-urban environments will continue to

be dealt with under the Cat Management Act; feral cats will be dealt with through the Biosecurity Act where they can be deemed an invasive pest, and programs designed to remove or reduce the biosecurity impact they create.

The Plan proposes a number of regulatory changes identified as necessary to facilitate improved cat management in Tasmania. The process of legislative change is well-underway with the Cat Management Amendment Bill 2019 having been introduced into the Tasmanian Parliament in November 2019.

The following key amendments are included in the Bill:

- compulsory desexing of owned cats by the age of four months (12-month transition period);
- compulsory microchipping of cats by the age of four months (12-month transition period);
- limiting to four, the maximum number of cats allowed at a property without a permit (12-month transition period);
- increased measures to protect private land from roaming, stray and feral cats by permitting:
 - a person to trap, seize or detain a cat on their land regardless of the proximity to other residences, provided the cat is returned to the owner if possible, or taken to a cat management facility or their nominee;
 - all primary producers to humanely destroy a cat.

The existing provision that permits a person whose land is more than 1km from the nearest residence to trap, seize or humanely destroy a cat will remain.

- replacing the State Government-registration of cat breeders with a permit system to breed cats (12-month transition period);
- removing the option of a Care Agreement, which currently allows breeders and sellers of cats to pass on the responsibility of desexing and microchipping to a purchaser, on the agreed understanding that the new owner will do so within a set time period.
- commencing Section 24 of the Act that requires a cat to be microchipped and desexed before being released from a cat management facility.

While containment of cats is not required under the Act, individual councils currently have, and will retain, capacity to create by-laws within their municipality for measures such as compulsory containment and registration of domestic cats. Significant effort is being directed to community education and awareness of responsible cat ownership (refer Section G).

Cat Management Facilities

The *Cat Management Act 2009* establishes 'cat management facilities' as a key community resource for handling and holding unwanted and lost cats in Tasmania.

Three privately-funded non-government organisations are approved under the Act to run cat management facilities (RSPCA; Ten Lives; Just Cats). Council facilities for handling and holding cats are also recognised as cat management facilities.

While facilities operate independently of the State Government and each has their own policies and operational guidelines, facilities have specific obligations under the Cat Management Act in relation to activities such as scanning for microchips; notification of owners; release of cats to owners; and destruction of cats.

Role of local government

Local government officers authorised under the *Dog Control Act 2000* are automatically authorised under the *Cat Management Act 2009* to enforce compliance with the Cat Management Act within their own municipalities. In addition, councils are also able to make by-laws specific to their locality, allowing them to tailor the legislative needs to suit local community expectations with regards to cat management and the circumstances that are relevant to the particular municipality.

Councils may:

- introduce by-laws requiring the registration of cats within their municipal area (e.g. the [Bruny Island Cat By-law](#) introduced by Kingborough Council in July 2019).
- declare 'prohibited areas' by public notice for land within their authority that allows for humane destruction, trapping and seizure of cats found within that area.
- declare 'cat management areas' by public notice for specified areas where specified control activities may be undertaken for a nominated period.

d. The effectiveness of Commonwealth action and co-operation with states and territories on this issue, including progress made under the Threat Abatement Plan, national framework and national declaration relating to feral and domestic cats in Australia

The Australian Government's co-operation with Tasmania has driven some significant achievements in feral cat control and management in the State. The establishment of a Feral Cat Taskforce through the Office of the Threatened Species Commissioner has been invaluable in disseminating information, forging collaborations and driving the application of new and emerging feral cat control and management techniques.

The Australian Government, through the office of the Threatened Species Commissioner, has set a target of eradicating feral cats from five islands by 2020 (Australian Government 2015b). In 2016, Bruny Island was nominated as one of these islands with the initiation of a three-year program to *'Progress feral cat eradication on Bruny Island'*. The program aligns with the outputs of the national Threatened Species Strategy and national *Threat abatement plan for predation by feral cats* (Australian Government 2015a and 2015b). North Bruny Island was chosen due to its natural values (e.g. as a strong hold for threatened and migratory species), relatively low densities of feral cats, its isolation and strong community support for feral cat management. This program was completed in 2019, however an additional four years of funding has been provided by the Australian Government to NRM South to progress feral cat management and progress eradication. DPIPWE will work in partnership with NRM South, Kingborough Council and other organisations to implement this ongoing project.

Similarly, the Australian Government's Regional Land Partnerships (RLP) program has provided support to Cradle Coast NRM (CCNRM) to reduce predator impacts (e.g. feral cats) and improve the habitat for Hooded Plovers and other native wildlife on Three Hummock Island in Tasmania's north-west. The four-year project will build on a pilot assessment of feral cats undertaken in partnership with DPIPWE in 2018-19. The project aims to progress the eradication of feral cats from the island through applying a range of current and new control techniques.

At a national level, further investment needs to focus on countering the growing momentum for Trap-Neuter-Release (TNR) programs. This could be delivered through the Feral Cat Taskforce and is of particular importance in Tasmania where many nationally-listed threatened species reside in urban and peri-urban landscapes and would likely be impacted by urban cat colonies fostered by TNR programs.

Commonwealth-funded programs for feral cat management and eradication have contributed to engagement and collaboration with indigenous land management groups e.g. Bruny Island and Three Hummock Island, with regards control and management and awareness around impacts of feral cats.

References

Australian Government (2015a) Threat abatement plan for predation by feral cats. Canberra, Department of the Environment and Energy.

Australian Government (2015b) National threatened species strategy. Canberra, Department of the Environment and Energy.

e. The efficacy (in terms of reducing the impact of cats), cost effectiveness and use of current and emerging methods and tools for controlling feral cats, including baiting, the establishment of feral cat-free areas using conservation fencing, gene drive technology

Tasmania's island ecosystems and high level of biodiversity and endemism creates some unique challenges in feral cat control.

Current methods

Some commonly used mainland control techniques (e.g. leg-hold traps) have very limited use in Tasmania due to non-target issues, and some conventional trapping activities can also disturb native browsing animals.

Other control methods and tools however (e.g. cage-trapping, shooting and detector dogs), have been adapted and used successfully throughout Tasmania and its off-shore islands. Recent control activities on Bruny Island using cage-trapping alone, reduced feral cat density from 51 to 15 cats/km² (Kingborough Council, 2019). Similarly, the eradication of feral cats from Wedge and Tasman Island was largely achieved through the use of currently available techniques (S. Robinson et. al. 2015). However, the efficacy and cost effectiveness of trapping and shooting is low and difficult to maintain in a longitudinal control/eradication program. The development of new and emerging tools is essential to improve efficiency and effectiveness of control programs in Tasmania.

New methods

The high levels of biodiversity in Tasmania also requires new and emerging control techniques, including baiting (Curiosity, Eradicat and Hisstory), and remote technologies, such as the Felixer grooming trap, to undergo lengthy field trials and risk assessment to ensure minimal impact on non-target species.

The recent approval for the use of Curiosity bait and the national support for the development of the Felixer, have initiated a range of experimental trials and testing of these tools in Tasmania. Pending the outcome of these trials, both tools are proposed to be used for cat control and eradication on North Bruny and Three Hummock Island. If successful, it is likely these emerging methods could be used in future cat control and eradication programs on Tasmania's offshore islands, however broad scale use of these tools on mainland Tasmania will require additional assessment and controls due to the prevalence and diversity of potential non-target species.

Currently, the DPIPWE is working with the Centre for Invasive Species Solutions (CISS), Thylation Pty Ltd and the Australian Government to progress the national registration of Eradicat bait and to field test the Felixer and Curiosity bait to assess their utility and improve their effectiveness in the Tasmanian landscape.

Euthanasia of cats

Options for humane euthanasia of feral cats are currently limited. Firearms for these purposes are often not available/not appropriate¹, and chemical euthanasia can only be performed by vets. Support for trials and approvals at a national level for additional methods of euthanasia would be very useful. In addition, existing methodologies for humane euthanasia of other pest mammals could be adapted for use in feral cats. For example, businesses such as Animal Control Technologies, who developed DencoFume for humane euthanasia of foxes, could be supported by the Australian Government (with funding and APVMA approval) to extend the use of this product to the humane destruction of cats.

Tasmania does not have any cat-free areas through the use of conservation fencing. All cat-free areas in the state are off-shore islands that are either naturally cat-free; where cats have died out; or have undergone dedicated feral cat eradication programs. Successful eradications have occurred on six Tasmanian islands (Little Green, Great Dog, Macquarie, Tasman, Wedge and historically Betsey Island) with a remaining 14 islands, including four large permanently inhabited islands still with feral cats.

References

Robinson, S., Gadd, L., Johnston, M. and Pauza, M. (2015) Long-term protection of important seabird breeding colonies on Tasman Island through eradication of cats. *New Zealand journal of Ecology* 39(2): 316–322.

Kingborough Council (eds) (2019) Bruny island cat management project. Kingborough Council, Tasmania

¹ In Tasmania, only persons holding a Firearms Licence for the purposes of primary production or animal population control, can destroy a cat with a firearm.

f. The efficacy of import controls for high risk domestic cat varieties to prevent the impacts of feral and domestic cats, including on native wildlife and habitats

The *Animal Health Act 1995* and *Nature Conservation Act 2002* govern the importation of animals into Tasmania. There are no import controls for domestic cats or their hybrids in Tasmania, and prohibition on the importation of high-risk species relies on the provisions of the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act). For example, a savannah cat which is a hybrid of a domestic cat and serval (*Felis catus* x *Leptailurus serval*) would be permitted into Tasmania if permitted under the EPBC Act.

Under the new Tasmanian *Biosecurity Act 2019*, it will be possible to list biosecurity matter that poses a significant risk to Tasmania (e.g. high-risk domestic cat varieties) as *prohibited matter* which would therefore prevent it from entering and being kept in the State. The list is currently under consideration with all potential listings requiring a risk assessment.

g. Public awareness and education in relation to the feral and domestic cat problem

Cat management co-ordinators

Changing community perceptions towards what constitutes responsible cat ownership is an ongoing and intergenerational challenge. In acknowledgement of this, the Tasmanian Government has provided funding of \$1.44 million over four years from 2017 for three regional cat management co-ordinators. The co-ordinators are hosted by organisations external to the State Government, and are focused on issues associated with the management of stray and domestic cats.

The co-ordinators are working very effectively with councils and the community in their regions, raising awareness and developing education materials to encourage better levels of responsible cat ownership and provide support for compliance with legislation. The co-ordinators have established regional working groups, comprising local government and other stakeholders, which provide a mechanism for discussing cat management issues.

The co-ordinators have developed and maintain the TassieCat website (www.tassiecat.com) which provides a broad range of information on responsible cat ownership. The website provides expert advice and useful resources to help owners keep cats safe, healthy and happy while protecting the environment and the community.

Ten Lives Cat Centre

Significant efforts in community education have also been made by Ten Lives Cat Centre, one of Tasmania's three cat management facilities in the development of an innovative education program to foster responsible cat ownership. 'Edu.Cat', is an Australian-first curriculum-aligned feline education program for students from Kindergarten to Year 7. It focuses on fostering responsible cat ownership with the aim to create social change in how people care for cats and protect wildlife. The program is free and available to all schools in Tasmania.

Kingborough Council

As part of the Bruny Island Cat Management Project, Kingborough Council in southern Tasmania has been engaging with the Bruny Island community on responsible pet cat ownership to protect the health and welfare of domestic cats and to manage the adverse impacts of cats on biodiversity, agricultural and tourism assets on Bruny Island. A range of community education and engagement activities are being undertaken in partnership with Ten Lives Cat Centre, Bruny Island Environment Network and Bruny Island Community Association to support by-law implementation. The activities include consultation with cat owners, offering subsidised cat desexing, microchipping and rehoming; peer education from cat owners; engagement of the school community; citizen science activities (wildlife monitoring and domestic cat tracking); development of a cat assessment and holding facility and a Community Ranger position. To support compliance with the Bruny Island Cat By-law requiring that cats not be 'at large', individual household support is also being offered to cat

owners to help them make the transition to cat containment. This includes assistance and advice on design and building of cat enclosures, how to best provide for a cat's physical and emotional needs and how to address any stress behaviours that occur during the transition.

h. The interaction between domestic cat ownership and the feral cat problem, and best practice approaches to the keeping of domestic cats in this regard

Tasmania has a self-sustaining feral cat population. Leakage of lost/stray/abandoned domestic cats from urban into non-urban environments is likely to occur, contributing to the feral cat population.

Recent research has highlighted the impact on wildlife of domestic cats in residential areas per square kilometre is much higher than that of feral cats due to the relatively high density of domestic cats in urban areas (Legge et al. 2020). The impact of domestic cats on urban wildlife is particularly pronounced in Tasmania, where a significant amount of native wildlife can still be found in and close to urban areas.

References

Legge, S., Woinarski, J.C.Z., Dickman, C.R., Murphy, B.P., Woolley, L-A., and Calver, M.C. (2020) We need to worry about Bella and Charlie: the impacts of pet cats on Australian wildlife. *Wildlife Research* - <https://doi.org/10.1071/WR19174>.

Appendices

[Tasmanian Cat Management Plan 2017-2022](#)

[Tasmanian Cat Management Plan Background Report](#)

[Cat Management Act 2009](#)

[Cat Management Regulations 2012](#)

[Summary of proposed amendments to the *Cat Management Act 2009*](#)

[Cat Management Amendment Bill 2019](#)