



CONSERVATION UPDATE

JUNE TO AUGUST 2022

PREPARED BY JESSICA MCKELSON,
CONSERVATION MANAGER



HIGHLIGHT –

Dr Peter Dann retires from Phillip Island Nature Parks after 40 years

Dr Peter Dann has worked at Phillip Island Nature Parks where he has led research into Little Penguins for all his working career. Melbourne’s ‘The Age’ newspaper recently published an article looking back over Peter’s career including some of the highlights and challenges of working with penguins and the public.

“I’ve met people who don’t like Christmas and cats and babies,” says Peter Dann. “But I’ve never met someone who doesn’t like penguins.” He estimates he has watched the penguins come ashore at Phillip Island more than 1000 times and has been fascinated every single time.

He was the only research biologist working with the penguins at Phillip Island when he began in 1980 and it’s been his only full-time job. The conservation effort has since expanded, and now, 42 years later Peter leads a team of eight researchers. “It’s been a consuming passion of mine” he said. “My interest in it and the pleasure I get hasn’t diminished.”

By the 1980s a housing estate at Summerlands, adjacent to the main colony and where the penguins nest in burrows, had grown to almost 180 houses. The colony itself had falling numbers with regular attacks by foxes and dogs as well as road-kill by cars. It was the most difficult period of Peter’s career, and he was frustrated that action to protect the penguins was happening so slowly. “I lost a lot of sleep over the population when it was clearly declining,” he recalled.

In the mid-1980s, the government decided to buy back the properties on the estate to protect the penguins. Peter Dann lobbied the government to enact the policy, even though he was living at the Summerland Estate himself. “It was a very emotional time for a lot of people,” he said. “We had many difficult conversations, but it was a remarkably civilized process.”

In 1983 there were between 8000 and 12,000 breeding penguins on Phillip Island. Fast forward to the 2020s and the colony has grown to the largest in the world with 40,000 spread across the peninsula. Earlier this year the penguins set a record when 5219 waddled up to their burrows from the water at the penguin parade.

Peter has grown intimately acquainted with the “charismatic” creatures and marvels at how the flightless birds have adapted to life at sea. He has edited a book on penguin ecology and management and written many academic papers. Yet, he insists his affection for wildlife is not limited to Phillip Island’s beloved penguins. There would be at least 100 animals jostling for space in his top 10 list and all native species have a right to exist in their natural habitat. But he hopes the penguins will act as a “flagship species” and their endearing nature will encourage people to protect the entire ecosystem. Peter feels confident the future of penguin conservation is in safe hands at Phillip Island, and he will continue co-supervising four PhD students, post-retirement.

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THREATENED SPECIES

BUSH STONE-CURLEWS

In June the Nature Parks investigated opportunities to bring an additional male into the Bush Stone-curlew breeding program with a potential source population near Bendigo. Nature Parks have recruited six more volunteers into the feeding program.

Our visitor attitudes survey on the Bush Stone-curlew had 170 respondents with 95% supportive of reintroduction.

HOODED PLOVER

The Hooded Plovers of Phillip Island (*Millow!*) are heralding the start of Spring. Fledglings from last season abound and are seeking a foothold anywhere the territorial adults will tolerate them! Fledglings are, at least for the near future, easily distinguishable from their adult conspecifics by a head of mottled grey plumage (see photo). Otherwise, mature birds around the Island have formed their mating pairs, with some returning to old partners and others forming new relationships. Each pair will work tirelessly from now on to defend their lot until Autumn next year. Be mindful to give these threatened birds plenty of space during this time, as life on the edge of the land is stressful at the best of times!



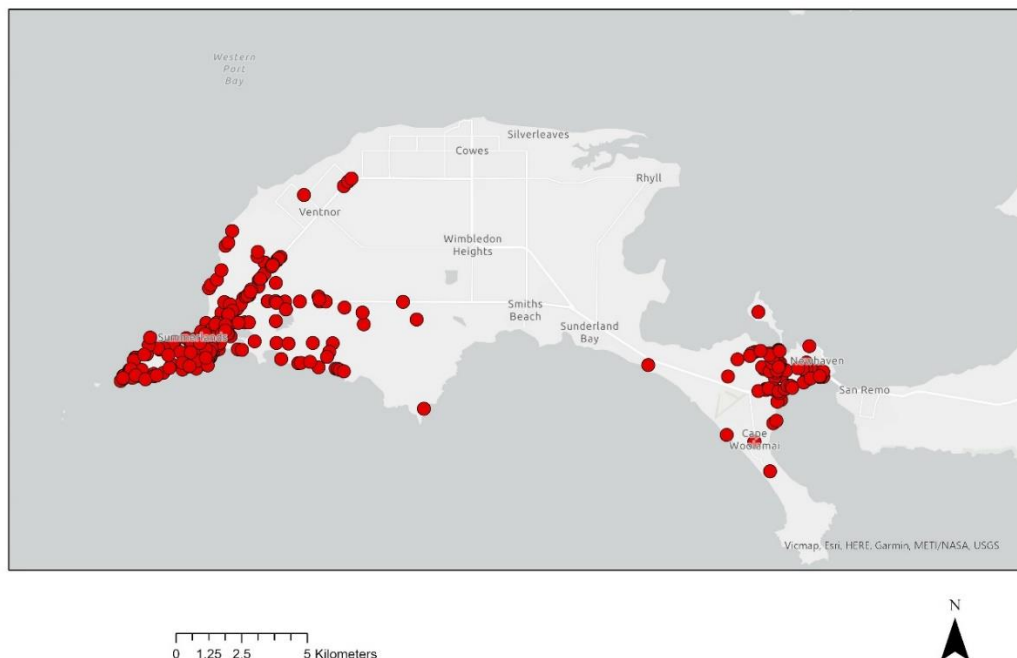
Above photo: (Jon Fallaw) A fledgling, Yellow '1A', from the 2021/22 breeding season slowly developing its adult plumage.

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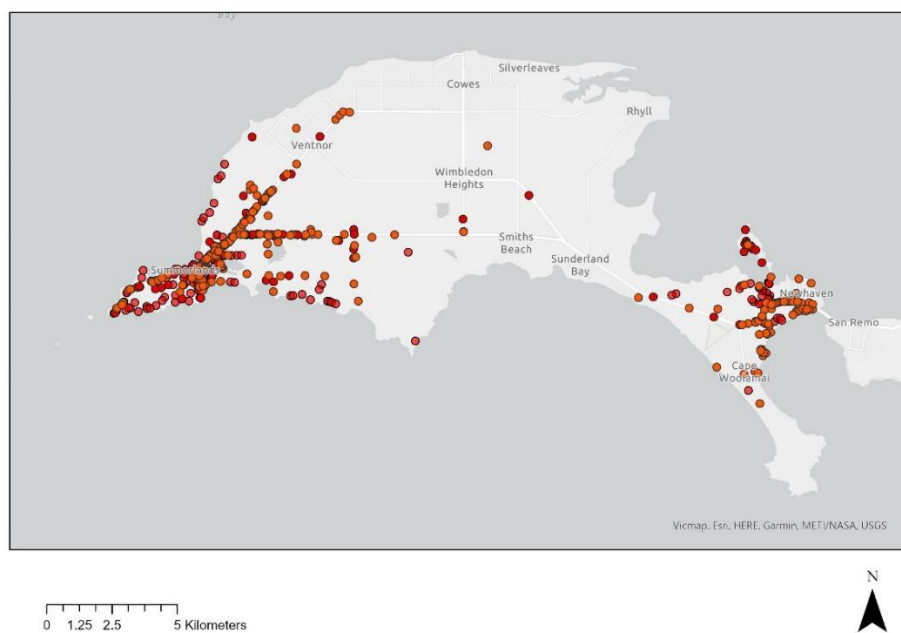
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Eastern Barred Bandicoots

Eastern Barred Bandicoots Dispersal January 2022



Eastern Barred Bandicoots Dispersal June 2022



Above mapping: Bandicoots dispersal from January to June 2022.

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FLORA AND FAUNA

Weed: Common Thorn-apple Datura stramonium

This weed was seen at the Penguin Parade when our team were planting in late June. If you do find any more, let us know so we can safely remove the plants. It is a toxic annual member of the Nightshade family originating in Central America. Whitish sweetly perfumed trumpet shaped flowers: however, does not smell as toxic and is largish broadly toothed leaves.

All parts of the plant are toxic. Symptoms may include intense thirst, difficulty with speech and swallowing, vomiting and diarrhea, fever, confusion, hallucinations, delirium, dilated pupils, seizures and coma. Deaths have occurred. The perfume can cause respiratory irritation, headaches, nausea and light-headedness. Eye contact with the sap may cause dilated pupils and temporary blindness. Honey made from flowers may be toxic.



Above photo: Weed Common Thorn-apple Datura stramonium

Planting Day at Koala Conservation Reserve – 9 July 2022

A big thank you to all who helped make our recent planting day a huge success! Held at KCR as part of our Reconciliation Action Plan (RAP) commitment and to coincide with NAIDOC week, a total of 154 plants were planted under the large manna gum in front of the visitor centre. This tree is particularly significant for three reasons. It has witnessed the entire story of koalas on the island; it has survived the clearing of the island in the post-contact era; and most importantly, it has been alive since the time that the only people who used Millowl were Bunurong. It has the added advantage of being protected behind a fence, so is a good place to plant, some plants that require protection like bulbine lilies and yam daisies. This is the first stage of producing a cultural garden featuring edible plants, a yarnning circle and some art works.

Following is a list of plants planted:

- 40 weeping grass
- 26 bulbine lilies
- 5 yam daisies
- 20 kangaroo grass
- 19 trigger plants
- 22 lomandra
- 22 dianella

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Threatened wetland species planting

Bushbank volunteers Steve and Rob assisted with planting 60 wetland plants at Fishers wetland. The three species planted all have Endangered status under the Flora and Fauna Guarantee Act. These are Salt Lawrenca, Marsh Saltbush and Yellow Sea-lavender.



Above photo: Bushbank volunteers, Rob and Steve planting Salt Lawrenca at Fishers Wetland

Crimson Berry DNA samples

Molly Bloomfield recently visited the Nature Parks Crimson Berry population. She is studying for a master's degree at Melbourne University looking at the population genetics of the critically endangered Crimson Berry. This is a collaborative study with Royal Botanic Gardens Victoria and supported by the Penguin Foundation. She will be using next-generation sequencing techniques to determine the population genetics of the Phillip Island Crimson Berries as well as determining how they compare with other Victorian and Tasmanian populations. This will help in making informed decisions regarding developing more resilient and self-sustaining populations.

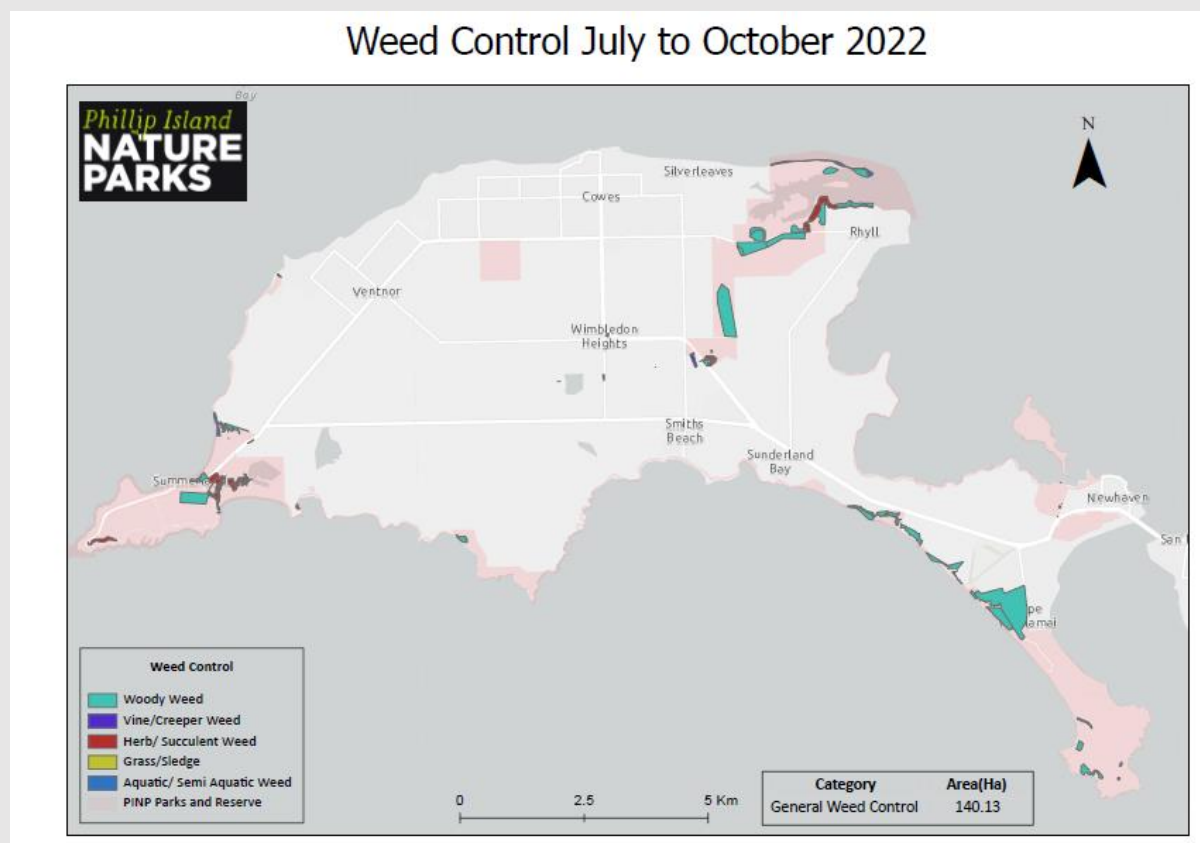


Above photo: Molly collecting Crimson berry samples

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Weed Control



AUSTRALIAN FUR SEALS

5th Annual Seal Spotter Challenge

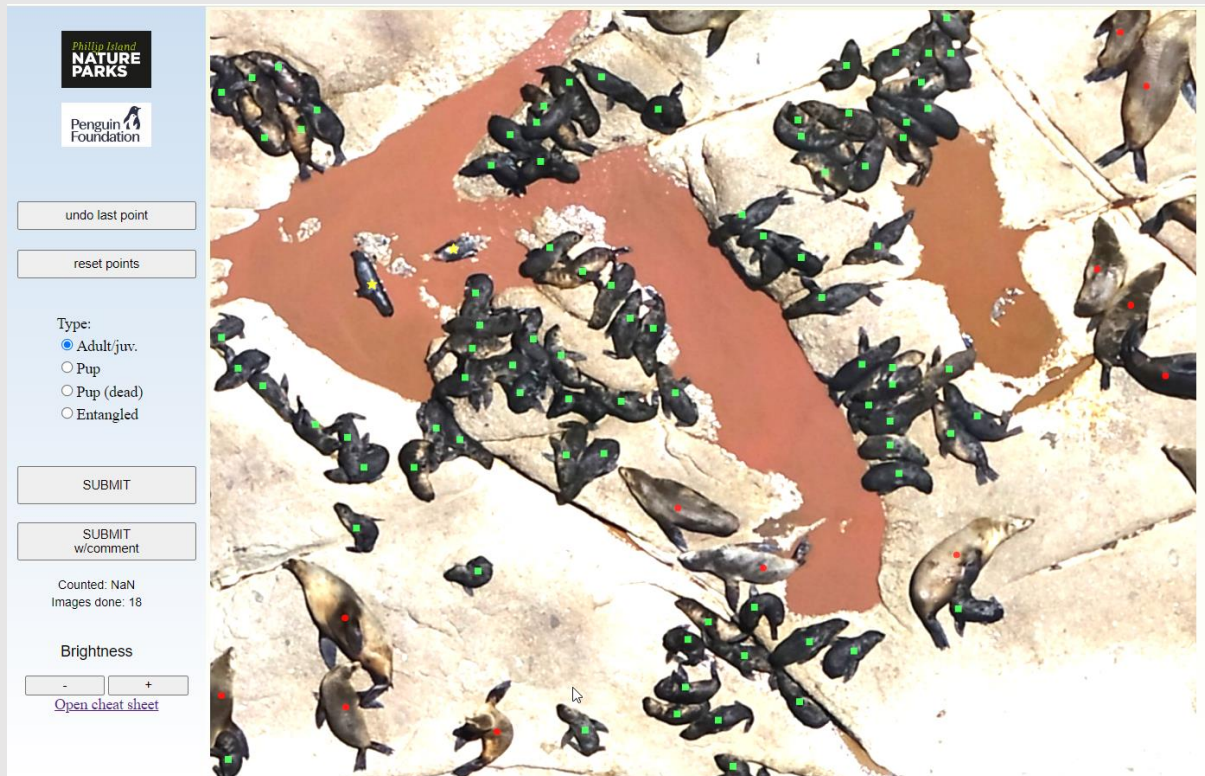
This year's Seal Spotter Challenge commenced on 8 June and concluded on 22 June 2022. It was the 5th birthday celebration of the program, and we worked alongside the Marketing and Communications team to build the educational reach and citizen scientist community. This included a live-stream Facebook event with many great questions from the audience. At the close of the challenge, 124 citizen scientists from 15 countries counted 13,789 images with each image counted 9-10 times for a total of 165,514 seals. Yet again we achieved reliable results, providing important information to track the number of seals present on Seal Rocks close to Phillip Island and The Skerries near Mallacoota.

At the Skerries, pup (1,643) and adult-juvenile numbers (3,464) in 2021 were acceptably similar to the average of 1,370 pups and 3,774 adult-juveniles. But the story is more complicated at Seal Rocks. Every year we count two surveys in SealSpotter for Seal Rocks, one in mid-December when we get the highest number of pups and the other around the end of December when the breeding season is finished. In 2021 there were 3,562 pups born mid-December, but a large drop to 2,248 pups by early January signifying high pup mortality of 1,314 pups. This high mortality was also observed on-site during the end of the December field trip when we counted 506 dead pups, note that some dead pups get washed out to sea where they can't be counted. More adults and juveniles are present mid-December (average 5,826) because most of the pups have just been born, reducing by the end of December (average 4,294) when mums are coming and going frequently to feed themselves and their pups and the breeding bulls have left the colony.

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There is much research being performed to help us understand what is causing this pup mortality with five PhD students studying health and disease, focusing on Seal Rocks. We are gaining a better understanding of PFAS contamination in the seals (flame retardant chemicals that may affect pup survival), diseases that cause premature births, and whether boat visitation and noise causes stress. Further research is tracking changes in their diet, impacts of entanglement from marine plastics and climate change effects such as sea inundation and heat waves. We look forward to keeping you updated on all these projects as they progress.



Above photo: Counting seals in the SealSpotter portal - So many pups!

PEST CONTROL

Foxes

Nature Parks successfully removed a fox from the island after an intensive two-month monitoring and control program lead by the Conservation team in July 2022.

The fox was captured on the island's southern coastline and humanely euthanized to protect native species on the Island. The fox was tracked to the location following the discovery of its footprints with the assistance of conservation dog 'Jazz'.

A huge congratulations to the Conservation team who has been working around the clock to find fox evidence. This response was a priority for Nature Parks as foxes are the number one threat to native species, livestock and domestic pets, as well as the Little Penguins.

We will continue to remain vigilant and conduct extensive surveys until we are certain that Phillip Island is fox free again.

Dogs

The behavioral training continues for the conservation puppies progresses as they learn obedience skills and become familiar with Phillip Island through exposure to different environments including the beaches, penguin

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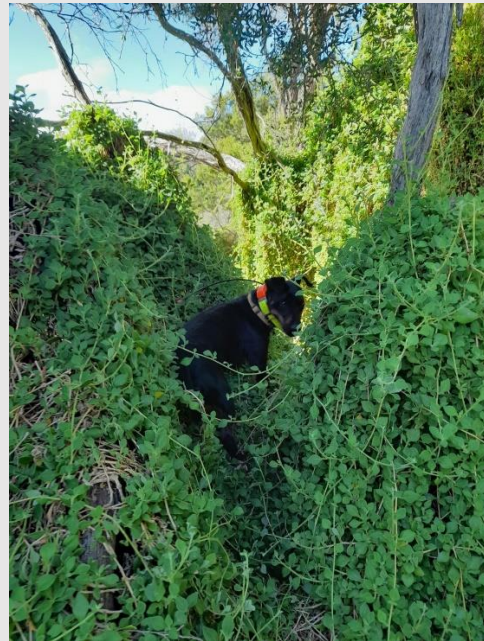
habitat and shearwater habitat. The fox dog (Jazz) has assisted in the monitoring of historically fox abundant areas and continues to attend fox sightings and the cat dog (Marbee) has attended cat sightings and continues to gain experience in monitoring for feral cats.

Feral cats & Feral Cat Research

Cat trapping took place over June with 332 traps resulting in one cat removed from the Ramsar area.



Above photo: Flash – Springer Spaniel puppy practicing obedience.



Above photo: Milly searching for cat in penguin habitat, cat was found and euthanized.



Above photo: Marbee – finds training target after 200ms of tracking.

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Surf Beach Sunderland Bay Biodiversity Project

The rabbit exclusion fence has been built to keep pests out of three hectares of native vegetation, so the flora in this area can be restored. The Sunderland Bay area is a rare example of heathland habitat on the island, home to native orchids and trigger plants.

With the exclusion fence in place, these plants will have the chance to rejuvenate from the existing seed bank, which is currently being decimated by rabbits before the plants have a chance to establish. We want echidnas and other native animals to move in and out of the area as their browsing benefits the ground flora. There are two 'echidna gates' installed along the fence, with two more being added soon.

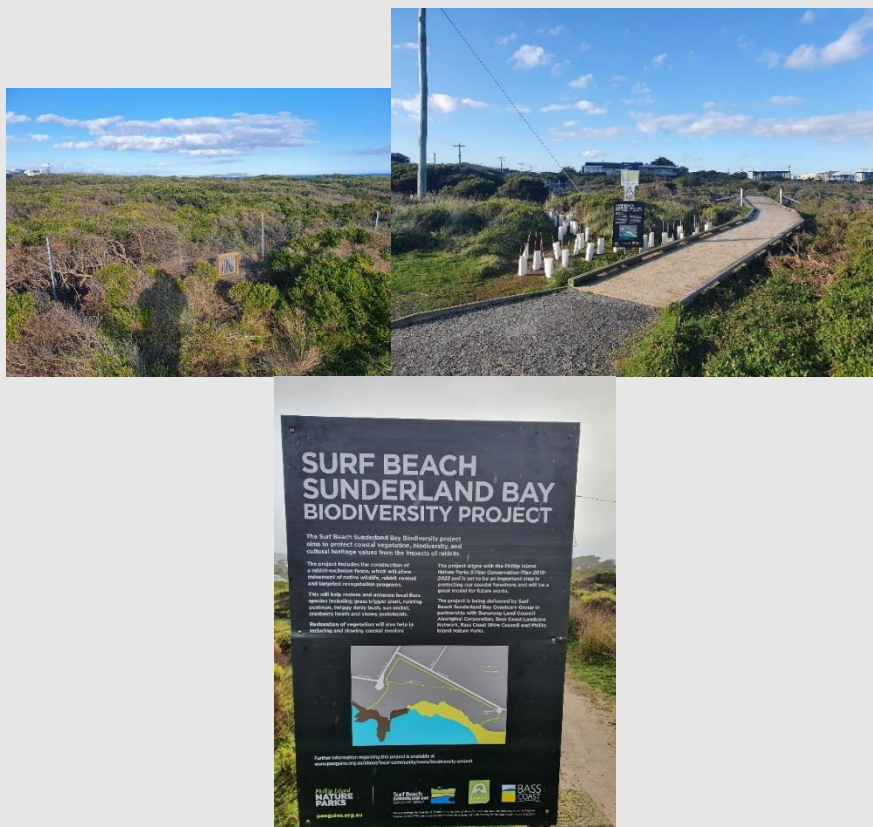
Background

This is the first stage of the Surf Beach Sunderland Bay Biodiversity Project. The fenced areas will be monitored over the coming months to determine animal traffic and the effectiveness of this restoration project. This project is a resident-led initiative, with the support of Phillip Island Nature Parks, Surf Beach Sunderland Bay Coastcare Group, Bass Coast Shire Council, Bass Coast Landcare Network and Bunurong Land Council Aboriginal Corporation.

We want native animals like echidnas and wallabies to be able to move in and out of the fenced area; their browsing keeps the vegetation more open and is beneficial for the ground flora. Wallabies can adjust their movement patterns to move around the fence. Echidnas are robust animals and capable of adjusting their movement patterns. The echidna gates are specially designed for the weight and power of an echidna and are too difficult for a rabbit to push through. The fence was set several metres off the road to further ensure space for wildlife.

Please click on the link for further details on this project:

<https://www.penguins.org.au/about/local-community/news/biodiversity-project/>



Above photos: Biodiversity Project photos

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GIS Update

A Fishnet mapping web map for weed control has been prepared and the map is being used for field data collection (Fig: below). Similarly, GIS (Geographical Information System) project for Boardwalk Penguin burrow mapping has also been completed and is being used for field data collection. Maps were also prepared for the Nature Parks Annual report and Bandicoot dispersal maps completed and shared to related stakeholders.



Barb Martin Bushbank Nursery

June saw some of our threatened flora species selling well in the nursery and being planted in our habitat. These include 200 *Limonium Australe* to Churchill Island and native raspberries and murnong to the Bunurong Land Council Aboriginal Corporation.

July and August the Bushbank was excited to see a significant reintroduction of *Lawrenca spicata* (salt *Lawrenca*) back to Phillip Island. This species has been non present since 2019 has historically existed in very low numbers (under 10 specimens). Our Environment Ranger, Susan Spicer has identified our first location at fishers wetland as our first reintroduction site which is the location of our last recorded individual plant. We are hoping to reintroduce 60 plants ideally in a minimum of four locations supported by an additional 200 plants in early autumn.

The Bushbank is now in our preparation stage for next season and taking a sigh of relief that the 2022 revegetation stock both internal and external has finalised and dispatch is all but completed. We have also started receiving grow to order requests for next season which is very exciting.

COASTAL AND WOODLAND MANAGEMENT

PPVC Stage 2

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The Penguin Parade Visitor Centre (PPVC) Stage 2 revegetation was undertaken over three days from 22 to 24 of June. There was strong participation from Nature Parks staff (approximately 18) from various departments. Bunurong Land Council Aboriginal Corporation first inducted staff onto the site before planting activities could commence. Over 3500 plants were planted to build off last year's efforts. Extensive tree guarding was also undertaken, as the site is not only home to Shorttail Shearwaters (STSWs) and penguins but other herbivores including rabbits, wallabies and geese. This will complete planting activities for this year, but site maintenance will continue including weed control and tree guards until STSWs return in September.



Above photo: PPVC Stage 2 planting – June 2022

CAPE WOOLAMAI

WIRES STSW Grant habitat improvement at Cape Woolamai

WIRES Grant STSW habitat restoration revegetation at Cape Woolamai, was undertaken by Nature Parks staff and volunteers (approx. 29 participants) over two days in June. We planted 4745 ground covers and trees improving the short tailed shearwaters nesting habitat and increasing native vegetation cover.

This has been followed up with extensive weed control works including kikuyu control by contractors and woody weed control from Nature Park staff.



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Above photos: Wires Grant Revegetation briefing with BLCAC and on site planting at Cape Woolamai

SCENIC ESTATE RESERVE

A \$21,000 Coast Care Grant has provided an excellent opportunity to further engage Friends of Scenic Estate (FOSER) undertake erosion remediation, oversee extensive weed control activities including paspalum, kikuyu and woody weed removal. Revegetation activities at Scenic Estate Reserve were undertaken by FOSE and Nature Park staff. Over a thousand plants have been re-established over the site.

This project consolidates works from FOSE, Bass Coast Shire Council and Phillip Island Nature Parks undertaken over the past 6 years. This project has 3 components -

1. Undertake a detailed weed survey and develop a Weed Management Plan of the site which will assess key weed threats including Weeds of National Significance and provide recommendations for a continued strategic approach.
2. As directed by recommendations highlighted in the Weed Management plan undertake appropriate weed control work with project partners and contractors.
3. Undertake revegetation activities that include continued re-establishment of Moonah woodland, erosion control plantings, complementary wetland and amenity planting.



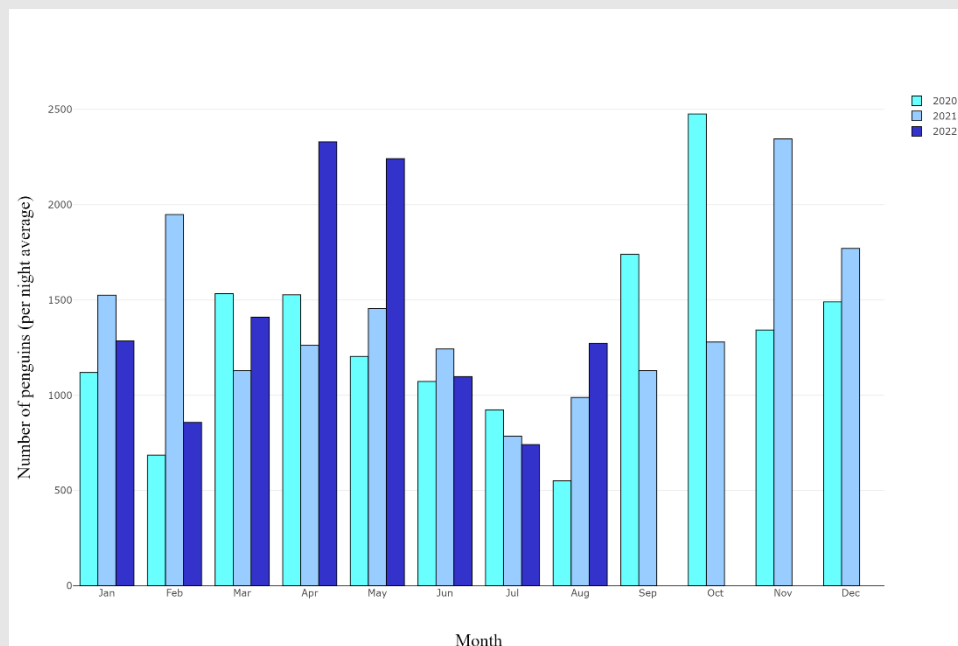
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Above photos: planting at Scenic Estate Reserve

PENGUINS



June to August penguin counts

June update

June saw an average of 1098 penguins crossing the beach each evening. This is 12% fewer penguins crossing than 2021 (1243 penguins/night) and similar to the numbers crossing in 2020 (1072 penguins/night). The average number of penguins for this June was brought down by an unusual week of low numbers in the middle of the month. Fortunately, these low numbers were short-lived and did not significantly impact our breeding penguins. We currently have 10-15% of burrows on the Peninsula either incubating eggs or rearing chick.

July update

As is typical of the penguin annual cycle, July had the fewest number of penguins crossing the Parade beach, with an average of 741 penguins per night. This was slightly below that of the 2021 nightly average of 785

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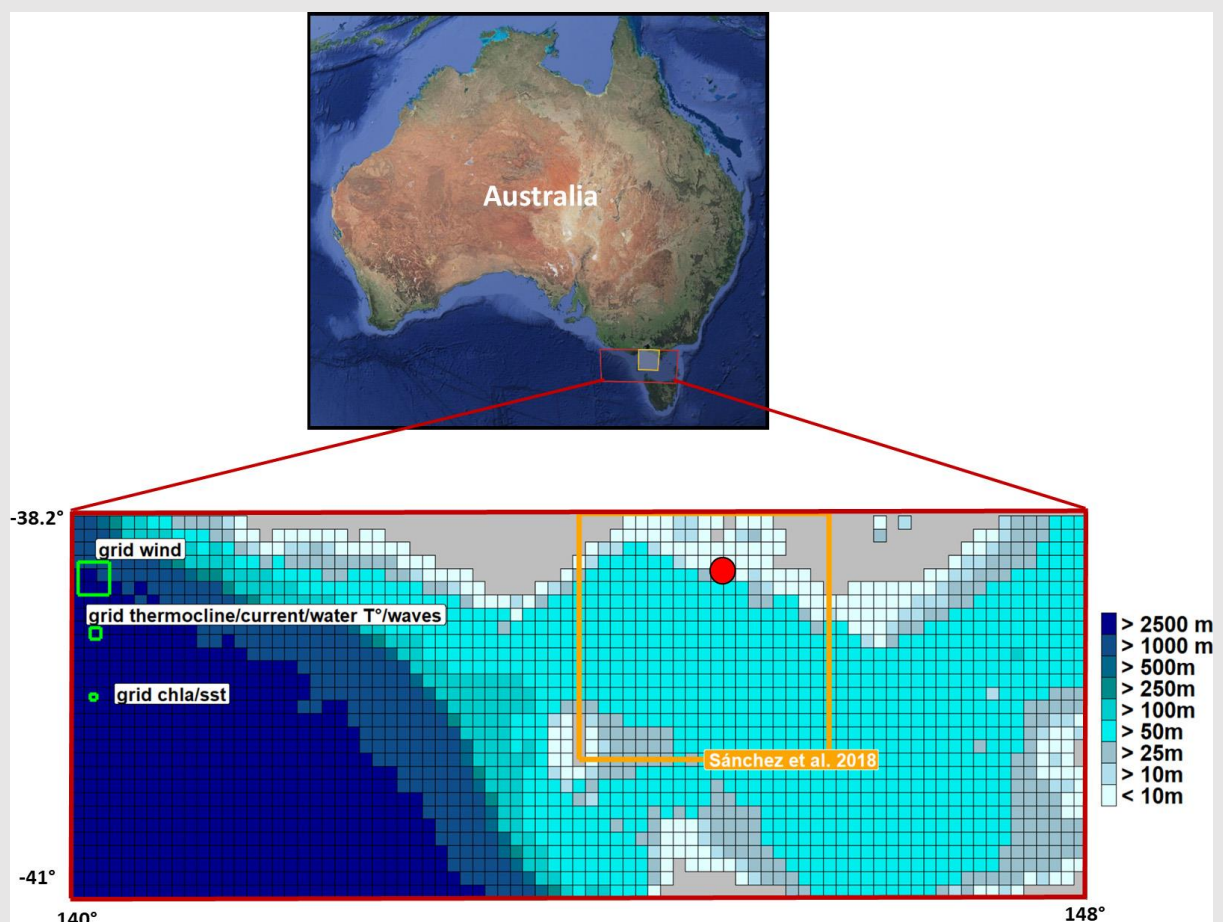
penguins per night and 20% fewer than the 2020 July average (923 penguins/night). We saw some of our autumn breeding burrows fail in July but those that persisted until the end of the month recovered well.

August update

The spring breeding season has begun! August saw an average of 1272 penguins crossing the beach each night at the Parade, which was 27% greater than August 2021 (989 penguins) and more than double of what was seen in 2020 (551 penguins/night). By the end of August, approximately 30% of study site burrows contained new eggs, while a small percentage also had chicks from the autumn breed ready to fledge – an exciting time in the penguin colony!

What can 19 years of following ~400 little penguins going for ~45000 foraging trips tell about little penguins?

Studying penguins at sea is hard! There are so many factors that can affect their lives at sea. Scientists usually study one or a couple of variables that may influence penguin behaviour at sea. But we may be overlooking some critical factors. In this study, we decide to go head-on with lots of different variables. We confirmed that breeding early is really good for penguins. But we found new things. The start of breeding is changing with climate change. And waves and currents can impact penguins' ability to find food. As ocean conditions are expected to intensify globally, we are watching carefully how they may impact our penguins in the future.



Foraging area of little penguins in fine scale to look several marine variables affecting the foraging success of little penguins

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KOALAS

A new enclosure at the Koala Conservation Reserve (KCR) is holding four koalas. The area is housing Chlamydia-free koalas, one male and three females, in the expectation that they will breed. One of the koalas in the enclosure, Vicky, is a bushfire survivor from Mallacoota who is unable to be released back in to the wild. The area is currently closed to visitors but should be open for public viewing in the next two weeks.

Wirra is a new addition to the koala population at KCR. He is a two and a half year old and has come from Healesville Sanctuary to add genetic diversity to our breeding stock. He is currently residing in the new enclosure.

Between March and June 2022, five healthy, KCR koalas were involved in a study on the effects of the mange treatment, fluralaner (Bravecto), of koalas. Mange is a fatal skin disease and occurs sporadically across the koala range but is increasingly common in koalas in Victoria. Bravecto has been effective in treating mange in wombats, but koalas metabolise medications very differently to wombats. Therefore, a pharmacokinetic study was undertaken to determine the correct dose rate for the treatment of mange in koalas. If successful in healthy koalas, the study will then progress to afflicted koalas in the wild. This study was undertaken in conjunction with the University of Sydney and Zoos Victoria. Preliminary results suggest that the medication will be effective and stay in the koalas' system for long enough to treat the mange.



Above photos: Roger the koala in a purpose-built pen for the Bravecto trial, (left photo) and Roger back into the Koala Boardwalk in June.

Naidoc Week – Planting and maintenance day at KCR

The Community got together with Nature Parks on Saturday 9 July 2022 to plant, weed and tree guard for the establishment of a Meeting Place for the Aboriginal and Torres Strait Islander Community.

Tree guard maintenance and planting in the North Plantation has been undertaken at the KCR in June with 50 Swamp gums planted and fence repair works undertaken to reduce incursions and contractors began work on tree removal in the South Plantation. This will allow for new seedlings to be planted as well as encouraging epicormic growth that can be easily harvested for additional koala feed.

WILDLIFE REHABILITATION & MANAGEMENT

Wildlife Clinic

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Winter is generally a quieter time for rescues in the clinic, allowing for much needed maintenance like weed removal, deep cleaning and upkeep. Works also began on new small animal pens, which will increase our capacity to take in wildlife.

Testing of a new software 'Animal Care' went into full swing with real-time data. The new software will provide a simple and flexible way to manage wildlife rehabilitation in the clinic, which will reduce time spent entering, assessing and searching for daily records, with a strong focus on analytics and real-time updates.



Above photo: Nature Parks Ranger releasing penguin 'Mauve' after being cared for almost five weeks.

Mauve was originally from another shelter and was behind the eight ball and took his sweet time to moult! He was unable to be released as he was not waterproof so could not swim to catch his dinner, so we provided daily sustenance. After his catastrophic moult was complete, he was very happy to finally be sent back to his natural habitat.



Above photo: Boobook Owl

Sometimes our role in helping wildlife does not involve capturing wildlife, simply observing and monitoring their condition in the wild. A Boobook Owl was found sitting on a fence during the day, with some scattered feathers seen on the ground near a window. It was surmised that the owl may have become stunned after hitting the window. He was quite lively and glared at anyone approaching, so it was decided to leave him to recuperate, while the member of public that called would monitor overnight. By the next morning, he had 'flown the coop'.

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The wildlife clinic responded to 175 wildlife calls between June and August, to 28 different species across the Island.

Interns and students

Seabird Student – Julia Morais

Julia Morais will be working with Andre Chiaradia (Marine Scientist) along with other researchers at Monash University to understand the Little Penguin responses to environmental changes in an enclosed bay. Studying the birds at St Kilda in Melbourne's Port Phillip Bay, Julia plans to monitor their foraging behaviour and distribution via biologging, accelerometry and video footage as well as undertake isotopic dietary analyses in relation to daily environmental condition variations and yearly reproductive outcome.

This data will be used to identify the ecological features that contribute to this populations outstanding success. Understanding how Little Penguins use the marine environment and identifying the ecological features that contribute to population success is critical for resource management and conservation in light of the increasing effects of global climate change on marine life.



Four Work experience students helping with our Penguins

The Research Technical Officer – Penguins was thankful to have four students for a morning in June to help in the study site maintenance at the PPVC. This was important work to be able to identify and access burrows for research purposes and the group did an excellent job in repairing boxes, repainting numbers, digging out entrances and cutting back vegetation.

RESEARCH PUBLICATIONS

Research studies concluded and published in peer-reviewed scientific journals in this trimester:

Joly, N. B., A. Chiaradia, J. Y. Georges and C. Saraux (2022). "Environmental effects on foraging performance in little penguins: a matter of phenology and short-term variability." Marine Ecology Progress Series 692: 151-168.

Lewis, P. J., A. Lashko, A. Chiaradia, G. Allinson, J. Shimeta and L. Emmerson (2022). "New and legacy persistent organic pollutants (POPs) in breeding seabirds from the East Antarctic." Environmental Pollution 309: 119734.

Book chapter published on ethics and methods of research in marine mammals

Pirotta, V., R. McIntosh, R. Gray, H. Marsh and M. Lynch (2022). Marine Mammals. Wildlife Research in Australia. Practical and Applied Methods. B. Smith, H. Waudby, C. Alberthsen and J. Hampton, CSIRO Publishing: 465-477.

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Book chapter published on little blues: smallest penguin faces the big challenge

Chiaradia, A. (2022). Little blues: smallest penguin faces the big challenge. Penguins: The Ultimate Guide Second Edition. T. D. Roy, M. Jones and J. Cornthwaite, Princeton University Press.

Synopsis: Detailed, long-term analysis reveals how a local penguin population recovered and stabilized by shifting its prey base in the aftermath of the near-total collapse of sardine banks along the south Australian coast.

