

PHILLIP ISLAND (MILLOWL) AN ISLAND HAVEN FOR THREATENED SPECIES

Phillip Island
NATURE
PARKS

ANNUAL UPDATE 2020-21

penguins.org.au

We acknowledge the Traditional
Custodians of the land on which we live,
work and learn, the *Bunurong people and
pay our respects to Elders past, present
and emerging. We recognise their role in
caring for Country over thousands of
years and acknowledge the true history
and their continued connection to place as
we work and walk together.



Laying the foundations for success

2020 was a challenging year globally, with the impact of coronavirus (COVID-19) halting some efforts towards delivering our Threatened Species Program on Phillip Island (Millowl). Despite these impacts, our hard work and perseverance has enabled us to reinforce the next steps towards the larger goals in the program.

The significance of our work has never been greater than now, with the updated release of the Flora and Fauna Guarantee Act Threatened Species List identifying three of our flagship threatened species needing help. The Bush Stone-curlew, Fairy Tern and Crimson Berry have been reclassified to 'Critically Endangered' within Victoria and this reinforces the urgency in our Threatened Species Program to provide a safe Island Haven for these populations to recover on Phillip Island (Millowl) and to curb the extinction crisis for Victoria.

We are celebrating our 2020 conservation success, where resilience and innovation led us to ensuring the recovery program for the Eastern Barred Bandicoot continued to grow across Phillip Island (Millowl). The positive feedback from our local community has helped us understand where the population is spreading - through engaging with our citizen science program and social media updates.

The Hooded Plovers have also had a good year, with 11 chicks fledged across the island. Although our volunteer program was delayed, we still managed to protect the environment across our beaches, and engage with our community, allowing for this species to flourish.

Our focus on threatened flora also reached a new milestone, where the team commenced 8 trials in propagating species from the Vulnerable, Rare or Threatened list. To date, these trials have produced thousands of threatened plants, including the Critically Endangered Crimson Berry. The Barb Martin Bushbank Nursery has sold numerous threatened species to the public, supporting the community to boost threatened flora populations in their own backyard.

Reducing key threats continues to be a focus in our pest animal programs with a focus on the GPS tracking study of feral cats. This data from the study is vital for us to support the development of our Feral Cat Eradication Plan and maintain a safe environment for our planned threatened species reintroductions. What we really love to follow is our feral cat detection dogs development, where they are now ready for their next adventure in supporting a feral cat free environment on Phillip Island (Millowl). Their deployment in the field is only months away and we cannot wait to follow their progress. The Nature Parks detection dog program has helped support numerous conservation programs across Victoria and enables us to collaborate and



support the vital work in recovering threatened species within Victoria.

The **Penguin Foundation** has been a key partner in delivering our threatened species program and we acknowledge their support for our future aspirations. A big thank you to all our supporters who continue to share the same vision in developing Phillip Island (Millowl) as an Island Haven and championing our world-renowned conservation programs to secure iconic wildlife and plant populations for Victoria.

JESSICA MCKELSON Conservation Manager Phillip Island Nature Parks

Surviving success -Eastern Barred Bandicoots on the move

The mainland subspecies of Eastern Barred Bandicoot (Perameles gunnii) has undergone significant decline in Victoria since European settlement, due to their susceptibility to predation by foxes and habitat loss. The Draft National Recovery Plan for the Mainland Eastern Barred Bandicoot seeks to prevent its extinction and ensure its long-term survival. The Nature Parks has been a formal member of the Eastern Barred Bandicoot Recovery Team since 2013 and chaired the Science Group since 2015.

The Draft National Recovery Plan aims to maintain existing populations in Victoria within predator-proof fenced reserves, plus establish at least one additional large population of one thousand bandicoots or more. Due to the costs involved in erecting and maintaining predator-proof fences and the frequency in which predator incursions still occur, these protection methods are not considered viable as a long-term solution. Fox-free islands were investigated by the Recovery Team as a more cost-effective and secure means of ensuring the long-term survival of the subspecies. Fox-free islands have the capacity to support large populations of Eastern Barred Bandicoots, albeit outside of their known historic distribution.

Since the release of Eastern Barred Bandicoots on Churchill Island in 2015, and the subsequent release of the species on Phillip Island (Millowl) in 2017, the Recovery Team has demonstrated that the species can establish in, and have positive impacts on, island ecosystems. This release program has provided the Phillip Island (Millowl) community with the opportunity to learn about Eastern Barred Bandicoots, see their influence on island environments, and be part of their recovery.

For more information on the Churchill Island and Phillip Island release program, visit the Nature Parks website.



Phillip Island Nature Parks continues to be an active member of the Eastern Barred Bandicoot Recovery Team, and has played a crucial role in the recovery efforts that have led to the reclassification of this species, from "Extinct in the Wild" to "Endangered", in Victoria

The Eastern Barred Bandicoot Recovery Team has member from Conservation Volunteers Australia, Department of Environment, Land, Water and Planning (DELWP), National Trust of Australia (Victoria), Parks Victoria, Phillip Island Nature Parks, The University of Melbourne, Tiverton Rothwell Partnering and Zoos Victoria





COLLABORATORS

















Churchill Island Bandicoot program

Churchill Island continues to provide a safe environment and serve as a critical Eastern Barred Bandicoot population for sourcing animals to release at other locations across Victoria. It is also an important place to undertake research into investigating the ecology of Eastern Barred Bandicoots to strengthen the recovery of the species and conservation strategies. Churchill Island is also a popular tourist destination where visitors can learn and connect with endangered native wildlife and continue to respect these natural encounters in their own backyards.

In November 2020 and June 2021, Churchill Island was a primary source population for establishing two new bandicoot populations within Victoria. These recovery program efforts aim to see if 'Guardian Dogs' can protect Eastern Barred Bandicoots in the presence of foxes and feral cats.

As a part of a new collaborative research project between the Nature Parks, The University of Melbourne and DELWP, research will be conducted throughout 2021 and 2022 to better understand:

- (a) the survival rate of individual Eastern Barred Bandicoots that are released into an established population and how they contribute to the next generation, and
- (b) strategies to optimise the successful integration of those individuals.

To help answer these questions, research will be conducted on Churchill Island as part of a Masters of Science project, using hybrid Tasmanian-Victorian Eastern Barred Bandicoots, which have unique genetic traits that can be tracked through the generations. Results from this research will help the Recovery Team understand how the genetic diversity of Eastern Barred Bandicoots should be managed across all populations.

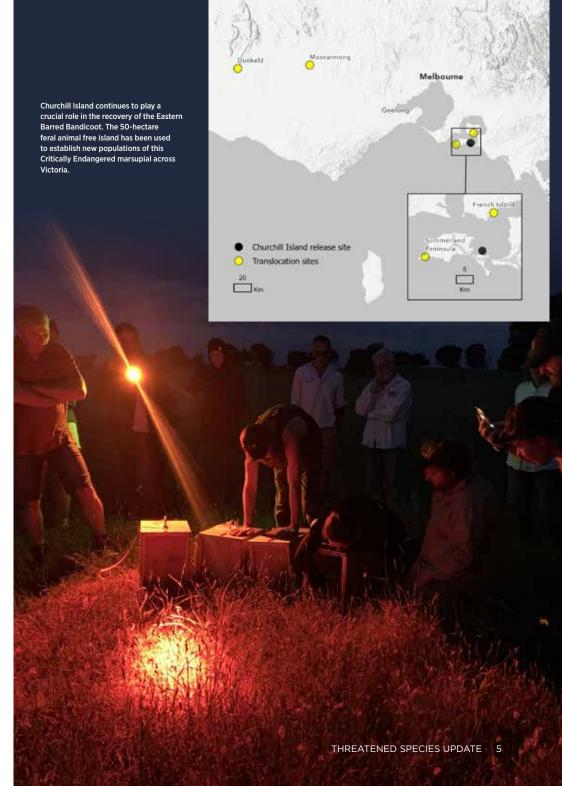
COLLABORATORS





PARTNER





Churchill Records Cape Release sites Woolamai Km Since the initial release on the Summerland Peninsula of Phillip Island, bandicoots have been recorded expanding their range at least six kilometres from the release site. The population that established in Fishers Wetland (adjacent to Churchill Island) is also expanding into new areas, including Newhaven, Cape Woolamai and Surf Beach. 6 PHILLIP ISLAND NATURE PARKS

Phillip Island Bandicoot program

Phillip Island (Millowl) has been a great research example to see how Eastern Barred Bandicoots can survive in the presence of feral cats. This is an important step moving forward in the Recovery Plan for this species, particularly for potential release sites where feral cats exist in the landscape.

Research into the impact of toxoplasmosis – a disease that cats spread into the environment – has demonstrated a high prevalence (90%) of the disease in feral cats on Phillip Island (Millowl). Toxoplasmosis is known to kill Eastern Barred Bandicoots when they contract it. Despite the risks from both predation and disease, the Eastern Barred Bandicoot population is strong on the Island and is spreading across the Island. The estimated population size of Eastern Barred Bandicoots across Phillip Island (Millowl) is between 9,000-18,000 individuals.

Returning Eastern Barred Bandicoots will rekindle the important ecological function of one of mainland Australia's small digging mammals, benefitting the ecosystem on Phillip Island (Millowl) and reinforcing the importance of islands in preventing extinctions.

PARTNER



Phillip Island Bandicoot program

The local community has been instrumental in mapping the spread of Eastern Barred Bandicoots across Phillip Island (Millowl). An online citizen science program has been established 'EBB Sightings Portal' to encourage the local community to submit sightings.

Over 100 community records have helped document how bandicoots have spread across Phillip Island (*Millowl*). One report involved an orphaned juvenile bandicoot found in a backyard.

This young male bandicoot was still dependent on its mother for survival, so it was transferred to Melbourne Zoo for a health check and hand raising. After 4 weeks in care, the animal was returned to the Nature Parks' Wildlife Rehabilitation Clinic where a further 3 weeks focused weight gain was required in the Clinics specifically designed threatened species enclosure. The bandicoot quickly gained weight and was released onto the Summerland Peninsula where he can continue to thrive in the wild.

"Eastern Barred Bandicoots continue to thrive on Churchill Island and Phillip Island (Millowl). The Churchill Island population has been instrumental in setting up new populations elsewhere in Victoria, and the Phillip Island (Millowl) population continues to grow and spread across the Island. The success of this program illustrates that we can not only save our unique native species from extinction, but recover their important ecological functions that have been lost across most of Australia. We can now reimagine a landscape rich in native species, free from the threat of invasive predators like foxes."

THREATENED SPECIES UPDATE







The release of the young bandicoot that was discovered in the community member's backyard.



Recreating the past The call of the Curlew

Bush Stone-curlews (*Buhrinus grallarius*) are large, nocturnal birds that were recently reclassified as Critically Endangered within Victoria. As part of our plan to reintroduce this species back to the Island we acknowledge that our community may not be as familiar with this unique bird that once called Philip Island (*Millowl*) home.

There are past stories from some of the farming community that remember when the curlews lived on the Island, but due to foxes they became extinct, with the last known records from the 1970s. To reintroduce the curlew back to the Island, the Nature Parks has been busy designing our custom education aviaries, that will hold two pairs of breeding Bush Stone-curlews for visitors to view. Located at the Koala Conservation Reserve (KCR) this new program will enable visitors to connect and learn more about the conservation efforts the Nature Parks is doing to provide a safe Island Haven for the species.

The aviaries will house two breeding pairs of Bush Stone-curlews, where the chicks will contribute to the recovery program for Victoria. These birds will tell the story of how Bush Stone-curlews were lost from Phillip Island (Millowl) just 50 years ago, the Traditional Owner connection and what the Nature Parks is doing to champion the conservation efforts to prevent extinction.

The first two birds for a wild release onto Phillip Island (Millowl) have come from Moonlit Sanctuary and are currently housed at the KCR. Other birds that will form part of the release program will be sourced from a variety of locations based on genetic studies by Museums Victoria and The University of Melbourne. It is important to understand how genetically diverse this species is to give the best chance of successful establishment in the wild. The Nature Parks will continue to collaborate with other organisations involved with Bush Stone-curlew recovery in South-East Australia to provide the greatest opportunity for this species to thrive and to prevent imminent extinction.

COLLABORATOR







Recreating the past The benefits of the Potoroo

The KCR has secured the visitor woodland walking trail for future threatened species such as the Long-nosed Potoroo (*Potorous tridactylus*) and Southern brown bandicoots (*Isoodon obesulus*).

Long-nosed Potoroos were last recorded roaming free on Phillip Island (Millowl) in the 1980s and were likely to also have been driven to local extinction by fox predation.

Their reintroduction to the Island would be a significant boost to the species' security and recovery in Victoria and return important ecological functions provided by this marsupial fungivore. The ecological and cultural benefits of reintroducing Long-nosed Potoroos to Phillip Island (Millowl) as well as the minimal anticipated risks to farming and the public were reflected by results of a Structured Decision Making workshop that involved local stakeholders and species experts in 2019. The workshop considered candidate threatened species for reintroduction to Phillip Island (Millowl) using a transparent and inclusive process facilitated by The University of Melbourne. Potoroos were the highest ranked species for reintroduction based on the combined values of the stakeholders.

In April 2020, the Nature Parks planned to hold a 3-day workshop to explore the prospects of reintroducing Long-nosed Potoroos to Phillip Island (*Millowl*) and if considered feasible, to develop a comprehensive plan on how to proceed. The aim of this workshop, facilitated by the International Union for Conservation of

Nature (IUCN), was to bring collective expertise together from the local community, scientific, wildlife and veterinary sectors to find consensus on whether to undertake a reintroduction of Long-nosed Potoroos and deliberate the reintroduction process. Due to COVID-19 restrictions, the workshop was postponed for a future date where participants can safely meet in person.

COLLABORATORS





Long-nosed Potoroos aid in the dispersal of underground fungi and help aerate soil, Image: Leo Berzins "We have such a unique opportunity in the Phillip Island (Millowl) community to bring home species that once lived here. One of the most rewarding parts of coordinating this project is speaking to people who personally remember, or whose ancestors remember, seeing these animals around - and being able to tell them we have a chance to bring them back again for future generations."

THOMAS NIXON
Threatened Species Officer

ENED SPECIES UPDATE



Coastal impact Beach Nesting Birds

Long-term and sustained protection of beach-nesting birds by the Nature Parks' staff and volunteers have continued the successful breeding and growing numbers of Vulnerable Hooded Plovers as well as creating the opportunity for a new breeding colony of Critically Endangered Fairy Terns.

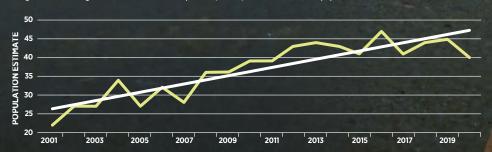
HOODED PLOVER

Thinornis cucullatus

Eighteen pairs of Hooded Plovers bred in the 2020/2021 breeding season on Phillip Island (Millowl) yielding 11 chicks who survived to successfully fledge (view the full report here). This result improves on the 9 fledglings for the previous 2019/20 breeding season. The number of fledglings per pair for the 2020/21 season was 0.61, which is above the target rate of 0.47 fledglings per pair considered by Birdlife Australia to be essential for a viable population.

Thanks to the increasing population of Hooded Plovers on Phillip Island (*Millowl*), the Island now acts as a 'source population' for surrounding areas including the Mornington Peninsula and Wilsons Promontory. A fledgling from the 2020/21 season was sighted as far west as Moggs Creek, just west of Aireys Inlet on the Great Ocean Road, flying a distance of 96 km in just a few days. Other Phillip Island (*Millowl*) fledglings have been seen as far west as Port Fairy (nearly 300 km as the Hoodie flies!).

Long-term monitoring of Hooded Plovers on Phillip Island (Millowl) reveals a remarkable population increase in recent decades





Coastal impact Beach Nesting Birds

Volunteers and interns are integral to the Nature Parks' Nesting Shorebird program. This last season, the internship program commenced monitoring Hooded Plover nests with remote cameras to understand the cause of failed outcomes. This program will continue in 2021 so the Nature Parks can better understand the threats that contribute to nest failures, develop targeted threat abatement programs, and better conserve these threatened shorebirds into the future.

Main image: Hooded Plover intern, Amanda DiFuccio, servicing a remote camera at Flynn's Beach.

Below: Several threats were recorded at Hooded Plover nest sites that included domestic dogs, people, feral cats and predatory birds. Identifying these threats helps staff develop targeted threat control programs.





Coastal impact Beach Nesting Birds

FAIRY TERN

Sternula nereis

In late 2019, a colony of Fairy Terns (Sternula nereis) successfully established on Phillip Island (Millowl) for the first time in over 20 years. The last recorded breeding attempt was in 2000, though no fledglings resulted that year.

In previous years the Fairy Tern nested on neighbouring French Island, but on Phillip Island (Millowl) in 2019/2020 the colony successfully fledged over 40 chicks, a success attributed to the Nature Parks' feral cat control program in the surrounding Ramsar wetland area.

In October 2020, a flock of Fairy Terns were seen at the same nesting site and a number of eggs were laid in early November. Unfortunately, large tides in mid-November resulted in the eggs and nest scrapes being washed away. Adult birds were noted to persist in the area in early December, but no further nesting attempts were recorded for the 2020/21 breeding season.

As the Fairy Tern breeding season approaches in 2021, the Nature Parks will continue to monitor the site and control weeds and minimise the threat of feral cats.

Main image: When a colony of Fairy Terns established in late 2019, a refuge and camera traps were setup to protect and monitor the colony. Wildlife refuge area of KEEP

CLEAR

Beach and dune nesting birds in this area.

Disturbance causes breeding failure.

YOU CAN HELP

- Keep clear of signed areas and sand dunes
- Walk close to water's edge









birdlife



Building resilience, restoring the future Threatened flora

The vision of an Island Haven for threatened fauna cannot be achieved without a thriving floral community. The Nature Parks has developed a list of flagship threatened flora species to focus on recovering, which will provide over-arching protection to the ecological communities they represent.

This year the Nature Parks finalised two threatened flora recovery plans; the **Crimson Berry Recovery Plan** and the **Woodlands Flora Recovery Plan**. These plans detail the strategy and management actions for protecting priority threatened flora species on Phillip Island (*Millowl*).

As part of this strategy, the Nature Parks continue to monitor the remnant Crimson Berry (*Leptecophylla oxycedrus*) population located near YCW Beach for herbivory. After the construction of an exclusion fence around some of the plants, herbivore visitation has decreased significantly.

Woodlands threatened flora are being protected through exclusion fencing and weed removal. Fencing has been installed around seedlings of the threatened Currant Wood (Monotoca glauca) in woodland areas, as well as other associated woodland species to enhance biodiversity of those areas. As well as excluding herbivores, pest plants have also been removed to reduce competition pressures on threatened flora species.

Throughout the Spring of 2020, population surveys for Vulnerable orchid species – Slender Pink Fingers (*Caladenia vulgaris*) and One-flower early Nancy (*Wurmbea uniflora*) – were carried out, with over 200 individuals recorded in the Rhyll Swamp area. These surveys add to our understanding of the species' habits and are an important tool in developing recovery plans.







Building resilience, restoring the future Threatened flora

The next stage in recovering threatened flora on Phillip Island (Millowl) is not just protecting existing individual plants but attempting to enhance and supplement the populations with new individuals. Propagation trials of Crimson Berry and Currant Wood have been kicked off by staff and volunteers at the Barb Martin Bushbank, with some encouraging signs of success. To increase genetic diversity of populations on Phillip Island (Millowl), the Nature Parks' team is working with Parks Victoria to collect Crimson Berry specimens from Wilsons Promontory National Park that will be incorporated into the propagation trials at the Barb Martin Bushbank.

"We continue to learn more about Phillip Island (Millowl's) threatened flora through monitoring natural recruitment and threats such as herbivory.

We are protecting threatened flora by installing exclusion fencing and developing or refining propagation techniques specific for our indigenous flora."

> **SUSAN SPICER,** Environment Ranger





"Introduced plants and animals pose a major threat to our ecosystems and land managers have a responsibility to manage these threats. Through the implementation of best practice management, supported by science and key partnerships, we have been able to strengthen the protection for our threatened species on Phillip Island (Millowl)."

STUART MURPHY

Vertebrate Pest Program Supervisor

Main image: In collaboration with Parks Victoria and local landholders, a fox control program on Mainland (Anderson Peninsula), continues to be a priority to minimise the likelihood of reinvasion on Phillip Island (Millowi).

Preventing extinction Fox-free Phillip Island (Millowl)

Ongoing monitoring using fox detection dogs and remote cameras, as well as the investigation of community reports, have not detected any physical evidence of foxes on Phillip Island (Millowl) since 2015. In the past 12 months, a total of 19 foxes were trapped along the Anderson Peninsula, adjacent Phillip Island (Millowl), and an estimated 75 foxes were removed during baiting programs.

The "Foxcam" surveillance camera continues to monitor the Phillip Island (Millowl) bridge for any fox incursion. The system is designed to detect a fox crossing the bridge from the mainland using a series of infra-red beams, a control box and a camera mounted on the bridge. If the lower beams are broken by a fox-shaped animal, the camera records the live activity and sends an alert to the Nature Parks' staff who can review the footage and respond accordingly. To date, no foxes have been detected on the system but there are many photos of dogs crossing the bridge!



The "FoxCam" on the Phillip Island (Millowl) bridge allows for early detection of any fox incursions onto the Island.



Preventing extinction Fox-free Phillip Island (Millowl)

The Nature Parks' fox detection dogs recently took a trip to Western Victoria to support the Conservation Ecology Centre (CEC) in undertaking fox scat surveys in the Otways. Previously, human volunteers were recruited to find fox scats along predetermined transects, but the detection dogs proved to be much more efficient fox poo detectors with their finely tuned senses! Over the past few years, the CEC has been trialling a new approach to estimating fox densities in an area. By collecting fresh fox scats and analysing traces of the fox's DNA, individual foxes can be identified. Results from this work suggests that the DNA method provides a more accurate measure of fox densities than traditional survey methods, which inform land managers if foxes are active in an area and not how many individual foxes might be present.

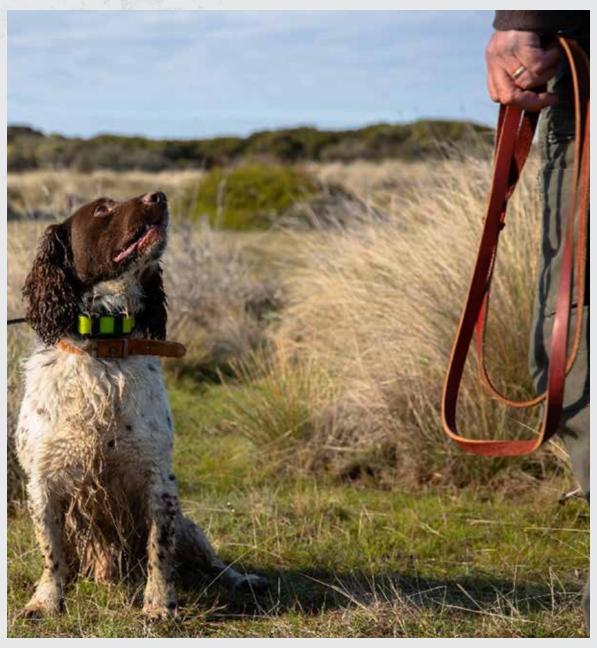
Fox detection dogs Sam and Jazz were instrumental in confirming the eradication of foxes at Tiverton Rothwell Partnering's "Tiverton" Property prior to the recent release of Eastern Barred Bandicoots in November 2020.











One step forward Feral cat-free Phillip Island (Millowl)

Feral cats are one of the most significant threats to native biodiversity in Australia. They are also identified as the major threat to the success of threatened species translocation programs, such as the release of Eastern Barred Bandicoots on Phillip Island (Millowl). The Nature Parks continues to remove feral cats from the reserves and is working towards eradicating this key threat to native fauna. Over the last 10 years, the Nature Parks has removed on average, 150 feral cats per year using cage traps and spotlighting as removal methods.

To better understand the efficacy of the Nature Parks' feral cat management program on Summerland Peninsula and Cape Woolamai, feral cat density is estimated using statistical models that use detections of individual cats identified from images captured on remote cameras. Since the management program began, over 10 million images have been captured with 7.5 million of those images categorised by staff and interns. So far, 12,000 of those contained images of feral cats.

To inform the best strategies to reduce feral cats on Phillip Island (MillowI), the Nature Parks have undertaken a GPS tracking study of feral cats to better understand their ecology and detectability in the Island's environment, particularly in the sensitive seabird colonies.

This project aims to determine how feral cats use their habitat and when they are most active, which will help focus management efforts in to where and when feral cats are likely to be found. It will also inform rangers on how effective monitoring techniques such as remote cameras, are at detecting



feral cats. Understanding detectability helps improve estimates of feral cat density and will support effective and efficient strategies for eradicating feral cats. Improved feral cat techniques will benefit the conservation of the Island's native species, particularly threatened animals that are susceptible to cat predation and disease.

The first season in 2019 followed the movements of six feral cats on the Cape Woolamai Peninsula. The second season in 2020 followed nine feral cats, increasing the number of feral cats monitored at Cape Woolamai to 15. Data from the GPS collars revealed similar patterns of habitat use between years. Feral cats spent most time concentrated in dense habitats but also ranged into important seabird habitats.

Nine feral cats were collared on Cape Woolamai in 2020 and were also detected on remote cameras.



One step forward Feral cat-free Phillip Island (Millowl)

The two new feral cat detection dogs have recently completed their intensive training in 2020 and are ready to be deployed in the field. 'Marbee' an 18-month-old Border Terrier and 'Milly' a 15-month-old Jagd Terrier, are both trained to find scats and fresh scent trails left by feral cats. Following fresh scent trails will allow the dogs to find feral cats and their dens in the landscape that may be otherwise missed by human observation. Scats collected during surveys indicate the presence of feral cats, as well as being useful to estimate feral cat densities, identify individuals through genetic material, and provide important insights into how local wildlife is represented in the feral cat diet.

"After the successful eradication of foxes from Phillip Island (Millowl) the fox detection dogs continue to play an important role in monitoring for foxes and following up reported sightings around the island, as well as being used to support other fox eradication programs across Victoria. An exciting next step in

our detection dog program is the two fully trained cat detection dogs that will assist with feral cat detection and eventual eradication from Phillip Island (Millowl)."

CRAIG BESTERSenior Detection Dog Handler





