



HIGHLIGHT – THREATENED SPECIES

BUSH STONE-CURLEWS

The addition of a newly acquired male to the Bush Stone-curlew (BSC) breeding program in August, brought some additional challenges to pairing dynamics, as could be expected with captive breeding programs. Along with this, a wet winter saw some health concerns emerge regarding wet feet; however, through prompt diagnosis and appropriate treatment, this was cleared up.

It has taken time for the newly acquired male to settle in and is still adjusting. The female he is housed with has shown positive signs of breeding through displaying protective behaviour and sitting on a second clutch of eggs, after a failure with the first clutch early in the season. The next couple of weeks will show whether their breeding partnership has been successful.

The original male formed a tight bond with one female and displayed positive breeding behaviour early in the season. This pair laid two eggs early October and successfully hatched one chick on the 29 October, with the other being unsuccessful. As first-time parents, these birds have been extremely relaxed but attentive, always feeding and protecting the chick. This pair is doing so well, that they laid another clutch consisting of two eggs, when their chick was just three weeks old. The outcome of this clutch will be determined within the next two weeks. The chick continues to grow quickly and still receives much attention from its parents.

We have a great team of enthusiastic Curlew Custodian volunteers that shared in the excitement of the first chick. They have been extremely supportive of the BSC needs and have adjusted to the changes as needed. As of the end of November, we have recruited a further two volunteers that are also passionate about the future of BSC.



Above photos from left: five-day old chick with dad; 15 day old chick; family with 19 day old chick; chick hiding under mum; second clutch of eggs laid 21 November 2022;

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Above photos from left: chick hiding under mum; second clutch of eggs laid 21 November 2022; mum with new clutch of eggs and 23 day old chick.

HOODED PLOVERS

In our 31st year of Hooded Plover monitoring on Phillip Island (*Mallow*) we are tracking similarly to previous years: as of the 7 December 2022, we have found 12 nests, 28 eggs, and three chicks.

Phillip Island Nature Parks, supported by the Bass Coast Dog Owners Association, have launched the *Sharing our Shores* campaign, encouraging all residents and visitors to be mindful of protecting local wildlife on our beaches. While we are enjoying the peak holiday season, “please do your best, to help wildlife rest and nest” by actioning four key messages:

- Stay on paths and away from the dunes
- Keep your distance from wildlife
- Keep dogs on a lead and cats safe at home
- Take your rubbish with you



EASTERN BARRED BANDICOOTS

Eastern barred bandicoots (EBBs) are celebrating seven years on Churchill Island and five years on Phillip Island. The success of these programs have been instrumental in the improved status of the species on the mainland, going from Extinct in the Wild to Endangered.

This spring we continued the biannual monitoring of bandicoots on Churchill Island and Summerland Peninsula to check on the health of the populations. Again a team of staff and volunteers braved the wet weather to check traps which informs us about population density, breeding success, and health condition as well as the opportunity to collect genetic samples. The Churchill Island population remains relatively stable, though numbers are a little lower than previous sessions and their body condition was also poorer than on Summerland Peninsula where the numbers are also stable and their body condition has remained good. Lots of pouch young were observed, which is expected through winter and spring.

A key research program for the EBB Recovery Team is investigating the success of genetic management of the species. A Masters student led project has measured the genetic diversity of EBBs on both islands and found diversity has been maintained on Phillip Island but declined slightly on Churchill Island. The project also followed the fate of five males that were released on Churchill Island in 2021 to determine whether their introduction improved genetic sharing across populations; a key management strategy that aims to maintain genetic diversity in the species. These five males were hybrid mainland and Tasmanian EBBs carrying some unique alleles that could be detected in their offspring. So far none of the five males or any young that would be their offspring have been detected, suggesting that a different release strategy may be required to successfully integrate genetic diversity into an existing population. Further monitoring will be conducted to see if new animals emerge that were fathered by the hybrid bandicoots, and alternative release strategies are being explored.

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THREATENED FLORA

Good rain and warm weather mean it has been a good spring for annual ground flora such as orchids and the One-flower Early Nancy. Spring monitoring throughout the woodlands showed a number of Slender Pink Fingers and One-flower Early Nancy consistent with last year.

A few other interesting orchid finds include a White Finger Orchid, *Caladenia catenata*, a white form of Pink Finger Orchid, *Caladenia carnia* and a population of Bird Orchids, *Chiloglottis sp.* The white, Pink Finger and Bird orchids were found within the herbivore exclusion zone established several months ago in the woodland of Rhyll Wetland. This zone is also protecting approximately 80 young immature Currant Wood plants as well as many other young plants that are rarely seen in the greater woodland.



Above photo: Pink Finger Orchid, White form.



Above photo: White Finger Orchid.

Weed Control

Hand weeding of environmental weeds polygala and seaspurge continue to maintain the value of the Westernport Ramsar site. Removal of marram grass continues at Observation Point to enhance the habitat of nesting shorebirds which utilise the area.

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AUSTRALIAN FUR SEALS

The breeding season for the Australian fur seals began at the start of November and we are monitoring the number of pups and seals onsite using a drone that takes aerial photographs.



Above photo: Example image from the drone showing the Australian fur seals on Seal Rocks resting ashore and playing in the rock pools.

SHORT-TAILED SHEARWATERS

This year adult short-tailed shearwaters returned to the breeding colonies around the sandy coastlines of Phillip Island at the expected time in late September. The colonies were very busy indicating good numbers of birds readying themselves for breeding over the Austral summer.

Our long-term research into breeding success and movement patterns of the shearwaters continues in partnership with the Victorian Ornithological Research Group. With the support of the Bunurong Land Council Aboriginal Corporation we undertook maintenance of the 180 artificial nest boxes that are monitored each breeding season (see below).



Above photos: Short-tailed shearwater nest boxes being maintained in conjunction with the Bunurong Land Council Aboriginal Corporation

In October we visited some of these nest boxes to try to recover light sensitive geolocator tracking devices from birds that have just returned from their 16,000 km migration from the Bering Sea near Alaska. We recovered 20

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trackers and are eagerly processing the raw data to see where the birds have been over the last one to three years.

PEST CONTROL

Foxes

To protect Phillip Island's fox-free status, the second pulse of fox baiting in the mainland buffer zone has been completed with an estimated 29 foxes removed from the mainland buffer zone during the six-week program.



Image of fox investigating bait station in the mainland buffer zone near Punchbowl

Dogs

The training of the conservation-dog puppies maintains its steady progression. Scat detection and learning to navigate new environments including shearwater and penguin habitat continue. Flash showed off his newly acquired scat detections skills to 25 grade one students at Newhaven Primary School.

Feral cat detection dogs Milly and Marbee continue to search for cats across the island and have been successful in removing feral cats from reported sightings.

Fox detection dog Jazz continues to monitor areas of reported fox sightings but to date has found no fox signs on the island.

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Above photos: Image of Flash (left) indicating on a fox scat during training and Milly (right) during feral cat surveys.

Feral cats & Feral Cat Research

Trapping of feral cats continued with over 2,545 trap nights taking place between September and December across Forrest Caves, Smith Beach and YCW, Summerland's Peninsula, Newhaven Swamp, Fisher's Wetland and Pyramid Rock. To help protect migratory and shore nesting birds, 806 of these trap nights were completed on Phillip Island's Ramsar coast.

GIS Update

Several GIS projects have been prepared and applied in the field for data collection, analysis and mapping that included the colony wide penguin census on Summerland Peninsula and penguin burrow mapping for the proposed boardwalk development. To support the *Phillip Island Wildlife Plan* a GIS (Geographic Information System) project was established to conduct an audit of browsing enclosure coops located across Phillip Island. The coops are fenced areas that exclude browsing animals and allow the vegetation to grow without browsing pressure. Also, a new web map has been prepared to tag and map identified trees in the Koala Conservation Reserve.

Training has also been provided for two recently recruited field service officers, including GIS Orientation and field mapping skills in GIS tools.

COASTAL AND WOODLAND MANAGEMENT

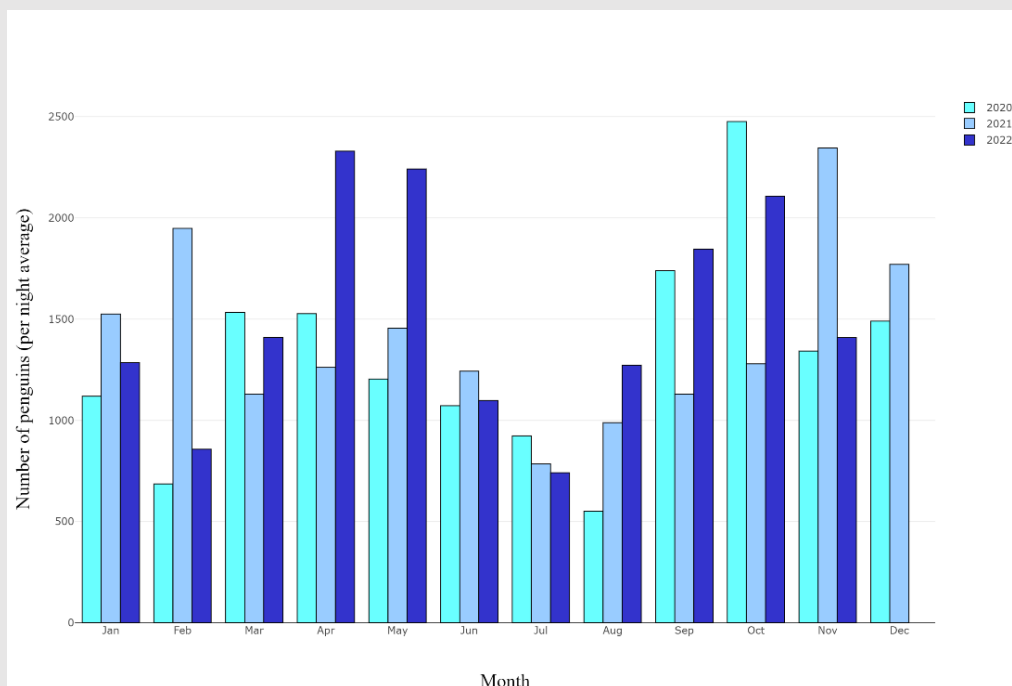
An extensive amount of weed control has taken place across the reserve network over the last few months. Both Rangers and external contractors have been very busy trying their best to keep up with thistles, Phalaris, kikuyu, bridal creeper, angled onion and many more invasive species that are thriving as a result of the high rainfall.

The annual slashing and vegetation management program that covers the maintenance of management vehicle and pedestrian tracks was severely delayed due to the wet conditions making most of our track network inaccessible to vehicles and machinery. Contractors finally started this work in late November but saturated soils will make this a challenging exercise over the coming months.

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PENGUINS



September update

Most active penguin burrows had penguins incubating eggs in September with a small percentage of chicks recorded. At the Parade, an average of 1,852 penguins crossed the Parade beach each evening, which was above the 2021 and 2020 nightly averages (1,129 and 1,739 penguins crossing per evening respectively).

October update

An average of 2,107 penguins crossed the beach each evening at the Penguin Parade during October. This is a 49% increase from the numbers crossing in 2021 (average of 1,279 penguins per night) and a 16% decrease from October 2020. On 22 October 2022, the Penguin Parade had a **record-breaking night**, with 5,440 penguins crossing Summerlands Beach within 50 minutes. These high numbers were attributed to the time of year with most penguins in the guard stage of breeding, good foraging conditions, and our ongoing conservation efforts.

Most of the penguin's breeding burrows were in the guard stage during October, where one adult stays with the chicks while the other forages out at sea, swapping nightly. Guard lasts for approximately two weeks, before the chicks are then left alone while both parents forage during the day and return in the evenings.

November update

An average of 1,408 penguins crossed the Parade beach each evening in November. This is a 50% difference to last November (2,435 penguins per night) but slightly more than in 2020 (1,342 penguins per night). November saw adult penguins travelling further for food during early chick rearing. This resulted in fewer return trips to the colony to feed chicks with several failed breeding attempts. Conditions have since improved and there is still time for the pairs that failed to attempt another clutch before the end of the breeding season.

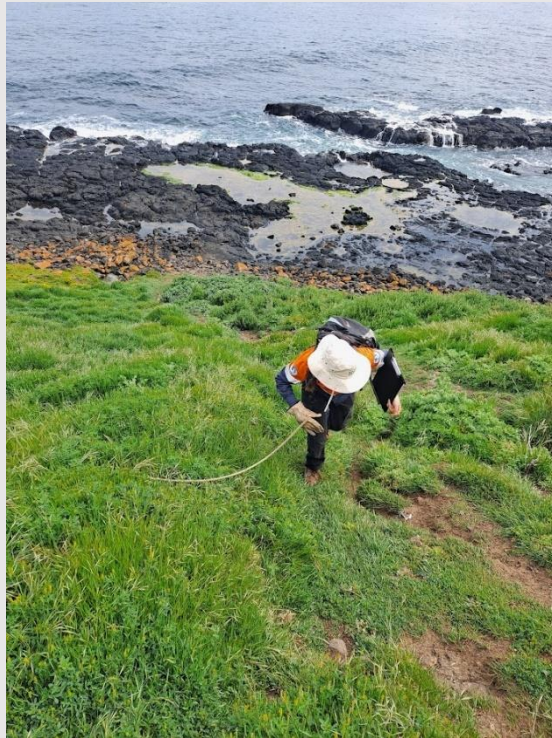
Penguin census

For four weeks over October and November, the 2022 colony wide penguin census occurred across the Summerland Peninsula. 78 transects around the peninsula were checked for the presence of penguins, as well as their inland extent. On transects where penguins were present, survey plots were established and checked

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for active burrows, with 317 burrows being recorded across 147 plots. These surveys will be used to estimate the density of penguins along each transect. Then, along with the inland extent and corrections from long term study sites, the census results will be used to estimate the total number of penguins on the Summerland Peninsula.



Above photo: Measuring out a survey plot

KOALAS

KOALA CONSERVATION RESERVE

Tree tagging and GIS mapping of the trees at the Koala Conservation Reserve has been completed. This helps to streamline the koala management and arborist works. The tagging includes trees planted in the previous 20 years, the last time the trees were numbered and tagged.

The annual koala health checks took place in October and all 16 koalas were caught and assessed. Weight, muscle condition, eye and teeth health and pouch checks were recorded and compared to last year's results to ensure the koalas are maintaining good health. All koalas received a clean bill of health.

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Above photo: Koala release post health check and wild koala release

In October, Rangers had a call out to a koala in a large Manna Gum in Teddy Bear Lane. The large male koala had an obvious wound around his left eye. He was caught and attended by the vets. After a successful surgery and 10 days of recovery in a holding pen, he was released into Oswin Roberts Reserve. Hopefully he will thrive there with lower traffic risk and ample food sources.

The Blue Gum Koala Trail has been completed and holds four koalas. It is a new breeding area situated towards the back of the woodland. The trail gives visitors a chance to view koalas that would normally be kept in back-of-house enclosures. This trail will open to the public early December.

WILDLIFE REHABILITATION & MANAGEMENT

Wildlife Clinic

Clinic staff responded to over 290 calls from September to November across 30 different species. The onset of Spring saw several callouts to baby birds across the Island, including penguin chicks that were affected by the adults returning less often. We have started implementation of new computer software, Animal Care, which will be used for tracking all animals that come through the clinic. Construction was also completed on further small mammal pens, which were used the day after they were finished!

Mid-September heralded the start of our annual work experience opportunity for university students, an opportunity for them to gain understanding and a hands-on experience working with wildlife. We also had a one-off opportunity for volunteers to come and help with maintenance and weeding through the clinic. They did an amazing job!

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Above photo; Volunteers weeding around the penguin pool

A kookaburra with a small break in its wing that was able to have surgery to pin the bone in place while it heals. He was in care in the clinic for four weeks, with a successful release in the area he was found.



Above photo: Kookaburra in rehabilitation after surgery

INTERNS AND STUDENTS

Intern Juliana performed a one-month research project on the hauled-out seals database. Juliana demonstrated that the phone app being used by the Conservation team has improved data collection compared to emailed reports because we get accurate GPS locations and more consistent information. The long-term data (1997-2022) was validated and mapped to show observation hotspots of seal reports around the island.

Campbell and Flavia will also be joining the Nature Parks Conservation team as interns for our 'Cameras in Conservation' program. Work will focus around wildlife monitoring cameras where the two interns will help to establish feral cat estimations and identify individual feral cats. The interns will also be assisting Environment Rangers to conduct feral cat trapping programs and monitoring programs.

Lucy has joined us to work on the beach nesting birds program with the Hooded plovers, on her first day she found the first chick of the season so she is off to a great start.

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RESEARCH PUBLICATIONS

Kliska, K., McIntosh, R. R., Jonsen, I., Hume, F., Dann, P., Kirkwood, R., and Harcourt, R. (2022). Environmental correlates of temporal variation in the prey species of Australian fur seals inferred from scat analysis. *Royal Society Open Science* 9:211723.

Malan, A., von der Heyden, S., Herron, S., Arnould, J. P. Y., Kirkwood, R., Matthee, C. A. (2022). Palaeoclimatic changes resulted in range expansion and subsequent divergence in brown fur seals, *Arctocephalus pusillus*. *Biological Letters* 18:20220285.

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? *Biological Invasions* 24, 1413-1426. doi: 10.1007/s10530-021-02718-x.

Bryant, S. L., Bower, H., Bower, S., Copley, P. B., Dann, P., Matassoni, D., Sprod, D., and Sutherland, D. R. (2022). Island partnerships building collective impact. *Pacific conservation biology* 28, 303-314. doi: 10.1071/PC21021