



PHILLIP ISLAND (MILLOWL) AN ISLAND HAVEN FOR THREATENED SPECIES

Phillip Island
**NATURE
PARKS**

ANNUAL UPDATE 2022

penguins.org.au



We acknowledge the Traditional Owners of the land on which we live, work and learn, the Bunurong. We pay our respects to their Elders past and present. 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.

A Haven for the Vulnerable

ENSURING THE LONGEVITY OF THREATENED SPECIES

The past twelve months have been filled with outstanding achievements for threatened species. Some of our efforts have been in maintaining the fox-free status of Phillip Island (Millowl), while others have focused on the continuation of re-wilding the island. The Crown Land that Phillip Island Nature Parks manages and the local wildlife that calls the island home are better off thanks to our projects.

The positive impact on the survival of threatened species is due to evidence lead strategies, cross department collaboration, and the dedication of our Conservation team. We are delighted at the breadth of proof in this years' report which confirms our work is making a difference to threatened species.

The Eastern barred bandicoot has been relisted as *Endangered* rather than *Extinct in the Wild* due to success of the broader Eastern barred bandicoot recovery program. This new status for the taxon has meant captive breeding programs that have been running for two decades have ceased. Celebrations to acknowledge this momentous achievement have continued across Victoria with the many partners who were involved in saving this species from extinction. Now the focus shifts to continuing research that will help us understand how this species can continue to thrive in the future.

We are excited to have introduced Bush stone-curlews to our visitors at the Koala Conservation Reserve. As part of the recovery efforts for this critically endangered species we have successfully introduced two captive breeding pairs that

will support the overarching objectives for this species. We collaborate with Odonata and Australian National University and work together to support the recovery of the Bush stone-curlew. This joint effort works towards giving the Bush stone-curlew a future in Victoria.

This summer marked 30 years of monitoring the nesting patterns of hooded plovers and the number of fledglings was amongst the highest recorded. We are proud to have been allies to this species over several decades and to see this indicator of a healthy population.

Threatened flora such as the critically endangered Crimson Berry has been supported on Phillip Island (Millowl) by propagation success by the Barb Martin Bushbank Nursery. Futhermore, several new plant species have been sighted during the past year and we have seen the construction of an exclusion fence to assist in plant regeneration without the pressure of grazing wildlife.

A notable moment was a fox incursion during 2022, which was instantly a high priority to address. The team responded with focussed action to track down this one individual so we



could ensure our fox-free status continued, which is a keystone in much of our threatened species success stories. After many sleepless nights over two months, and with the help of our conservation dogs this fox was successfully caught.

Finally, we welcomed our new cute and furry conservation dogs Flash and Macey. These new team members are important detection dog pups that will be trained to support feral cat and fox eradications for Phillip Island (Millowl) as well as other key conservation programs across Victoria.

The Penguin Foundation continues to be a key partner in supporting our threatened species program and we acknowledge their ongoing commitment to our shared vision. We thank all our supporters who contribute and enable the success of our threatened species projects.

JESSICA MCKELSON
Conservation Manager
Phillip Island Nature Parks

Our Commitment

Native species become listed as *Threatened* often due to habitat destruction or the introduction of pest species which compromise their survival. Predation and a lack of breeding success can place significant pressure on the future of a species. Development over time on Phillip Island (Mallowl) combined with climatic changes further affects the ability of these vulnerable species to recover.

Here at Nature Parks, we play the role of researching, monitoring, and implementing strategies that allow for the recovery of species at risk from these introduced threats. It is an ongoing process and one we are constantly refining with the help of new data and evaluating these strategies.

Over the last year the Conservation team have continued to build momentum on our previous successes and take the necessary steps to ensure their longevity. By using our resources to monitor and better understand the behaviours of species needing our assistance, we are able to take decisive action to create the conditions for recovery.

Due to the long term work by our dedicated researchers and rangers we are able to understand the patterns and notice new challenges faced by the local environment and the animals that call it home.



Eastern Barred Bandicoots Bouncing Back

The recovery of the mainland Eastern barred bandicoot is a significant conservation achievement that will give this species a promising future to build the wild population further.

The Eastern barred bandicoot was established on three fox-free islands: Churchill Island, Phillip Island (Mallow) and French Island. Elsewhere the largest fenced reserve was extended in the Eastern barred bandicoots' former range (Tiverton) whilst an additional three existing fenced reserves were provided in Mount Rothwell, Hamilton Community Parkland and Woodlands Historic Park. Thanks to these combined efforts the species in Victoria was reclassified from *Extinct in the Wild* to *Endangered*, and captive breeding programs were discontinued.



Eastern Barred Bandicoots Bouncing Back

The mainland Eastern barred bandicoot was considered *Extinct in the Wild* (EW) on mainland Australia following the last confirmed sighting in 2002. Conservation actions to recover the sub-species are directed by the Eastern Barred Bandicoot Recovery Team guided by the National Eastern Barred Bandicoot Recovery Plan 2022. The key threats to Eastern barred bandicoots are predation by introduced predators, especially foxes, as well as habitat loss and prolonged drought.

The Nature Parks became a member of the Eastern Barred Bandicoot Recovery Team in 2012. Phillip Island (Mallowl) was seen then as a suitable, potentially fox-free environment where Eastern barred bandicoots could recover.

Eastern barred bandicoots were released onto Churchill Island in 2015 as a trial prior to release at larger fox-free islands. The success of the trial enabled releases to Phillip Island (Mallowl) in 2017 and French Island in 2019.

To monitor the population and ensure its ongoing improvement the Nature Parks coordinates monitoring at Churchill Island, Summerland Peninsula, and Fishers Wetland (adjacent to Churchill Island) twice per year. This is supported by engagement with the community, who are able to record sightings of Eastern barred bandicoots and provide evidence of the species spreading across Phillip Island (Mallowl).

The populations on Churchill and Phillip Island (Mallowl) have both established successfully and are spreading in range. This is despite the presence of feral cats which are a threat to Eastern barred bandicoots due to predation and the disease *Toxoplasmosis*, which is known to kill Eastern barred bandicoots if contracted.

A graphic summary of the Eastern barred bandicoot recovery on Phillip Island (Mallowl) can be found in this [story map](#).





RESEARCH TO INFORM FUTURE STRATEGY

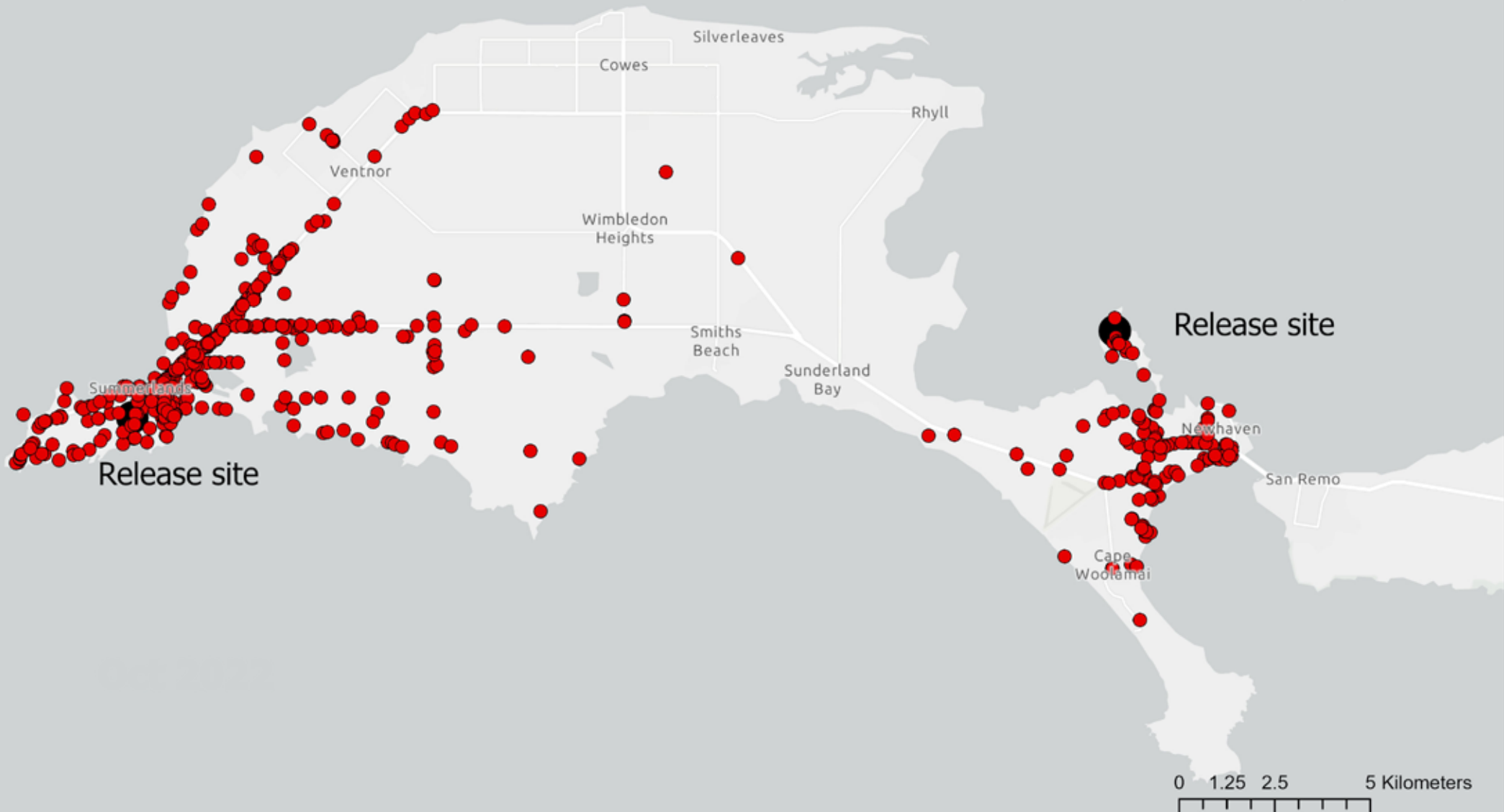
Research conducted has allowed us to better understand the survival after release and use of habitat by the Eastern barred bandicoot. The research has given us insights into the effect of their digging habits on soil health as well as their diet. It has also improved our models to estimate their abundance and survival rates, the behavioural adaptations of the species to the presence feral cats and the prevalence of the disease Toxoplasmosis in both Eastern barred bandicoots and feral cats. Research helps us to assess changes in genetic diversity following releases and identify strategies to achieve genetic rescue.

The future objectives for the Eastern barred bandicoot recovery program are to undertake genetic rescue, which is to increase genetic diversity in all populations through gene mixing with Tasmanian Eastern barred bandicoots. Genetic rescue also means developing strategies for this species to persist in the presence of foxes and feral cats (i.e., beyond fenced reserves or islands).

Research into the success of introducing individual Eastern barred bandicoots into an established population has revealed there are still challenges to managing this marsupial as a metapopulation where the idea is to maximise genetic diversity by moving individuals between populations.

In October 2021, towards the end of the breeding season, five males were introduced to the Churchill Island population, a population of mainland Eastern barred bandicoots close to full capacity. The males were hybrids of mainland and Tasmanian Eastern barred bandicoots, and hence carried unique alleles that could be tracked through genetic testing. The aim was to see if the males survived and contributed to the next generation, hence sharing their genetics with a new population. After two rounds of trapping, we are still to capture any of the five individuals, suggesting they may not have survived. We are also yet to capture any new animals that carry the unique Tasmanian alleles, suggesting the males may not have successfully fathered offspring. The trial continues, but it appears conditions were too difficult for the males to successfully integrate and alternative, more conducive, strategies need to be trialed.

Recorded Eastern Barred Bandicoots October 2022



The Elusive Bush Stone-Curlew

NEW LIFE FOR THE BUSH STONE-CURLEW

The Bush stone-curlew (*Buhrinus grallarius*) is *Critically Endangered* in Victoria and records indicate it was last seen on Phillip Island (Millowl) in the 1970s. Local knowledge recalls these birds on farmlands and other open areas. Their role in the ecosystem and having no known negative impacts on the existing values led to the Bush stone-curlew being identified through a structured decision-making process as priority species for reintroduction back to Phillip Island (Millowl).

During 2022, the Nature Parks established two specially designed captive-breeding aviaries at the Koala Conservation Reserve. This allows members of the public to view, connect and learn about Bush stone-curlews. Each aviary became home to a pair of birds in the hope that these individuals would contribute to Victoria's captive breeding and recovery program for this species. The birds were relocated from Moonlit Sanctuary, the Nature Conservation Working Group and the Mid-Loddon Catchment Management Group.

Our local volunteers have been a key asset in helping to look after and care for the birds. These opportunities to engage with this elusive species are an important opportunity to connect with our local community and support the recovery program together. A visitor survey was conducted and resulted in 297 respondents. The community sentiment indicates a high level of support for the program; with 96% of participants responding "yes" to wanting to see the Bush stone-curlew freely living on Phillip Island (Millowl).

In 2022 Nature Parks successfully reared one chick after multiple nesting attempts, and in early 2023 two more chicks hatched. This is a fantastic result of the captive breeding program and these young birds may form part of a release group on Phillip Island (Millowl) or further afield.



A wild release of Bush stone-curlews on Phillip Island (Millowl) is on track for Spring 2024 as part of a coordinated recovery program effort for south-east Australia with Odonata and Australian National University.

Shorebirds

The Nature Parks manages a large proportion of the island's wetlands and coastline habitats, which are essential for several nesting and migratory shorebirds.

These shorebirds are monitored by our rangers and with the use of installed camera traps. In addition to our year round birdlife that calls Phillip Island (Millow) home, intertidal areas are attractive to a number of seasonal visitors, including the threatened Eastern Curlew (*Numenius madagascariensis*) and Red Knot (*Calidris canutus*).

The Eastern Curlew is critically endangered and is the largest shorebird to visit Phillip Island (Millow). They have declined by more than 80% in the past 40 years due to habitat destruction and alterations to wetlands along their migratory path. The Eastern Curlews gather on high tide roosts as the tide comes in around Rhyll Inlet, an area that we monitor and protect from pest species such as feral cats.

These incredible birds have evolved to store enough fuel to fly from here to China. Using their sensitive bills they probe deep in the tidal mudflats for food such as ghost shrimps, crabs and small molluscs, are usually seen in low numbers and are very wary. The Nature Parks rangers continue to monitor this site recognised in the Ramsar Convention to provide optimum habitat for these internationally protected birds.

Hooded Plovers 30 Years On!

The summer of 2021/2022 marked the 30th consecutive monitoring season of hooded plovers nesting on Phillip Island (Millowl).

Birds are monitored through an island-wide team effort by Nature Parks staff and interns, local volunteers and the Bass Coast Shire Council. These collated observations allow us to understand the locations of nesting sites and track fledgling success rates. Consistent monitoring combined with banding allows us to understand the current environmental factors that influence the success of breeding seasons for these birds. To give hooded plovers a better shot at reaching fledgling age, the Sharing Our Shores campaign runs each year which allows us to inform and engage the community or visiting tourists and ask for their help in ensuring nesting sites are uncompromised by human traffic or dogs off leash.

Our data has shown that during the 2021/2022 season, nineteen pairs of hooded plovers (*Thinornis cucullatus*) attempted to breed. There were 29 nests documented, producing a total of 70 eggs. Of the 25 chicks that hatched, 14 survived to fledging. This is the second highest fledged total in recorded history, the highest being 17 fledged in the 2015/16 season.

The most recent report can be located [here](#).

SUPPORTING HOODIES IN TASMANIA

In April 2022, one of our experienced staff members joined Birdlife Australia, Deakin University, and the Department of Primary Industries, Parks, Water and Environment (DPIPWE) Tasmania, to band adult hooded plovers across Tasmania (lutruwita).

Though hooded plovers have been monitored in Tasmania for decades, this was the first time Tasmanian hooded plovers had been banded. This Australia-wide project hopes to learn more about the genetic variability of Tasmania birds and explore their dispersal movements from Tasmania to the south-eastern coastlines of Australia.



Rewilding Millowl

Revegetation and propagation efforts on Phillip Island (Millowl) are instrumental in restoring habitat and providing new areas for threatened species to thrive. In 2022, major revegetation works occurred at Fishers Wetland through the introduction of a range of wetland shrubs: Salt Lawrenca (*Lawrenca spicata*), Marsh Saltbush (*Atriplex paludosa*) and Yellow Sea-lavender (*Limonium australe* var. *australe*).

Yellow Sea-lavender (*Limonium australe* var. *australe*) is an endangered indigenous plant that grows in mangrove and saltmarsh plant communities on Phillip Island (Millowl). This plant can be easily confused with the common garden plant Sea Lavender (*Limonium perezii*), or the invasive environmental weed Sicilian Sea Lavender (*Limonium hyblaenum*) both of which have purple flowers and originally come from the Canary Islands and Sicily respectively.

Monitoring of the Yellow Sea-lavender is carried out by rangers and volunteers each year during the flowering period to ensure that the populations have not been invaded by Sicilian Sea Lavender. There are large infestations of Sicilian Sea Lavender west of Port Phillip but luckily only a few plants have appeared on Phillip Island (Millowl).

Additionally to the planting of these wetland shrubs and monitoring of the population of Yellow Sea-lavender, seven self-seeded swamp gums (*Eucalyptus ovata*) were translocated from the Rhyll bird hide to surrounding woodland and protected with tree guards to restore the diminished overstorey. Trees play a vital role in the ecosystem and have historically been cleared due to development or agricultural practices. Reintroducing plants recruited locally to landscapes such as this one allows for the surrounding plants to benefit in many ways, as well as providing critical habitat for many fauna species.

Our New Recruits

In 2022 Phillip Island Nature Parks staff identified six new species of flora locally rare to the island, including several orchids.

- A. Pale Grass Lilly (*Caesia parviflora* var. *minor*)
- B. Grey Parrot-pea (*Dillwynia cinerascens*)
- C. White Fingers (*Caladenia catenata*)
- D. Bird Orchid (*Chiloglottis* sp.)
- E. Slender Sun Orchid X Twisted Sun Orchid hybrid (*Thelymitra pauciflora* X *reflexa*)
- F. Rosy hyacinth orchid (*Dipodium roseum*)
- G. Pink Finger (*Caladenia carnea*)

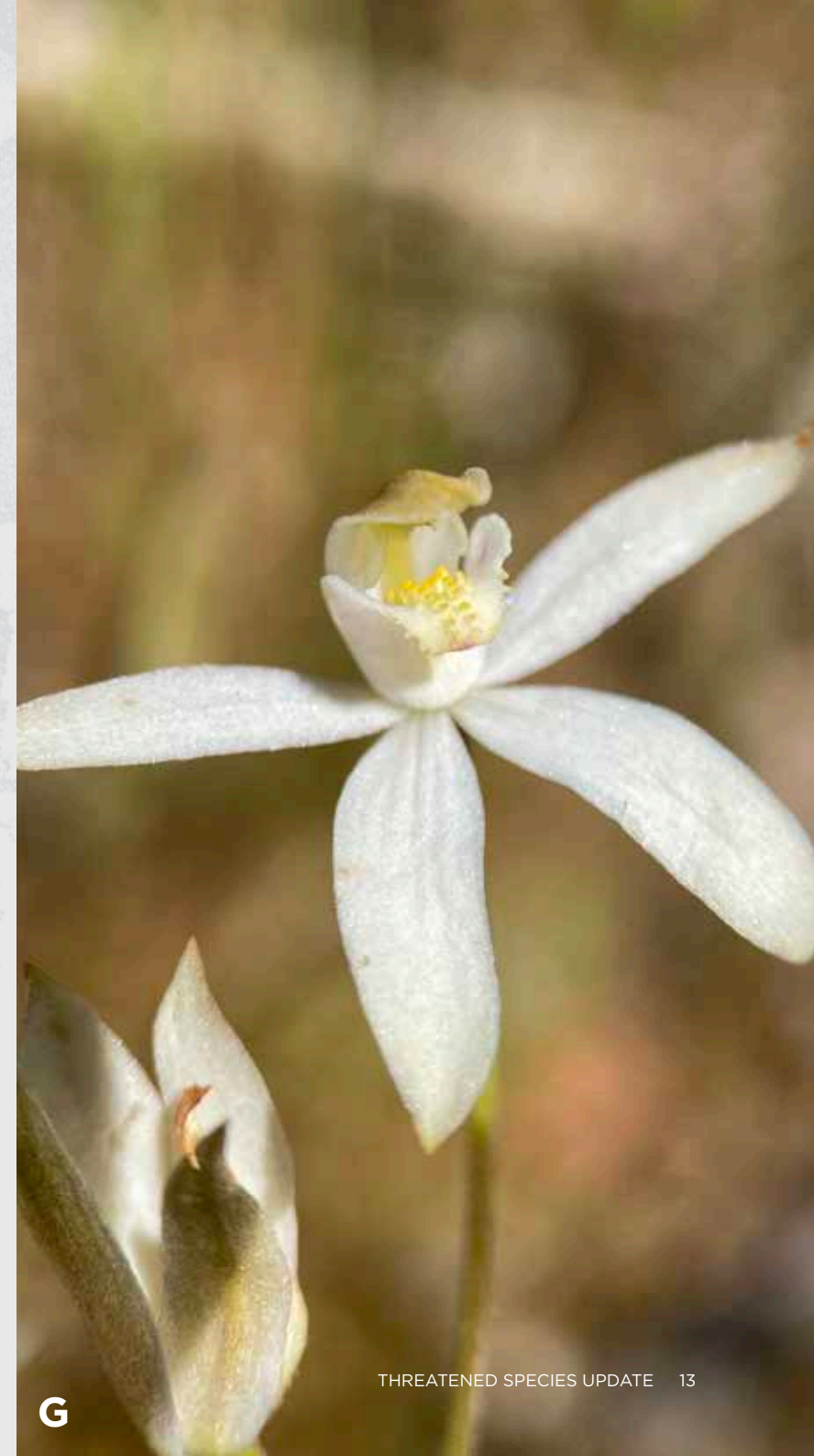
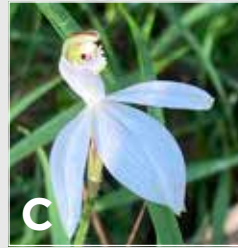
This is exciting news and demonstrates how connected habitats and ecosystems allow for the movement of plant species within their habitats. As we rewild the island and protect ecosystems from the threat of invasive weeds or herbivores which can block the ability of native species to regenerate, we expect to find more species over the years to come.

GARDEN HAVENS IN THE COMMUNITY

The Barb Martin Bushbank is a native plant nursery operated by the Nature Parks and located at the Koala Conservation Reserve. The nursery utilises the green thumbs of local volunteers to propagate and plant seed stock. During 2022, there was a strong focus on propagating a number of the island's local threatened flora, so that customers and staff could plant them across the island.

A total of 4250 threatened plants were produced and a total of 1480 are expected to be used during the 2023 planting season. The continuation and recovery of threatened plant species is of utmost importance and the work of the Barb Martin Bushbank Nursery demonstrates our commitment to not only protecting remaining habitat by propagating from dwindling wild specimens, but also by taking action to reintroduce them into our local ecosystems.

These threatened species are popular choices, with 2770 plants sold to customers. The production and availability of threatened plants to our customers ensures these plants have a wide reach across the backyards of residents on Phillip Island (Millow). This allows the community to contribute to their ongoing survival, and further enhances the genetic diversity of the threatened flora program.



Threatened Flora Restoration

REINTRODUCING PLANTS TO INCREASE ECOSYSTEM BIODIVERSITY

Crimson Berry (Leptecophylla oxycedrus)

A phylogenetic study of the Crimson Berry commenced in 2022, with sampling occurring across Phillip Island (Millowl), wider Victoria and Tasmania (Iutruwita). This project was led by a Melbourne University Masters student in collaboration with Royal Botanic Gardens Victoria.

The study will use next-generation genetic sequencing to explore the Phillip Island (Millowl) population of Crimson Berries to determine how their genetic phylogeny may differ from that of other Victorian and Tasmanian populations.

The Barb Martin Bushbank Nursery has successfully propagated 35 Crimson Berry plants by cuttings, an achievement to be celebrated. The Crimson Berry Recovery Action Plan (2020) published by the Nature Parks highlights that from 2010-2020 there had been numerous attempts to propagate the plants from cuttings and by seed with no success.

Having the ability to propagate this threatened plant species from cuttings allows for a great advancement in our ability to bolster the local and dwindling populations on Phillip Island (Millowl). Some of these successfully propagated Crimson Berry plants will be retained as stock for further production, the rest will be ready for translocation in 2023.



Threatened Flora Restoration

Currant Wood (Monotoca glauca)

Currant Wood (*Monotoca glauca*) is a threatened shrub which produces small fruits and white flowers in axillary spikes. This generally dioecious plant is native to south-eastern Australia and is locally rare on Phillip Island (Mallowl).

During 2022, a 680 m² herbivore exclusion zone was created at Rhyll Wetland, a known Currant Wood habitat on the island. In addition to the new exclusion zone, we included a 22-hour targeted weed control program to give native plants the best chance at establishing.

The enclosure borders land which encompasses several mature Currant Woods and approximately 35 immature plants. Since construction of the exclusion fence a further 70-80 immature plants have been noted, providing proof of the ability of this species to self sow successfully when protected from herbivory. Other locally rare species protected within the enclosure include Common Heath (*Epacris impressa*), Grass Trigger plant (*Stylidium graminifolium*), Sun Orchid (*Thelymitra sp.*), Nodding Greenhood (*Pterostylis nutans*), Bird Orchid (*Chiloglottis sp.*), Grey Parrot-pea (*Dilwynia cinerascens*) and Cherry Ballart (*Exocarpos cupressiformis*).



Protecting our Island

It is essential to protect our wildlife and environment from pest plants and animals. One of our largest focuses is controlling feral animals and weeds on Crown Land.

AN UNWELCOME VISITOR

A not so fantastic fox

In May 2022, the Nature Parks responded after a number of chickens were killed on a local farm. Investigation of the property quickly confirmed the presence of a fox through the discovery of a fox scat and foot prints.

A monitoring program to find the individual using infra-red trail cameras and detection dogs expanded into surrounding areas to locate areas of fox activity and a control program was implemented to remove the individual.

After two months of monitoring and control, the fox was trapped on a nearby coastline to the initial sighting area. Genotyping of the scats found during initial monitoring confirmed they all matched the fox that was eventually trapped.

Efforts to maintain a fox-free island continue and include an ongoing monitoring program with detection dogs and cameras and a permanent “Foxcam” surveillance camera on the Phillip Island (Millowl) bridge. A fox control buffer zone on the adjacent mainland further minimises the likelihood of reinvasion.

Foxes pose a major threat to ecosystem health, biodiversity and to many of Australia’s threatened species. Phillip Island (Millowl) was declared fox-free in 2017 after 25 years of dedicated effort. Removing foxes from Phillip Island (Millowl) has created a safe haven for local wildlife and has created opportunities to secure the future of threatened species such as Eastern barred bandicoots.



Canines for Conservation

A NEW GENERATION OF DETECTION DOGS

The use of detection dogs was instrumental in eradicating foxes from Phillip Island (Mallowl) and more recently allowing program staff to focus control efforts during the fox incursion in 2022.

Phillip Island Nature Parks utilises trained detection dogs to undertake surveys of both foxes and feral cats on Phillip Island (Mallowl), as well as other conservation projects across Victoria. With their acute sense of smell, detection dogs can be used to search for evidence of any remaining individuals in the final stage of eradication campaigns. Through training they are able to locate and indicate scats used for genetic or dietary studies of populations.

With the veteran Jazz set to retire in 2023, two new fox detection pups named Macey and Flash have joined the team. Once fully trained they will continue the critical work searching for evidence of foxes on Phillip Island (Mallowl) and beyond.





Our Collaborators and Supporters

Victoria State Government (DEECA)

Eastern Barred Bandicoot Recovery Team

Penguin Foundation

Odonata

The Australian National University

Royal Botanic Gardens Victoria

Moonlit Sanctuary

Nature Conservation Working Group

Mid-Loddon Catchment Management Group

Zoos Victoria

Parks Victoria



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