



SHORT-TAILED SHEARWATER CONSERVATION REPORT **'RESEARCH, RESCUE & COMMUNITY IMPACT' 2023**

Phillip Island
**NATURE
PARKS**

ANNUAL UPDATE 2022-23

penguins.org.au

Millowl is the Bunurong name for Phillip Island. It is part of the country recognised as being the traditional land and waters of the Bunurong and is steeped in cultural history dating back tens of thousands of years. 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, present and emerging.



Biyadin is the traditional name for short-tailed shearwater in Bunurong language.

Also known as mutton birds, they have cultural significance for the Bunurong, the Traditional Owners of Millowl.

The Biyadin is a valued food source for Bunurong, the birds have very oily flesh from a crop of nutrient rich oil in their necks that helps sustain them on long trips. The oil also powers the chicks' growth and development when they are left behind in the colony. Bunurong believe the oil has medicinal qualities for ailments such as arthritis and they also collect the eggs as a source of protein.

Introduction

The short-tailed shearwater (*Ardenna tenuirostris*) is a mid-sized migratory bird, and one of just a few that come to Australia to breed. Short-tailed shearwaters travel from the Southern to Northern Hemisphere each year, migrating from Australia towards Japan, then across to the Bering Sea and Chukchi Sea to the north of Alaska. They manage this massive 16,000km journey in under four weeks, all before returning to our shores on Phillip Island (Mallowl).

When shearwaters arrive at their breeding colony located somewhere around Australia's southern coastline, they begin by renovating past nests and building new ones, before finding a mate. Phillip Island welcomes approximately 1.4 million birds annually with colonies found predominantly along Summerland Peninsula, Cape Woolamai and the southern coastline of the island. The breeding pairs lay just one egg in late November. The chick hatches in January and the parents share the duties to forage in the Southern Ocean and return to the colony to feed their growing chick. In late March and early April the adults depart for a final foraging trip near Antarctica before migrating directly to the Northern Hemisphere.

Meanwhile, the chicks that are left behind convert the rich food they've been fed into flight muscles and adult feathers in readiness to fledge in late April or early May. Once they take off on their maiden flight to the Northern Hemisphere, they may be guided by the adults that are in their migration north between Australia and New Zealand at the time, but how they navigate is unknown.



Threats

SCIENCE IN PRACTICE TO REDUCE LIGHT POLLUTION AT PHILLIP ISLAND

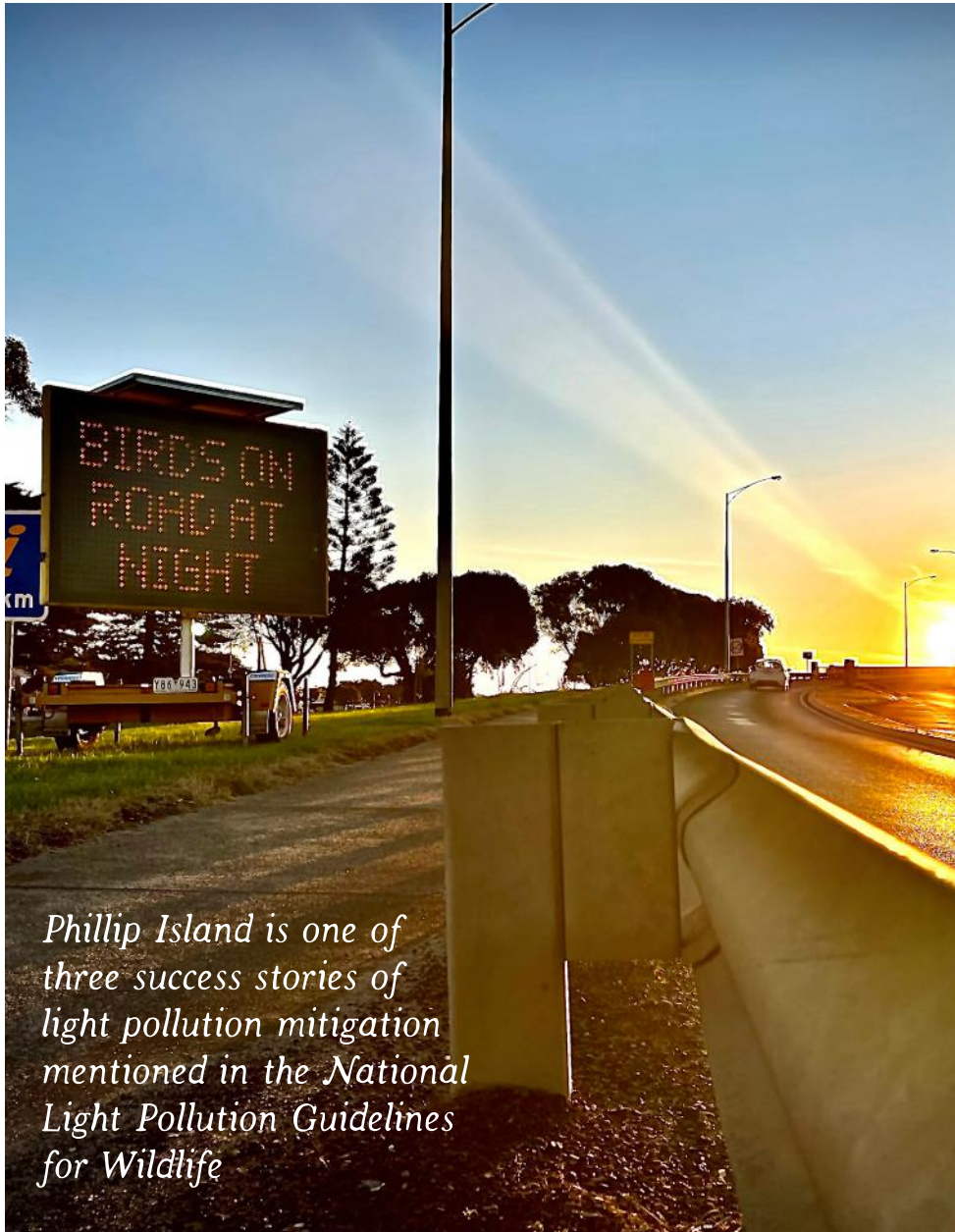
Today, light pollution is rising globally, fading the availability of natural dark environments essential for the wellbeing of nocturnal organisms. Among the significant ecological issues caused by artificial lights, mass mortalities of animals stand out as the most severe consequence.

Among the most vulnerable are seabirds, with shearwaters facing the greatest risk. The main issue stems from fledglings being attracted to artificial lights during their initial flights to the sea, putting them at risk of collisions with illuminated structures and becoming prey or road casualties if grounded.

The prevalence of light pollution on the island is concerning since most wildlife thrives under the cover of darkness. However, efforts to reduce light pollution and improve traffic management aim to mitigate the harmful impact of artificial lights on shearwaters.

In a series of studies by Phillip Island Nature Parks exploring the negative effect of artificial lights on shearwaters, light pollution is now at the forefront of negative factors disrupting the delicate balance of ecosystems. Our scientific findings have been shared with local authorities, road agencies, and state organisations. Phillip Island is one of three success stories of light pollution mitigation mentioned in the [National Light Pollution Guidelines for Wildlife](#). The Victorian State of Environment report added light pollution as one indicator due to the awareness of light pollution's negative effect on shearwaters.

When artificial lighting is necessary, we recommend keeping it dim and time-restricted to minimise its adverse effects on wildlife and their natural habitats. This information has prompted a successful campaign with residents and local businesses to reduce light usage during the critical time of shearwater fledging. Some planning applications near shearwater colonies have adopted these recommendations, leading to practical conservation outcomes.



Phillip Island is one of three success stories of light pollution mitigation mentioned in the National Light Pollution Guidelines for Wildlife

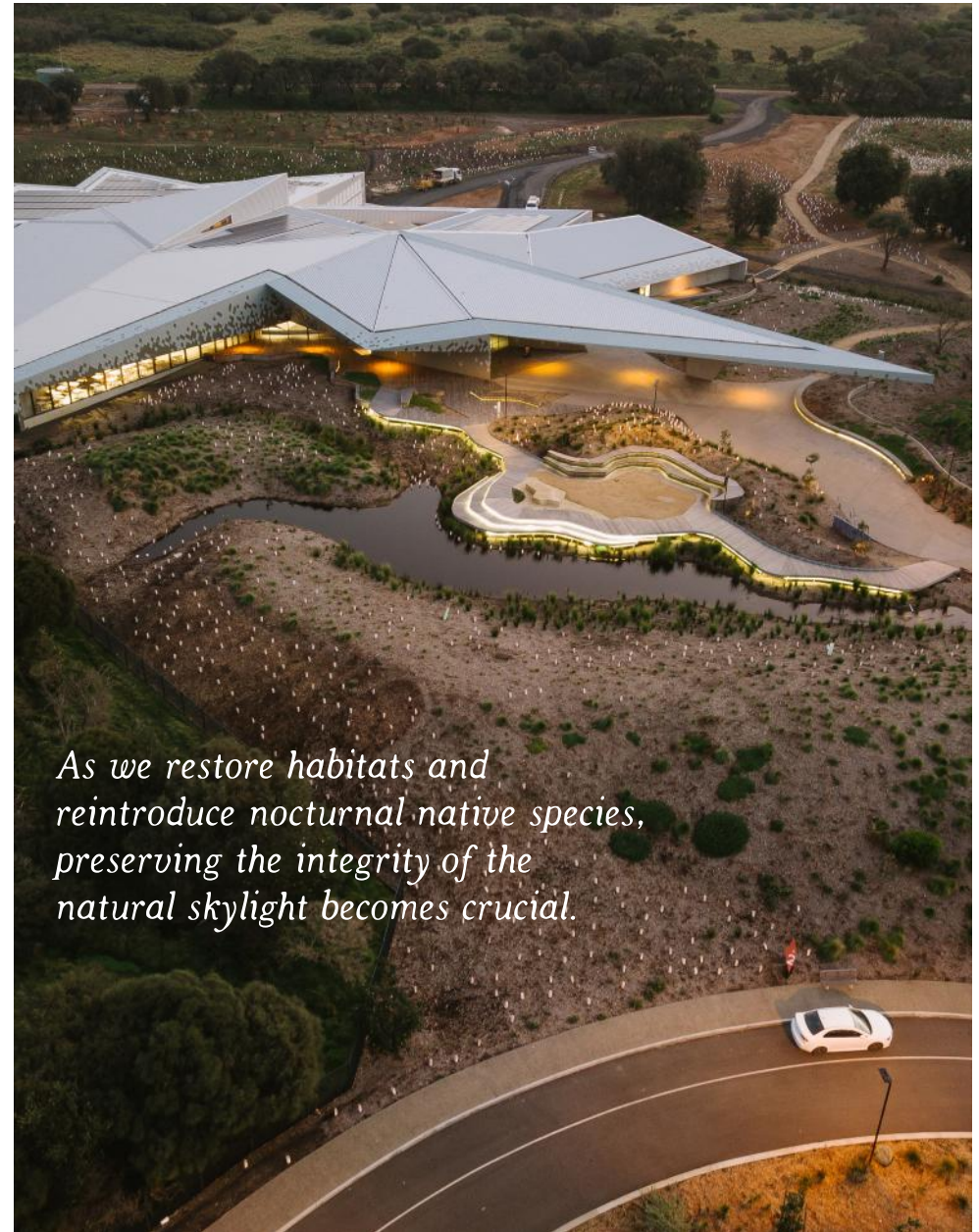
For instance, the new roundabouts on the Phillip Island Road, the Penguin Parade masts, and the recently constructed Penguin Parade Visitor Centre have all been designed to minimise the disruption caused by artificial lights on penguins, shearwaters, and the overall wildlife that resides on the island.

As we restore habitats and reintroduce nocturnal native species, preserving the integrity of the natural skylight becomes crucial. Fledgling short-tailed shearwaters are attracted to lights on the roads, whether from traffic, flood lights or street lighting.

Light pollution can disorient the young birds often causing crash landings on roads. As a result, they become a road hazard with motorists swerving to avoid live birds, as well as dead birds leaving an oily slick that makes the roads slippery. The smell of the pungent oil has the potential to attract foxes across the bridge, so the removal of the shearwater roadkill is vital in mitigating the risk of re-entry of this pest species onto Phillip Island. As a result, the Nature Parks has been coordinating a rescue and removal program since 1999. This includes a Traffic Management Program to promote road safety and make motorists aware of areas of high impact zones. The community is also encouraged to report sick or injured wildlife to Nature Parks Wildlife Rehabilitation Centre. Approximately 8,000 birds have been rescued from the roads since this program was initially established, promoting road safety and a second chance of fledging for those birds that can be re-released.

The 'Dark Sky So Shearwaters Fly' campaign was launched in 2022 by the Nature Parks, and aims to educate and encourage residents, businesses, and visitors to support the species by reducing light pollution. The key migration pathways across Phillip Island and San Remo are reviewed annually for light pollution and key areas are targeted to reduce the impacts. For example, lights are turned off across the beach foreshore, the Phillip Island bridge lights and specific areas of community lighting from shops and residents are turned off during the campaign. The key call to action is to ask our community to switch off outdoor lighting during the migration period, which helps give the fledging birds the best chance to migrate.

All these actions help support the rescue program, educate our community and visitors on light pollution, and aim to improve motor safety for everyone.



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Research to inform conservation action

To understand the influence of environmental changes on short-tailed shearwaters, a key predator in the world's marine environments, the Nature Parks, in partnership with the Victorian Ornithological Research Group, undertakes research into the seabird's attendance at the breeding colony each summer, their breeding success from year to year, and track their movements around the world. To do this 180 artificial nest boxes have been established, which can be inspected for nest contents and accessing birds without potentially collapsing the burrows. As these are established in a culturally significant area, the Bunurong Land Council Aboriginal Corporation helps oversee maintenance of the nest boxes each year while the birds are away.



Shearwaters have a profound influence on the marine ecosystem but are vulnerable to changes in food supply and conditions. Mass mortality events that are seen in some years are a reminder of how this long-lived species could suddenly decline under adverse conditions. This research being undertaken will help to understand the environmental conditions that affect the globe-trotting movements of these seabirds, their resulting breeding success, and the cause of mass mortality events.

2022-2023 Breeding Season results

The breeding season started well, with an egg laid in **68% of the 180 artificial nest boxes** that are monitored each year.

The third highest breeding participation rate since this program began in 2010.

Of these eggs, **80% hatched** and were fluffy chicks when the boxes were revisited in February.

A final check in April when the chicks were just about ready to fledge, embarking on their maiden flight away from the colonies, **52% of boxes were occupied, the second most productive season recorded.**

The chicks were in good condition, better than in many previous years, so thus **we predicted higher than average fledging success.**

This season **the team managed to recover 27 light sensitive geolocator tracking devices** that birds have been carrying for anywhere between 10 months to three years, our best recovery yet.

We also deployed 25 more devices with the hope of recovering them next breeding season.

Analysis of these trackings is underway and allows us to follow their extraordinary foraging and migration movements from one end of the earth to the other and investigate how changing environmental conditions are influencing their movement patterns and breeding success.



Rescue Results 2023

PATROL AND TRAFFIC

The Nature Parks has been actively rescuing short-tailed shearwaters from the roads of Millowl since 1999, to help reduce the impact of road hazards for motorists and to discourage foxes to cross the bridge looking for roadkill. Every year teams of rangers provide traffic management in areas of historically high impact and patrol specific areas of the island, removing both deceased birds from the road, as well as live birds. Rescued birds are placed back into burrows in the colony so they can have a second attempt at a safe take-off. Traffic is also slowed to 40km per hour in certain areas.

The local community is reminded to slow down and look out for these birds on the road, observe changed traffic conditions, and keep an eye out for rescuers on the roads at night.

TRAFFIC MANAGEMENT SIGNAGE

In 2023 there was a range of traffic management signage in place from 18 April to 8 May. This included a large advertising trailer, four VMS (Variable Message Signs) electronic signs along the main road of the island, reduced speed signage approaching the bridge to the island's mainland and the Penguin Parade, shearwater awareness road signage at Surf Beach and Cape Woolamai and campaign signage at the Newhaven Visitor Centre. Road signage to reduce speed across the bridge was only erected on nights of high wind.

STREETLIGHTS/BRIDGE LIGHTS

The Phillip Island bridge lights were turned off on two occasions, from 26 to 29 April and 2 to 8 May to coincide with high wind events.

This year also saw streetlights at the Penguin Parade turned off between 23 April to 8 May.



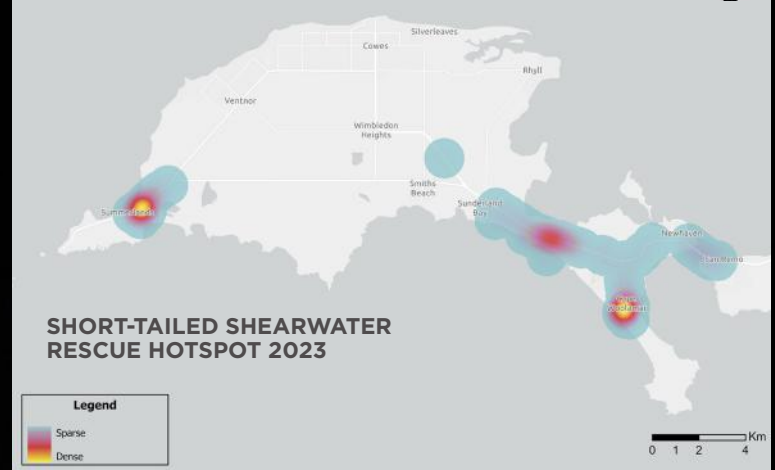
PATROLS

The evening patrols were dictated by the activity of the birds in the colony as well as the weather forecasts. One patrol was rostered each evening between 19 to 25 April, increasing to two evening patrols if needed until 7 May. Evening patrols are required to erect road signage in the afternoon and commence patrolling for removal of live and deceased birds on the road, until the closure of the Penguin Parade.

One morning patrol starting at 5.30am commenced on 19 April and continued until 8 May. Morning patrol is required to dismantle road signs and commence patrolling for live and deceased birds on the road until all birds have been removed.

Over 250 staff hours were spent preparing and running the program this year.

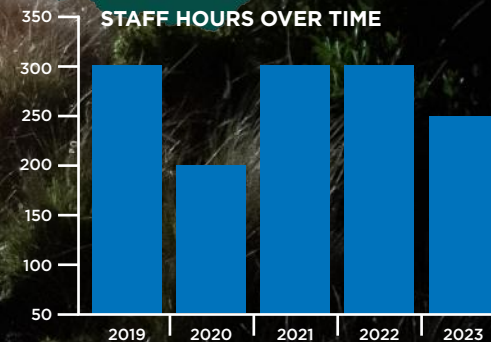
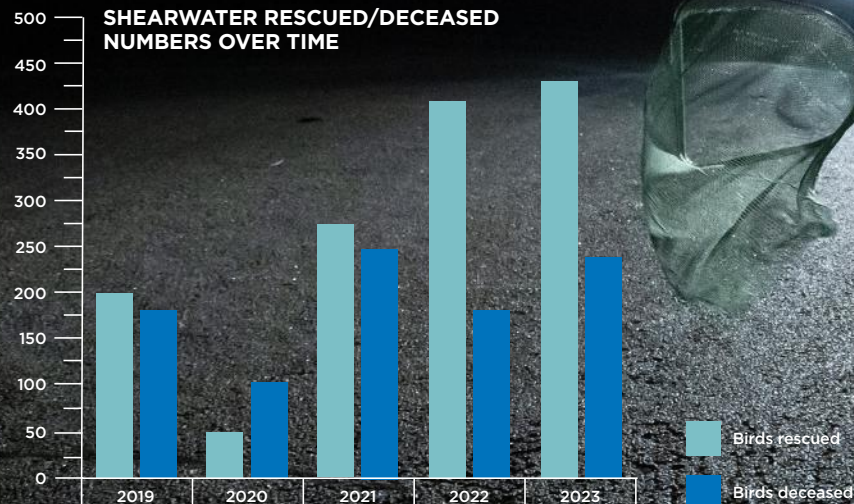
Volunteers joined patrols this year to help with data collection between 29 April to 7 May with a total of 15.5 hours completed.



RESULTS FOR 2023 PATROL SESSIONS

Key wind peaks fell on 27 and 28 April and 2, 3 and 5 May with most of the colony leaving over 2 and 3 May. The wind tended to blow northwesterly over the peak nights which is favourable for the departing shearwaters.

A total of 419 birds were rescued this year of which two had to be later euthanised due to extensive injury. There were 237 birds found dead on the roads due to collision with vehicles. Cape Woolamai and the Penguin Parade were hotspots for live rescues whilst Forest Caves and the start of The Esplanade in Surf Beach were the hotspots for deceased birds with over 50% of dead birds coming from this area.



Dark Sky So Shearwaters Fly

COMMUNITY IMPACT CAMPAIGN TO ADDRESS LIGHT POLLUTION

In 2022, the Nature Parks launched the inaugural 'Dark Sky So Shearwaters Fly' campaign, which aims to encourage residents and businesses to turn off their lights to help facilitate the migration of the short-tailed shearwaters.

The campaign is timed around the anticipated departure dates of the birds and therefore took place from 19 April to 10 May in both 2022 and 2023.

As the birds' exact departure timing is weather dependent, the campaign aims to direct the local community to a dedicated web page and or Facebook event page where the exact timing is communicated for lights-out nights. Local business owners are communicated with directly by Nature Parks staff.

Key messages in the campaign are centred around light pollution, road safety and animal welfare.

Success in this campaign is measured by the number of local businesses signing up to "turn-off for take-off", online engagement via the Nature Parks social media channels and the scale of associated media reach.

In 2022, 25 local businesses located within the birds' flight path signed up to the campaign: a great start for the first year of this unique community campaign.

DARK SKY SO SHEARWATERS FLY

19 April - 10 May*

Support the Shearwater Great Migration

Turn off outdoor lights at home and at work

Drive slowly and be cautious on the roads

*Flight times can vary - check FB event for exact 'lights out' dates.

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The 2023, the 'Dark Sky So Shearwaters' Fly campaign aimed to build upon the success of the previous year with the following objectives:



To enlist 30 local businesses located within the birds' flight path, to turn off their lights for the period in which the birds depart (20% increase from 2022).



To encourage residents located in the bird flight path turn off their outdoor lights, via social media engagement and targeted direct mailout of DL flyer.



To connect the local community with this migratory seabird and create a sense of ownership and pride over their successful migration.



To raise awareness of the birds on roads at night to reduce road mortality and improve road safety.



To work in collaboration with relevant organisations to drive awareness, engagement and action in support of the campaign.

To achieve the campaign objectives, the Nature Parks developed a strategic campaign including the following:

- Sophisticated **social media campaign across Facebook, Instagram and LinkedIn** including Facebook event page, paid and organic posts.
- **Media releases** were shared pre and post migration to local media.
- **Nature Parks spokespersons** interviewed for ABC Melbourne radio, ABC Gippsland radio and The Age.
- **Paid advertising** (quarter page) included in two local newspapers.
- A **direct mail** (DL flyer) to all residents and business located in the flight path (over 3000 recipients).
- **DL flyers, eDM and posters** were shared with key stakeholders including local community groups, local conservation groups, business owners and staff.
- **Roadside signage and VMS signage** alerting motorists to changed conditions and to the bridge lights being turned off over key dates.



Dark night rises: birds given a little help

Miki Perkins
Environment reporter

It's all about the wind. When Phillip Island's short-tailed shearwater chicks emerge from their sandy burrows to make their first 16,000-kilometre flight, they wait for a powerful wind – 40km/h or even stronger – to help them soar.

They also rely on the moon to navigate. But when they see the shine of artificial lights they can become disorientated, crash-landing on roads and causing damage to themselves and motorists.

Phillip Island Nature Parks, which manages the popular little penguin parade, is calling on resident and local businesses in the bird's flight path to switch off their lights at night for the next fortnight, as a record-breaking 700,000 short-tailed shearwater chicks take to the sky.

Every year, these short-tailed shearwater fledglings leave their sandy burrows on Phillip Island and fly 16,000 kilometres to Alaska in late April or early May.

"A successful breeding season means more birds will attempt the annual migration, so we are calling on locals to help eliminate unnatural light sources and take extra care on the roads," said Dr Duncan Sutherland, the deputy manager of research at Phillip Island Nature Parks.

This breeding season had produced the second-highest number of chicks on the island in the past decade.

"This will give the young shearwater chicks the best chance of a safe departure this year," Sutherland said.

There has been a particular issue with shearwaters flocking to the San Remo bridge lights, at the gateway to the island, so electricity provider AusNet Services will switch off the lights on the bridge for up to 10 nights during the peak departure period.



Shearwaters are attracted to street lighting and sometimes land on roads, presenting a danger to themselves and distracting motorists.

"The sky is full of [shearwater birds] at dusk."

Melissa Dagg, who works on Phillip Island

counter to spark conversations about wildlife conservation.

"When they [the adult birds] return to their nests for the evening you can go down and see it. The sky is full of them at dusk," she said.

Short-tailed shearwaters migrate to Phillip Island (and other



places) from the Northern Hemisphere every year to raise their chicks. In early April, the adult seabirds start the long journey back, leaving behind their chicks to fledge (grow adult feathers) and begin their own migration weeks later.

This breeding season has produced the second-highest number of chicks on the island in the past decade, with an 80 per cent hatching success rate for shearwater eggs.

The impact of light pollution on migratory animals such as birds, turtles and B-gong moths has been well-documented. These animals

use light from the stars or moon to guide their migration and glow caused by towns and other sources of artificial light can cause them to lose their way.

Phillip Island Nature Parks has installed environmentally sensitive lighting at the Penguin Parade visitor centre to help protect both little penguins and shearwater birds.

"We have seen some very positive results... with very few shearwaters landing around the carpark, which is incredible given we are in the middle of a substantial shearwater colony," Sutherland said.

Campaign Results

In 2023 the 'Dark Sky so Shearwaters Fly' campaign exceeded expectation, reaching over 450,000 people via media coverage, this was double the reach of 2022 (225,500). Media included the following:

- ABC Melbourne radio
- The Age
- ABC Gippsland radio
- South Gippsland Sentinel Times
- Phillip Island and San Remo Advertiser

Roadside lighting

was switched off on the main connecting bridge to Phillip Island over seven nights.

Foreshore lighting

was switched off for the duration of the campaign in the San Remo foreshore area.

A total of **31 local business participated** in the campaign, turning off lighting, an increase of 20% from 2022.

A **DL flyer** was mailed to a total of 3218 residents and business located in the birds' flight path.

Roadside signage

was in place throughout the campaign.

Social Media Stats and Reach

The 2023 campaign featured a new call to action, budget and approach compared to the previous year. In 2023, the campaign web page was the 10th most visited page across the penguins.org.au during the period 13 April to 7 May 2023.

The number of sessions (when a user actively engages with the page) in 2023 **has increased by 244%** vs previous year.

The number of new sessions (first time visits) has **decreased by 16%** compared to previous year, which can be attributed to the information being already known by users from previous year.

The session duration also **decreased down to 21 seconds compared to 10 minutes previous year**, perhaps being attributed to users being familiar with the information.



Total Post Shares
2022 - 433
2023 - 71



Number of Posts
2022 - 18
2023 - 22



Collective Organic Reach
2022 - 196,000
2023 - 120,000



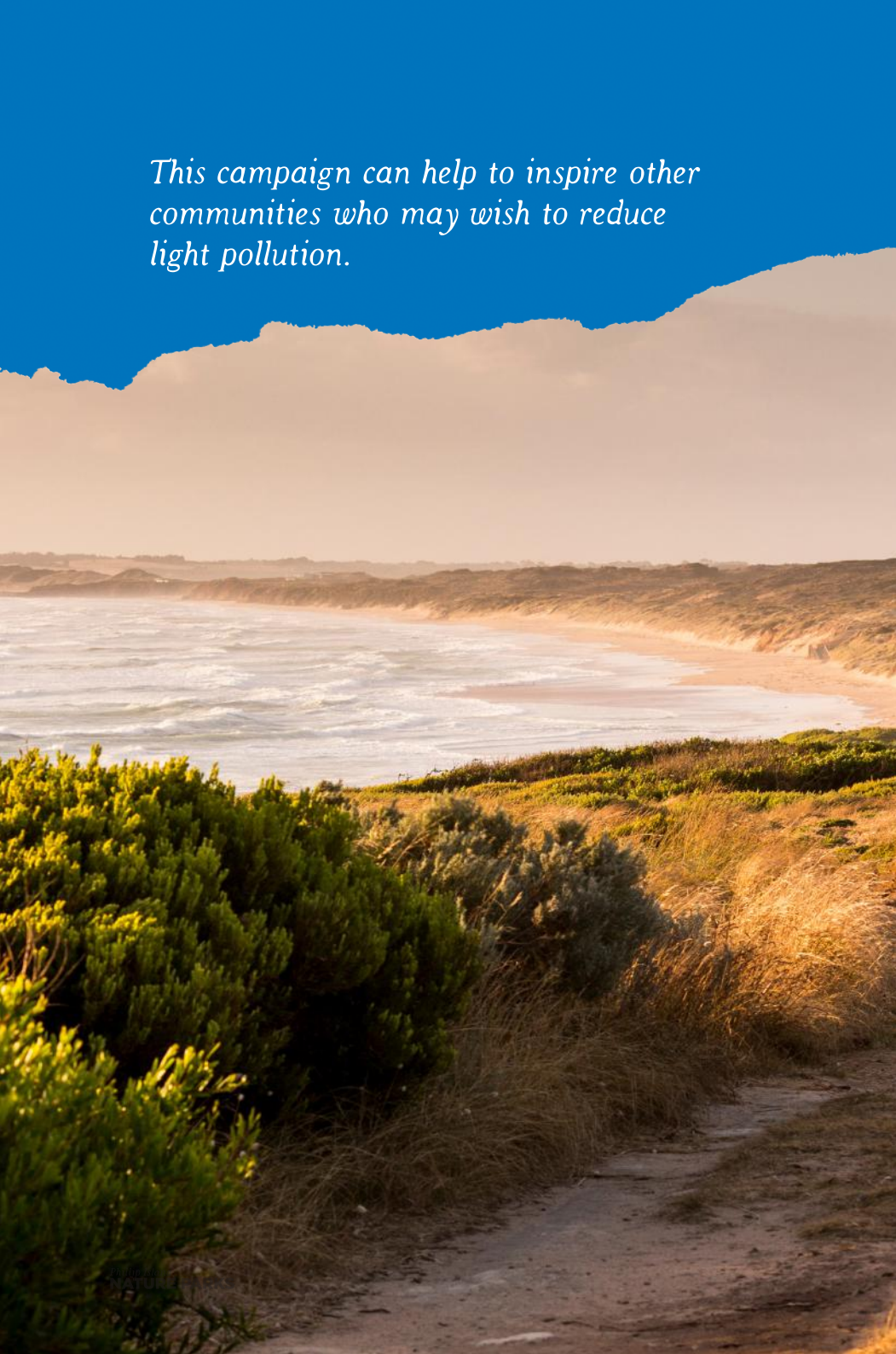
Total Link Clicks
2022 - 3205
2023 - 1749



Facebook Event
2022 - 272
2023 - 135



Highest Performing Posts
2022 - 69K+
2023 - 16+



This campaign can help to inspire other communities who may wish to reduce light pollution.

Recommendations and Conclusions

The following recommendations have been acknowledged by Phillip Island Nature Parks:

Ensure Safe Migration

This campaign will continue to run annually to ensure the bird's safe migration from the island each year.

Consistent Business Support

Business participation is vital and will continue to be sought each year.

Strong Social Media

There is strong community support for the migration, which is evident by the social media engagement and local business participation.

Reducing Light Pollution

Reducing light pollution for a short period of time is an achievable action for the community.

Improving Roadside Signage

Consider extending the roadside signage to include the Forrest Caves area of the Phillip Island main road following the numbers of birds that were found on roads in this area.

Campaign Timelines

Review the campaign timelines and consider commencing the marketing aspects earlier to ensure messaging has reached the target audience ahead of the bird's departure.

More Light Pollution Content

Review the Nature Parks website and consider adding more information relating to the impacts of light pollution on sea birds and wildlife.

ACKNOWLEDGEMENTS

Phillip Island Nature Parks would like to acknowledge all partners and sponsors who are vital to the campaign's success.

- Victorian Ornithological Research Group (VORG) who are working with Nature Parks to undertake research into the seabird's attendance at the breeding colony each summer, their breeding success from year to year, and track their movements around the world.
- WIRES who have supported the research trackers, most of which were recovered from the birds in 2023.
- Regional Roads Victoria (RRV) each year RRV approve and authorise the traffic management plan that is put in place to reduce speed limits keeping motorists and rescuers safe and helping to reduce the number of fatalities for the birds.
- Ausnet Services play a key role in being the agency authorised to turn off the Phillip Island bridge lights upon request and authority to turn off any other street lighting in the area.
- The TAC donated one side of the advertising trailer on which we were able to display the 'Shearwater Birds on Road: Reduce Speed' banner. Along with installation and removal of signage for the period of the campaign.
- Bunurong Land Council Aboriginal Corporation supported nestbox maintenance.
- Bass Coast Shire Council and San Remo Foreshore Committee of Management provided support by turning off lighting in certain areas as well as promoting the campaign to both locals and visitors via the sharing of information at the Newhaven Visitor Information Centre.
- In 2023, the campaign was supported by new partner WE-EF LIGHTING, a leading exterior lighting specialist. The partnership enabled an increased marketing campaign reach through financial sponsorship.
- Phillip Island local businesses who signed up to participate in the campaign and turned off their lights.

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