



CONSERVATION UPDATE

DECEMBER 2021 TO FEBRUARY 2022

PREPARED BY JESSICA MCKELSON,
CONSERVATION MANAGER



HIGHLIGHT – CONSERVATION DOGS

Over the past decade, the use of conservation dogs is becoming more common to detect species in conservation programs from threatened species to invasive plants and animals during eradications programs.

In 2007, Nature Parks introduced conservation dogs ‘Sam’ and ‘Jazz’ to assist with the detection and removal of last foxes from Phillip Island (2015) and have since been used extensively to investigate public reports of foxes and undertake routine surveys across known location of the Island. In recent years, Sam and Jazz have also been used to assist other conversation programs across the state including Tiverton Sanctuary near Mortlake, the Otways National Park, the Grampians and Coranderrk Sanctuary near Healesville.

Following the success of the fox detection dogs, Nature Parks have recently introduced Milly (Jagd Terrier) and Marbee (Border Terrier) to assist with protecting threatened species and other wildlife from the threat of feral cats. They are both trained to track fresh scent of feral cats in the landscape and indicate on feral cat scat (droppings)

At just over 2 years old Milly and Marbee have completed their formal training however they are still undergoing their “apprenticeships” and will continue to learn on the job as new experiences arise and they mature.



Above photo: Milly (left) indicating on a feral cat scat and Marbee(right) locating a feral cat skin during training

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KOALAS

Miso, the newest koala joey at the Koala Conservation Centre is estimated to be 12 months old and starting to show signs of becoming independent, often spending the day in a separate tree from mum. Miso's mother is Ottie, a koala rescued from the Otways, and Roger, a bushfire- survivor from Mallacoota. A special visit from a family who named Miso and is from Mallacoota, recently visited the Koala Conservation Centre. The family had a wonderful time on Phillip Island and were able to enjoy watching Miso and the other koalas.

The next koala health check mid 2022, Miso will be caught and microchipped and given an ear tag to allow identification from the ground. She will join the breeding program in the near future when she reaches sexual maturity at around two years of age.



Above photo: Miso, and Miso and her mother Ottie

A pilot study in to the pharmacokinetic properties of mange treatment, Bravecto, has begun at the KCR. One koala, Johanna, is being treated and monitored for a month, with four more koalas to be added in the coming months. This involves taking blood samples, scat counts and behavioural observations. The effect of the drug on healthy koalas will determine whether it is then suitable to be used in wild populations of koalas that are effected by mange. Mange, caused by the mange mite, is a fatal skin disease and occurs sporadically across the koalas range, but is increasingly common in koalas in Victoria. Nature Parks is facilitating this study alongside ZoosVic and the University of Sydney.

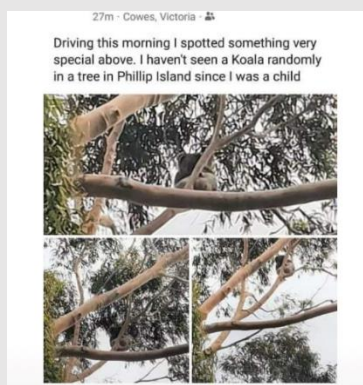
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Above photo: Renovations underway at the pens to house the koalas

On a sad note, the male koala that had been observed residing in Cape Woolamai and Newhaven was hit by a car recently, and after vet care and attempts at rehabilitation, he did not survive. However, another sighting of a male koala on Cowes-Rhyll road made the rounds of social media recently. Reports of wild koalas on Phillip Island to the Nature Parks are greatly appreciated.



Above photo: Member of the public sent in a Koala residing in Cape Woolamai

Works around the KCR have included laying recycled concrete on the North Plantation tracks. The plantations are used to source koala feed daily and the new tracks will allow greater access all year round.



Photo: Completed new tracks

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BUSH STONE-CURLEWS

Bush Stone-curlews were found on Phillip Island (*Millow*) until the 1970s, with foxes being identified as a key threat. Now that Phillip Island (*Millow*) is fox-free, there is an opportunity to bring species like the Bush Stone-curlew back to the local ecosystem.

There are four Bush Stone-curlews on public display in two aviaries at the Koala Conservation Reserve for the purpose of public education, community engagement and eventual breeding to contribute to recovery efforts on Phillip Island (*Millow*) and in south-east Australia with project partners. Three of these birds come from Moonlit Sanctuary in Pearcedale and one is from the Nature Conservation Working Group in NSW. Volunteers have been an integral part of establishing these public displays and we acknowledge their significant contributions to caring for these special birds.

The Nature Parks encourages people to come and meet the Bush Stone-curlews, learn a bit more about their plight and how they can act to protect them.



Above photos: Bush Stone-curlews and the two aviaries at the KCR

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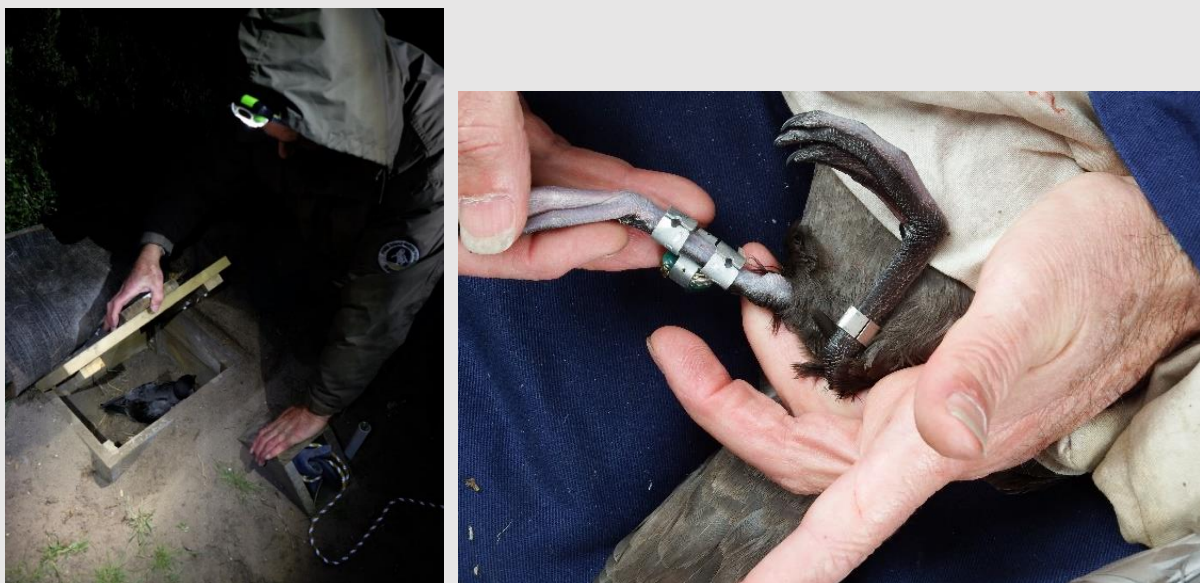
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SHORT-TAILED SHEARWATERS

Every year around 1.4 million short-tailed shearwaters (also known as biyadin or muttonbirds) migrate from the Bering Sea near Alaska back to Phillip Island to breed. They fly 16,000 km in less than 3 weeks! Normally, their return in late September is very predictable. This breeding season they arrived on schedule, and in good numbers. However, in some of the preceding years the birds arrived back late, almost missing their opportunity to mate and lay their single egg. The reason for these delays is a mystery, but probably relates to the need to find enough prey to fuel up for their epic journey.

The Nature Parks and Victorian Ornithological Research Group (VORG) continued our long-term research into the breeding success of the birds as well as tracking their movements around the world. So far, this breeding season is shaping up well. We recorded the second highest number of eggs laid in the artificial nesting boxes since we started this program 12 years ago. Only the 2020-2021 breeding season produced more. About 81% of those eggs successfully hatched in January and are now fluffy chicks. This bodes well for a good crop of fledglings that are due to depart our shores in late April and early May.

In December, while birds were incubating their egg, we also were able to attach 25 light-sensitive geolocator trackers, tiny recorders attached to the birds' legs. When the birds return after their foraging and migration trips at the end of 2022, or even subsequent years, the devices will reveal the timing and position of their movements around the world. From this we hope to better understand how changing environmental conditions influence these movements, and by extension, how it influences their breeding success and the occurrence of mass mortality events.



Above photo: light-sensitive geolocator trackers

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HOODED PLOVERS

Hooded Plover Breeding Season Update

So far so good for the 2021/22 Hooded Plover breeding season on Phillip Island (Mallow)! Up until the most recent nest was found (13/01/2022), the Nature Parks Rangers had observed a total of 48 eggs which resulted in 17 chicks (35.4% success). Although the number of eggs laid was well down on previous years, the hatch rate had increased and we have seen a good number of chicks. As for fledglings, there have been 3 chicks successfully fledge so far with 7 more chicks at 3 locations well on their way. The fledglings so far seem to be over achievers and leaned to use their wings faster than we typically observe – which was great for the chicks but not for our team trying to band them.

Below is a glimpse of Jon, Mitch and Conservation intern Skye, banding and flagged a chick from Anchorage Rd, that we hope will fledge later this month. The chick is now known as 'Yellow 93' 😊. More work is underway to identify the reasons for nest failures at beaches on Phillip Island.



Above photo: Banding of Hooded Plovers

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AUSTRALIAN FUR SEALS

Jessalyn Taylor, PhD Candidate working on the vessel noise impacts at Seal Rocks, completed a four day field trip after Christmas to measure, weigh and sample 100 pups on Seal Rocks to assess their health and body condition. She also completed the second main component of her research, the vessel noise playback experiments from KinaDiving charter boat – we look forward to seeing the results of her experiments and whether there were responses from the fur seals to the boat noises. During her PhD Jessalyn will compare vessel visitation, impacts of vessel noise and pup health at Seal Rocks during the busy tourism season in summer with the colder and less busy time in late autumn-winter.



Above photos: Jessalyn Taylor (PhD) at Seal Rocks on Kina Diving charter board performing playback experiments to test effect of vessel noise on the fur seals.

'Bins on Boats' Final Report and paper

Phillip Island Nature Parks partnered with the South East Trawl Fishing Industry Association (SETFIA) and RMIT University Behavioural Scientists on the '*Bins on Boats*' project. This project gave custom built bins to commercial fishing vessels with the goal of retaining more rubbish onboard whilst also reducing the number fur seals entangled in the ropes and nets.

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The new bins more than doubled the amount of rubbish returning to shore on fishing vessels from an average of 31 litres to 66 litres per vessel including more net and rope fragments. We are optimistic that the project has already contributed to a reduction in seals entangled in trawl net fragments at Seal Rocks with fewer entangled seals observed in the material, but we need more data to be sure.

The Report can be found here – <https://www.penguins.org.au/conservation/conservation/environment-news/> and the paper published in Conservation Science and Practice by Kusmanoff et al. (2022) is listed with the publications below.



Above photos: The 'Bins on Boats' custom-made bins provided to SETFIA vessels domiciled in Victorian waters

PEST CONTROL

Foxes

Reports of fox sightings at Oswin-Roberts Reserve and Silverleaves were investigated with detection dogs and cameras however no evidence has been found to date.

Fox baiting in the mainland Buffer Zone concluded in December 2021 with an **estimated 24 foxes removed.**

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Fox detection dog surveys in East Gippsland recorded 152 fox scats over 80km of transects. These scats were collected and will be genotyped to provide an estimate of the fox population, and further analysed for prey species to determine their impact on threatened species in key areas.



Above photo: A fox captured on camera at Anderson Peninsula near San Remo in December 2021

Feral cats

A total of 18 feral cats were trapped over 1899 trap nights (number of traps x number of nights) in areas including the Nobbies, Observation Point, Rhyl Inlet, and Long Point bringing the total to 57 cats for the year.

Camera monitoring has revealed at least 4 adult feral cats and kittens in Oswin Roberts Reserve recently. This information will be used to estimate feral cat densities at key sites across the island, and more immediately, will guide cat control efforts in the coming weeks.



Above photo: Feral cat on camera in Oswin Roberts Reserve

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COASTAL AND WOODLAND MANAGEMENT

World Wetland day- Wednesday 2 February 2022

Phillip Island boasts several internationally significant wetlands covering most of the islands' Northern coast. Fishers Wetland (near Churchill Island), Swan Lake or Rhyll inlet where you can enjoy an array of birdlife and all the serenity nature has on offer. These are wetlands of international significance.

More information can be found on our website here -

<https://www.penguins.org.au/index.php/conservation/conservation/conservation-programs/wetlands/>

FLORA AND FAUNA

Mitch Burrows, Field Services Officer and Susan Spicer, Environment Ranger have both been featured in this week's advertiser. Mitch with his book, "A Field Guide to the Native Flora of Phillip Island." a great initiative and Susan for discovering not one – **but three** – never previously recorded plant species on Phillip Island. See the full stories here <https://www.pisra.com.au/news>.



Above photo: Thelymitra flexuosa (Twisted Sun-orchid)

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SOUTH COAST/CAPE WOOLAMAI



On Sunday 20 February Sunderland Bay/Surf Beach Coast Care Group and Turn the Tide Volunteers completing Marine Debris collection on our beautiful South Coast Beaches. Sixteen volunteers covered the stretch of coast from Sunderland Bay through to Forrest Caves.

They collected 6.5 kg of rubbish. A fantasic effort!!

SUMMERLAND PENINSULA WEED CONTROL

Kikuyu weed control works have been undertaken by contractors and PINP rangers. They have completed this weed works from the Nobbies back through to Cowrie Beach and along the South Coast of the Summerlands Peninsula. Kikuyu is one of our highest threat weeds which smothers native plant species, forms inpenetrable landscapes that our ground nesting birds are unable to move freely through and nest in. Kikuyu also impacts biodiversity values.



Above photo: Summerlands Peninsula

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SUMMERLAND PENINSULA

The Summerland Peninsula has been featured in a prestigious list of destinations published by the New York Times in January 2022. The list recognises places that 'give back' and where travellers can be part of the solution. Check out https://www.nytimes.com/interactive/2022/travel/52-places-travel-2022.html?smid=ig-nytimestravel&fbclid=IwAR0uWY9mxN3TqdqrwnafUOnxn5CEc4gKHz_oH1U0bhvjHvkmvwlawj8xvY

PENGUINS

The research team has completed research on our incredible little penguin colony, published in the scientific journal Ecological Monographs, a top ecological journal from the Ecological Society of America. The story was featured in the Herald Sun in January 2022.

Over two decades, the study tracked 463 Little Penguins across 19 breeding seasons! The study revealed that the penguins prefer to pair with partners in the same age bracket. Age is an important factor in penguins' lives. Penguins gain experience with age and improve their breeding performance from age 2 to 5 by laying earlier and foraging better. But 'low quality' penguins who aren't successful foragers or breeders disappear earlier, so only good individuals survive at older ages. When they reach age 16, individual performances start to decline: they lay later, bring back less food from their foraging trips, change partners and nests more often, all of this resulting in fewer chicks being produced.

SATURDAY, JANUARY 1, 2022 heraldsun

Little things matter

Life study big deal for penguins

EXCLUSIVE
MITCH CLARKE

AN Australian-first study has uncovered the daily movements and breeding behaviour of Phillip Island's world famous penguin colony.

The study, spanning almost two decades, tracked 463 little penguins across 19 breeding seasons from 2000 to 2019.

Each penguin was micro-chipped and crossed a weigh-bridge – dubbed PenguinLink – nightly as they came in from the ocean.

With more than 40,000 trips monitored, researchers were able to see who had come home, when they had arrived, how much they weighed and how much they'd eaten.

The data enabled researchers to build a clear picture of the penguins' lives for the first time, as individuals and a colony.

The most recent population count suggests Phillip Island's colony has reached about 40,000 little penguins, with 4435 birds making the journey from the ocean to their burrows late last month – beating the previous high of just under 4300 in November 2016.

The study found penguins reach peak breeding at middle age, around eight years old, and prefer to pair with partners the same age. Each bird gains experience with age and improves its breeding performance from ages two to five by laying earlier and foraging better, but it's also a survival of the fittest to get there.

When penguins reach age 16, individual performances begin to decline, they lay later, bring back less food, and change partners and nests more often, resulting in fewer chicks being born.

Nature Parks marine scientist Andre Chiaradia, who worked with Dr Claire Saraux from the French National Centre for Scientific Research, said little penguins were elusive and had been difficult to follow consistently over time.

"To work around that we've used a kind of tollgate in the penguin world," he said.

Dr Chiaradia said having a picture of individual penguins' lifespans would inform conservation efforts.

The study will be published in the Ecological Monographs, part of the Ecological Society of America.

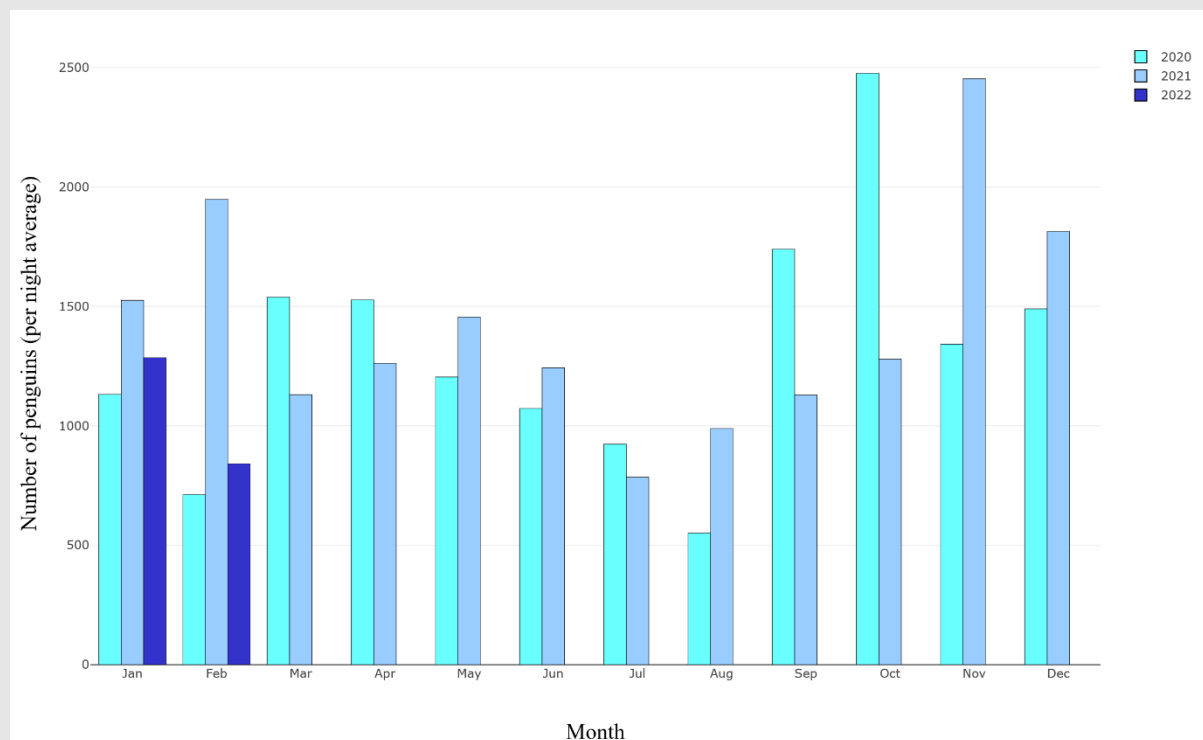
mitchell.clarke@news.com.au

Above photo: Study on penguins featured in the Herald Sun

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February Penguin Parade counts



The average number of penguins crossing the beach at the Penguin Parade in February 2022 was 842 penguins, a decrease of 56% from 1948 penguins recorded in February 2021.

In February, approximately 11% of the penguins at the Penguin Parade were still breeding. These are second clutch nests that have probably failed earlier in the season during incubation. We see an increase in moulting penguins crossing the beach and burrows, with an expected moulting peak in March.

Middle Island Volunteer penguin research team

On 4 December, members of the Middle Island volunteer penguin research team came to the Nature Parks for penguin handling and microchipping training, where a total of 56 penguins were microchipped. The Middle Island penguin colony appears to have declined down to 70 – 100 birds, and the group were incredibly grateful to receive so much training and support.

A Link to the Middle Island Project 2019 – 2020 Season Report. -

<http://www.warrnamboolpenguins.com.au/sites/warrnamboolpenguins.com.au/files/documents/Middle%20Island%20Project%20Season%20Report%202019-2020.pdf>

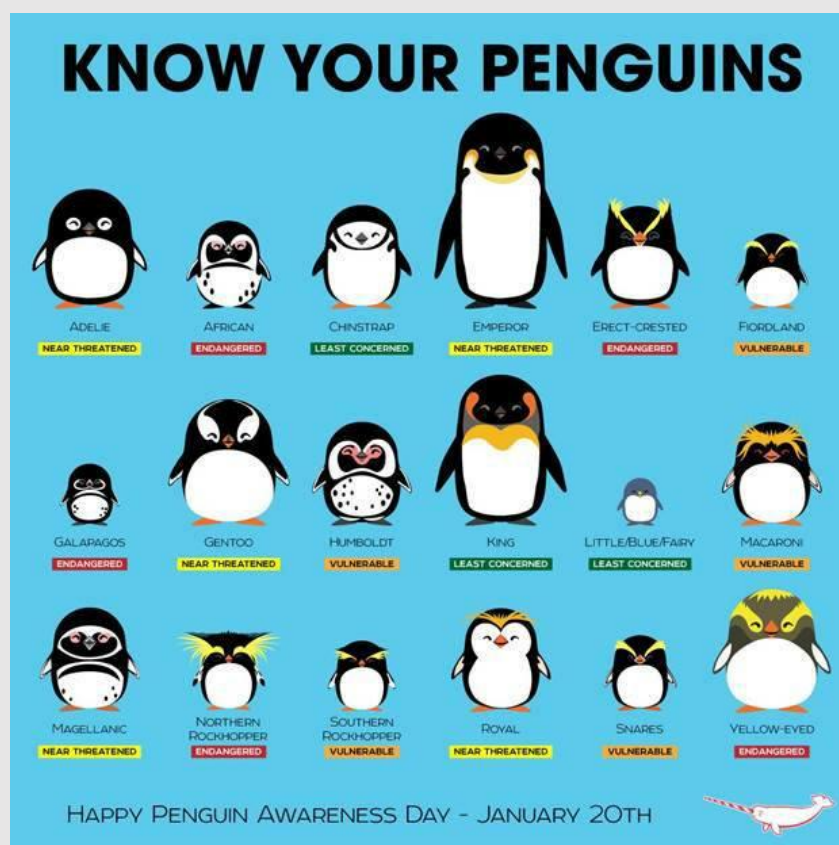
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Above photo: Middle Island volunteer penguin research team.

PENGUIN AWARENESS DAY – 20 JANUARY 2022



Celebrating Penguin Awareness Day, the IUCN Penguin Specialists Group produced a series of short stories to mark the day. The IUCN PSG provides scientific advice informing policy and engaging people in effective penguin global conservation action with a motto: Wild Penguin in Perpetuity! Find out these stories here <https://twitter.com/IUCNPenguin>

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[Penguin Red](#) – An article in the Herald Sun in January 2022 featuring recently released little Penguin Red. Well done to the team in the Phillip Island Nature Parks Wildlife Clinic!



Red was released back into the wild after care and rehab at the Phillip Island Nature Parks' wildlife clinic, just in time to celebrate Penguin Awareness Day on Thursday.

RED SHAKES OFF HIS BLUES

GEORGIA LENTON-WILLIAMS

RED the rescued penguin has been released back to the ocean after a month recovering at Phillip Island Nature Parks' wildlife clinic. He was found malnourished and in poor health, but after receiving proper care and getting some swimming practice, he quickly became ready for life as a free bird again. The wildlife clinic treats about 150 little penguins such as Red each year, and there's no sign of business slowing down. The most recent population count found the number of penguins at Phillip Island's colony has reached about 40,000. Many of them found fame last year, with more than 25 million people worldwide watching the daily Penguin TV internet broadcast during Covid lockdowns. People can support the wildlife clinic by adopting a little penguin through the Penguin Foundation, or by making a one-off donation. By "adopting" a penguin, you become an "official penguin guardian" and receive a certificate, fact sheet and newsletters. For more information, or to donate and adopt, visit penguinfoundation.org.au/donate/adopt/little-penguin

Above photo: Herald Sun Article

LITTLE PENGUIN TRACKING SEASON

Tracking penguins provide crucial information on where penguins feed and how can we protect these areas in the future. In collaboration with the French National Research Council, we have been tracking penguins since 2010. In the 2021-22 penguin breeding season, 42 birds were deployed with data loggers throughout the three breeding stages. Incubation and Guard birds were sampled concurrently due to many nests hatching before deployment began. No loggers were lost, but two malfunctioned and decommissioned.

During incubation, birds travelled up to 100km from their start point at the Penguin Parade, foraging out in Bass Strait and along the southern coast as far as Walkerville (Figure below).

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One bird took an unusual long trip, spending 15 days at sea. This young male ended up in the waters near Torquay before returning to typical foraging grounds (see red area in the Figure below). Long trips are bad news for penguins. As this penguin did not return to land in time for his chicks to hatch, his partner abandoned the nest and breeding failure.

Guard birds, all of which spent only one day out at sea, travelled less than 50km from the Penguin Parade, foraging close to the southern coast of Phillip Island, towards Cape Woolamai. During Post-guard, birds spent a little longer at sea (Table 1) and travelled less than 70km from the colony, foraging in Bass Strait and along the coast near Kilcunda, Wonthaggi and Cape Patterson.

With the great job of our technical officers Meagan Tucker and Paula Wasiak, we were able to collect good quality data to accurately represent the core foraging ranges of Little Penguins from the Penguin Parade in the 2021-2022 breeding season.

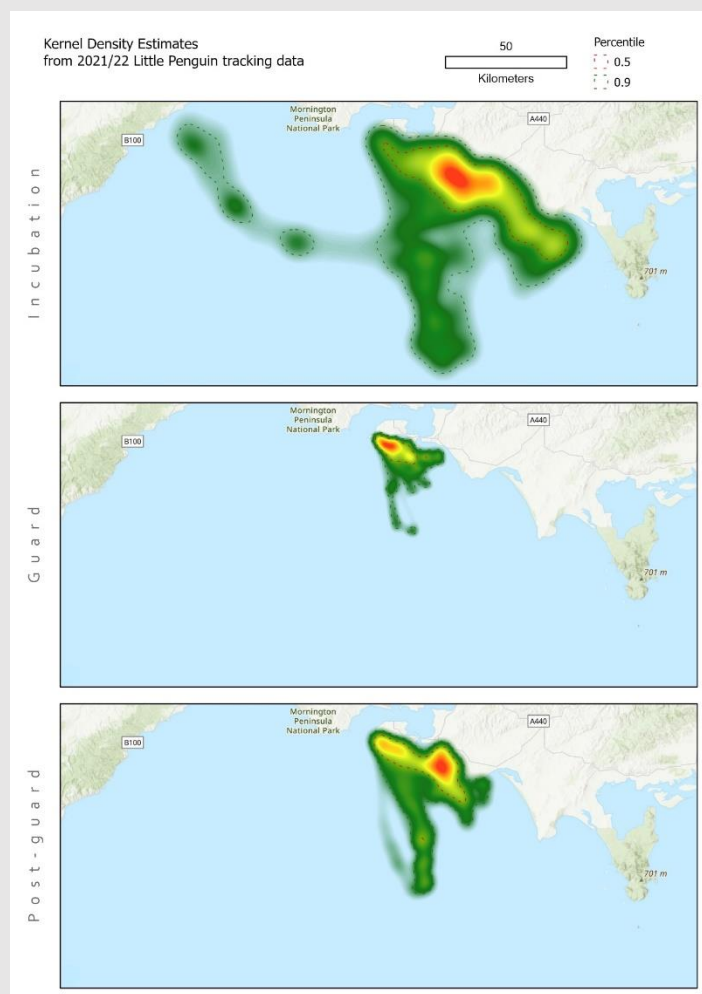


Figure: Penguin tracking foraging areas during the 2021-22 breeding season at three main breeding stages: incubation, guard and post guard

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WILDLIFE REHABILITATION & MANAGEMENT

December 2021 saw over 150 wildlife calls responded to, ranging across 33 different species.

A Lesser long eared bat was found heat affected at the Rip Curl store at Newhaven early December, after rehydration and a bit of tasty tucker (mealworms) the bat recovered and flew off instantly when released after dark back where he was found.



Above photo: Lesser long-eared bat

RESEARCH PUBLICATIONS

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

- Fulham M, McDougall F, Power M, McIntosh RR, Gray R (2022) Carriage of antibiotic resistant bacteria in endangered and declining Australian pinniped pups. PLoS ONE 17(1): e0258978. doi: 10.1371/journal.pone.0258978.
- Gardner BR, Stenos J, Hufschmid J, Arnould JPY, McIntosh RR, Tadepalli M, Tolpinrud A, Marendia M, Lynch M and Stent A (2022) An Old Pathogen in a New Environment—Implications of *Coxiella burnetii* in Australian Fur Seals (*Arctocephalus pusillus doriferus*). *Frontiers in Marine Science*. 9:809075. doi: 10.3389/fmars.2022.809075.
- Goldsworthy, Simon D., Page, B., Hamer, D. J., Lowther, A. D., Shaughnessy, P. D., Hindell, M., Burch, P., Costa, D. P., Fowler, S. L., Peters, K., McIntosh, R. R. et al. (2022). Assessment of Australian sea lion bycatch mortality in a gillnet fishery, and implementation and evaluation of an effective mitigation strategy. *Frontiers in Marine Science*. 9:799102. doi: 10.3389/fmars.2022.799102.
- Kusmanoff, A. M., McIntosh, R. R., Boag, S. and Bekessy S. A. (2022). 'Bins on Boats', a behaviourally-based intervention to curb marine pollution in Bass Strait, Australia. *Conservation Science and Practice*. e12659. doi: 10.1111/csp2.12659. <https://www.penguins.org.au/conservation/conservation/environment-news/>
- McIntosh, R. R. and Boag, S. (2021). 'Bins on Boats': reducing pollution from marine environment users to reduce marine waste and marine mammal entanglements. Final Report to the Victorian Government. Biodiversity Response Planning – Marine (BRPM010). Victoria, Australia, Phillip Island Nature Parks.
- Rendall, A.R., Sutherland, D.R., Cooke, R. and White J.G. (2022). Does the foraging ecology of feral cats change after the eradication of foxes?. *Biol Invasions* :10.1007/s10530-021-02718-x.

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Sarau, C. and Chiaradia, A. (2022). Age-related breeding success in little penguins: a result of selection and ontogenetic changes in foraging and phenology. *Ecological Monographs* 92(1):e01495.

For a list of our publications, visit our website

<https://www.penguins.org.au/conservation/research/publications/>

INTERNS

About the project

Sarah and Alex will be using a high-accuracy GNSS unit to map the centrelines of roads, tracks, trails, and paths that occur on (and sometimes nearby) Nature Parks land (GNSS [Global Navigation Satellite Systems] is the formal term for 'GPS' and includes the combined satellite constellations of GPS [USA], GLONASS [Russia], BeiDou [China] and Galileo [EU]). Along with the accurate location of the tracks, they will be recording information on the surface type, surface condition, wheeled access impediments, the easement width and height (for large vehicle access), hazards and more. When back in the office, they will be correcting the data and ensuring it is topologically correct and free of errors.

How the data is used will vary by location and project, but it will be endlessly useful to have a consistent, ground-truthed, accurate representation of the Nature Parks tracks. The data may be useful for:

- The development of Master Plans at our precincts
- A baseline dataset for reviewing accessibility in our Parks
- A resource for emergency preparedness
- A resource for fire operations planning
- A point of reference for guiding visitors
- Base layers for map production
- Potentially building into a networked dataset for navigation
- A resource for planning maintenance activities
- Generally answering questions like "how long is our public track network?" or "Can a wheelchair access that spot?", "Can a vehicle get down there?", "How much of our network is below average condition?" and more.

And what's a good project without a dashboard? [Here is a link](#) to a preliminary dashboard which is tracking the project and presenting the metrics of what they've recorded. Our current data suggests they have 128.7 kms to map, but I believe that value is at the low end. Of the 13.9 kms they've mapped so far in Five Ways and Oswin Roberts, we can tell the following:

- Over half (58%) is compacted gravel, while most of the rest (37%) is vegetated (typically grassed fire break).
- 84% is in 'Good' condition and 15% in 'Average' condition. <1% is below average or worse.
- 58% is publicly accessible.

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This dataset will be invaluable for managing the Nature Parks for many years and will save countless days of field work validating track networks in the future.

Alex Huggins

"Hi! I'm Alex and I'm one of the GIS Interns this summer. I'm in my fourth year of Environmental Science at Melbourne Uni and I'm really interested in working in fire ecology and spatial sciences. On the side, I love dogs, hiking and I also have a black belt in Taekwondo. If you see us out walking all the tracks on the Island please say hi!"



Sarah Clark

"Hi all, my name's Sarah and I'm a student at Deakin University going into my final year of a Bachelor of Environmental Science in Environmental Management and Sustainability. In my down time I like to read, paint and do photography, I also like cooking, surfing and hiking. I'm interested in forest ecology and natural resource management, as well as the use of GIS in these fields. I'm keen to meet more of you during my three month internship and hope to see you out in the field!"



Alan Cheung Alan Cheung recently undertook his internship with the Nature parks to identify the reasons for Hooded Plovers next failures at beaches on Phillip Island.