Phillip Island
NATURE
PARKS

PHILLIP ISLAND (*MILAWUL*) NESTING SHOREBIRD BREEDING REPORT 2024/25

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

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Introduction

Phillip Island Nature Parks nesting shorebird program aims to monitor breeding sites for shorebirds who nest on Phillip Island (Milawul) and improve breeding success through management practices and research. Hooded plovers (*Thinornis cucullatus cucullatus*) are the focus of this report as one of the priority species listed in the Department of Climate Change, Energy, the Environment and Water (DCCEEW) 2022, Threatened Species Strategy Action Plan 2022–2032. They are categorised as Threatened under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 and Vulnerable under the Victorian Flora and Fauna Guarantee Act 1988 Threatened List. Since active management of the hooded plover population on Phillip Island (Milawul) began in 1998 the population, estimated from November surveys, increased from around 20 individuals to a stable plateau of 40-47 between 2012 and 2021, it then declined to 33 in the 2022 and 2023 before increasing back to 38 in 2024.

Hooded plovers are monitored year-round through four Coastal Bird Surveys, while active management with a higher allocation of staffing and resources occurs over the breeding season between August and April. Active management includes the installation of wildlife refuges, nest cameras, egg floating, banding of chicks, and beach patrols. Complimenting the active management is the habitat management which is done throughout the year, this involves pest plant and animal control, revegetation and dune stabilisation. This report focuses on the active management and research aspects of shorebird management.

Disturbance by potential threats often result in hooded plovers leaving the nest and is thought to lead to lower breeding success on beaches used extensively for recreation (Weston 2000). Phillips Island (Milawul) is a high tourism area and therefore shorebirds are exposed to additional disturbances as people visit beaches, especially around school holidays, weekends and public holidays. Temporary site protection in the form of signed, roped off wildlife refuges are installed around nests to inform visitors of their presence and ensure the camouflaged nests are protected from accidental trampling.

All the other species of shorebirds included in this report are monitored through the four Coastal Bird Surveys at a minimum. Pied oystercatchers (*Haematopus longirostris*), sooty oystercatchers (*Haematopus fuliginosus*) and red-capped plovers (*Charadrius ruficapillus*) are all listed as ‘least concern’ on the International Union for Conservation of Nature Red List of Threatened Species (IUCN Red List) and monitored via the MyBeachBird portal, but to a lesser extent due to limited resources and their tendency to nest on more isolated beaches. Fairy terns (*Sternula nereis*) are listed as Critically Endangered under the Victorian Flora and Fauna Guarantee Act 1988 Threatened List and are closely monitored and managed for when and if they breed on Phillip Island (Milawul). Far eastern curlews (*Numenius madagascariensis*) are listed as Critically Endangered under the Victorian Flora and Fauna Guarantee Act 1988 Threatened List and are one of the priority species listed in the DCCEEW 2022, Threatened Species Strategy Action Plan 2022–2032. While they don’t nest on Phillip Island (Milawul) they are a migratory shorebird which winters here from around August to March. Greater crested terns (Thalasseus bergii) are listed as ‘least concern’ on the IUCN Red List, they nest in a large colony often around The Nobbies.

Summary

Hooded plovers

- A total of 13 hooded plover chicks fledged this season from 17 breeding pairs. This is amongst the highest fledged per pair rates in Victoria.
    - The number of nests (32), eggs (72) and chicks (19) are below the (2014-2024) 10-year average number of nests (36), eggs (83) and chicks (31).
    - A huge 68% of chicks went on to fledge, well above the historic average of 40%
    - A fledged per pair rate of 0.76 again exceeding the benchmark of 0.5 provided by Birdlife Australia.
- Nest failures were due to unknown causes (34%), severe weather or high tides (23%) and suspect severe weather/high tides (17%). The high number of unknown causes of nest failure is the focus of the camera trap study.
- Eight cameras were installed over nests and were able to provide evidence for the three nests that failed during incubation. All three showed evidence of high tides, but one egg at Smiths Beach was later found to be addled even though the high tide disturbed incubation and caused the other egg to fail.
- The November 2024 count recorded a total of 38 hooded plovers, an increase of the previous two years which both saw 33.

Other shorebirds

- Pied oystercatchers, sooty oystercatchers and red-capped plovers were monitored less actively than hooded plovers using the MyBeachBird portal, with active monitoring occurring and site protection installed for one pair of red-capped plovers.
- Fairy terns successfully nested at Observation Point for the first time since 2019/20 and produced at least 65 fledglings.
- Far eastern curlews were not sighted at Observation point during the February Coastal Bird Survey with a total of 25 recorded on four separate occasions in late January.
- Crested terns nested on Point Grant (The Nobbies) this season with 2830 adults counted during the November Coastal Bird Survey.

Figure 1: Hooded plover and chick at Elizabeth cove. Photo credit: Quentin Mattiske

Methods

Hooded plovers are monitored according to the 'BirdLife Australia's guidelines for monitoring nesting success of Hooded Plovers' (2017) using the MyBeachBird portal to share data, with staffing and resources increasing over the peak of the breeding season which starts around September and ends around April. Volunteers also contribute to monitoring through the Hooded Plover Watch using the MyBeachBird portal. The MyBeachBird portal also acts as a communication tool between everyone monitoring these birds increasing efficiencies in time management and collaboration. Through the breeding season staff and volunteers are given weekly email updates on nest and chick locations which informs both monitoring efforts and beach patrols.

Four Coastal Bird Surveys are conducted by staff and volunteers around the same time each year (February, April, July and November) where all beaches on Phillip Island (*Milawul*) are surveyed and observations of all bird species are recorded. The February survey is when the hooded plover breeding season is well underway and all the migratory shorebirds should be settled into their nonbreeding sites. The April survey captures the end of the hooded plover breeding season as well as the end of the migration as many migratory shorebirds prepare to leave Australia. The July survey provides data on winter flocking behaviour of hooded plovers as well as overwintering migratory shorebirds. The November survey is used to give us the most accurate number of hooded plovers on Phillip Island (Milawul) as that is when most birds should be on territory. This season monthly bird surveys started being conducted at Observation Point to better monitor which bird species are using this internationally significant site.

Site protection, also known as refuges, are made of temporary rope fences, signage and sometimes chick shelters. They are used to protect hooded plover nesting sites in accordance with BirdLife Australia's 'Important reminders about Hooded Plover site protection' 2021, see Figure 2 for an example from Surf Beach. When nests are located on Bass Coast Shire Council (BCSC) managed land, Nature Parks staff and volunteers will monitor the birds while the BCSC Natural Resources Manager will implement site protection. Figure 3 shows which beaches are managed by Nature Parks and by BCSC. Site protection is also considered on a case-by-case basis for red-capped plovers, sooty oystercatchers and pied oystercatchers depending on the location and potential threats to the nest.

Figure 2: Photo of a refuge at Surf Beach demonstrates signage in the foreground and temporary rope fencing in the background

Nest cameras are installed, and eggs are floated according to the 'Protocols for use of motion-sensing infra-red cameras at Hooded Plover, Pied Oystercatcher and Red-capped Plover nests' (BirdLife Australia

2020). Cameras are installed on up to ten nests, an increase on the previous five, each season to investigate the cause of nest failures. When the age of eggs cannot be accurately determined, eggs are floated to provide an age estimate, allowing for more efficient management (i.e. readying refuges and chick shelters in preparation for chicks hatching). Flotation of eggs is a common method for estimating embryo development. Knowing when chicks will hatch allows for timely management, such as extending refuges, chick shelters, and increased monitoring and patrols. All of which is critical when chicks are at their youngest and most vulnerable.

Chicks are banded with a metal band on their tarsus (lower leg) engraved with a unique number as part of the Australian Bird and Bat Banding Scheme (ABBBS), as well as a leg flag engraved with a combination of two letters and/or numbers on their tibia (upper leg). These provide each bird with unique identification and the engraved leg flags enable these birds to be identified from a distance. Being able to identify individual birds provides insight on hooded plover movements, ages, changes in breeding pairs etc. The Nature Parks are the only organisation to use yellow engraved leg flags on hooded plovers which allows us to easily note how many birds leave and stay on Phillip Island (Milawul). Other flag colours on hooded plovers in Victoria are orange, white and more recently green.

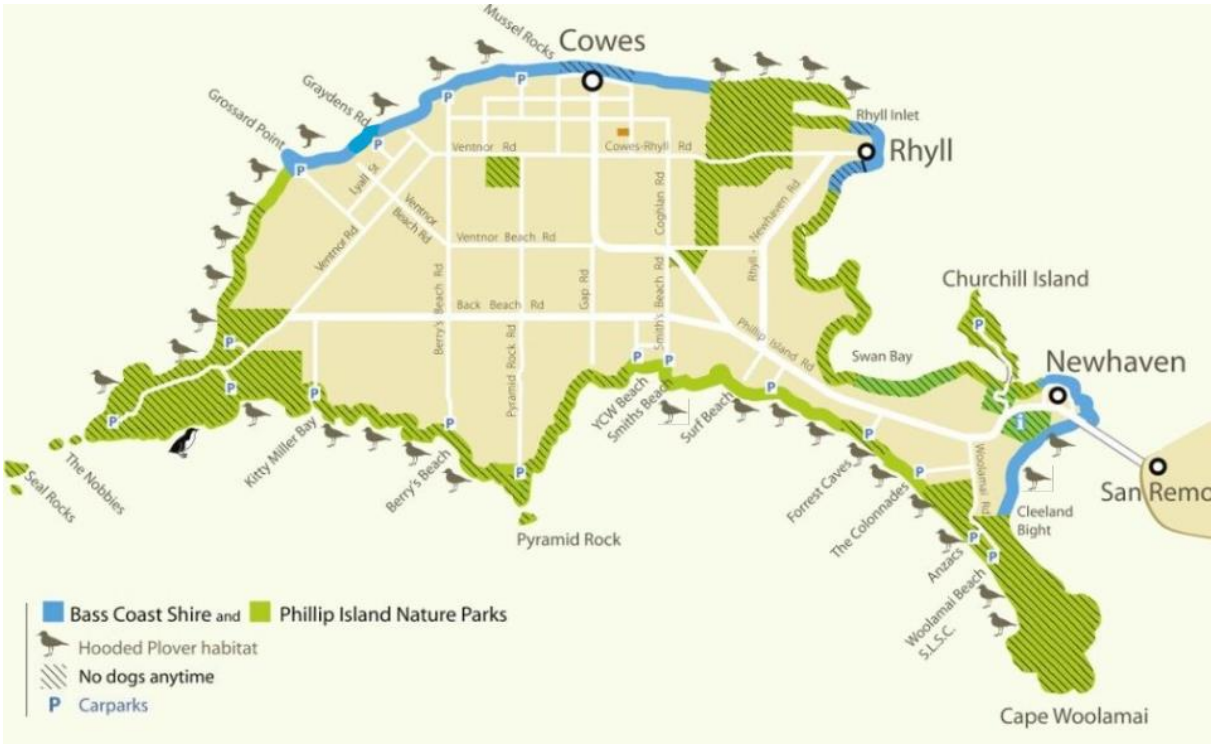

Figure 3: Map of Phillip Island (Milawul) showing which beaches are managed by Phillip Island Nature Parks and by Bass Coast Shire Council as well as which ones are hooded plover habitat.

Hooded plover breeding season 2024/25 results

Table 1: Breeding metrics from this season, last season, the previous 10-year averages and historic averages. *Number of breeding pairs recorded from 2002/03 onwards

	Historic average (1992/93-2024/25)	10-year average (2014/15-2023/24)	2023/24	2024/25
Number of breeding pairs	17*	18	12	17
Number of nests	30	36	21	32
Number of eggs	69	83	51	72
Number of chicks	20	31	21	19
Number of fledglings	8	12	10	13
Fledged per pair	0.55*	0.65	0.83	0.76
Egg to chick survivorship	29%	37%	41%	26%
Chicks to fledge survivorship	40%	40%	48%	68%
Egg to fledge survivorship	11%	14%	20%	18%

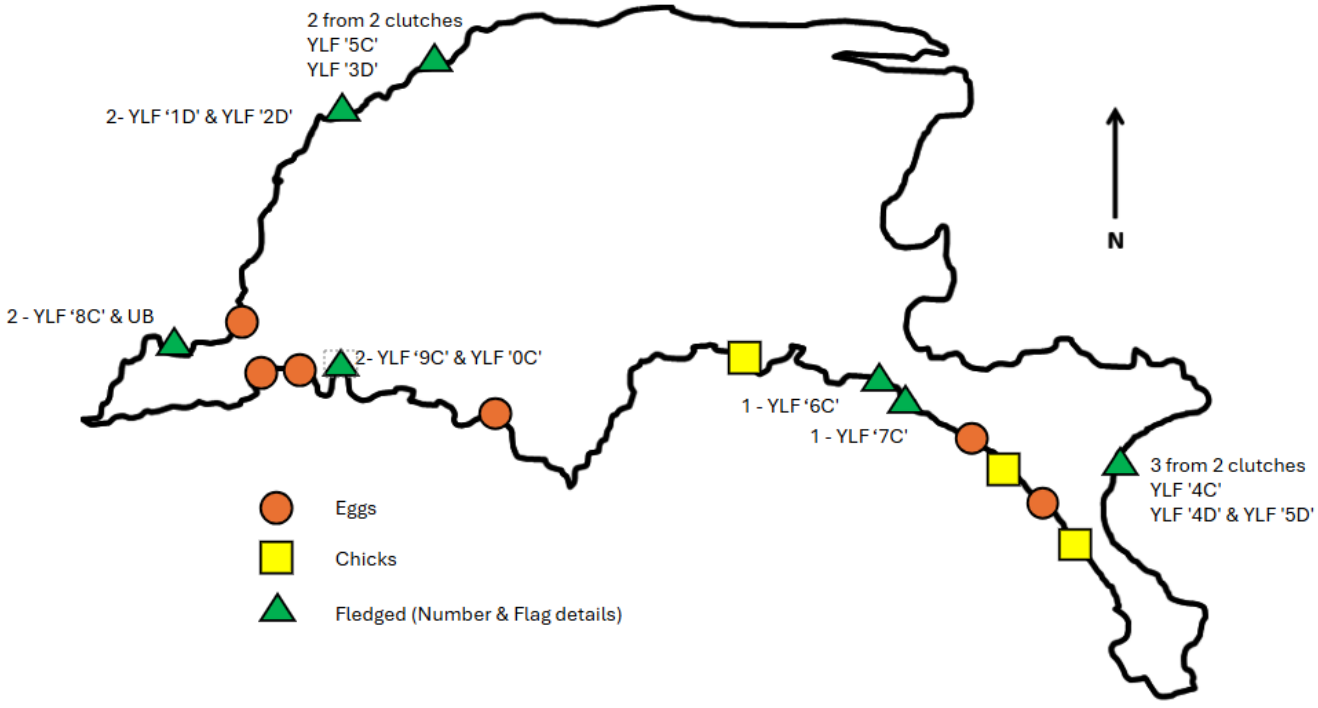

Figure 4: Summary map of hooded plover sites distributed on Phillip Island (Milawul) during the 2024/25 breeding season, the best breeding outcome at each site/pair (eggs, chicks, or fledged) and the flag/band status of each chick fledged. YLF: yellow leg flag. Where a breeding pair had more than one clutche over multiple neighbouring sites only one point has been included on the map.

Nesting Success

The 2024/25 hooded plover breeding season resulted in 13 fledglings from 17 pairs. 32 nests were distributed across 16 breeding sites, seven of which successfully produced fledglings (Figure 4). This season the Broadwater Ave and Anchorage Rd pairs both had two sucessful clutches, one each at the start and end of the season.

Fledging Success

The 2024/25 breeding season produced 13 hooded plover fledglings from 19 chicks over 12 nests (appendix). The egg to fledge survivorship was 18% which is higher than 14% from the previous 10 years, and the chick to fledge survivorship was 68% compared to 38% for over that 10-year period (Table 1).

Despite regular monitoring of chicks four (67%) of the six failed chicks died from an unknown cause (Figure 5). One of the chicks failed to thrive which was evidenced by their small size and weight during banding at 4 weeks of age (Appendix B) and then sustained an injury which it ultimately died from. The deceased body of the chick from Colonnades was found among the tide wrack after high tides and strong winds with no visible injuries (Appendix A).

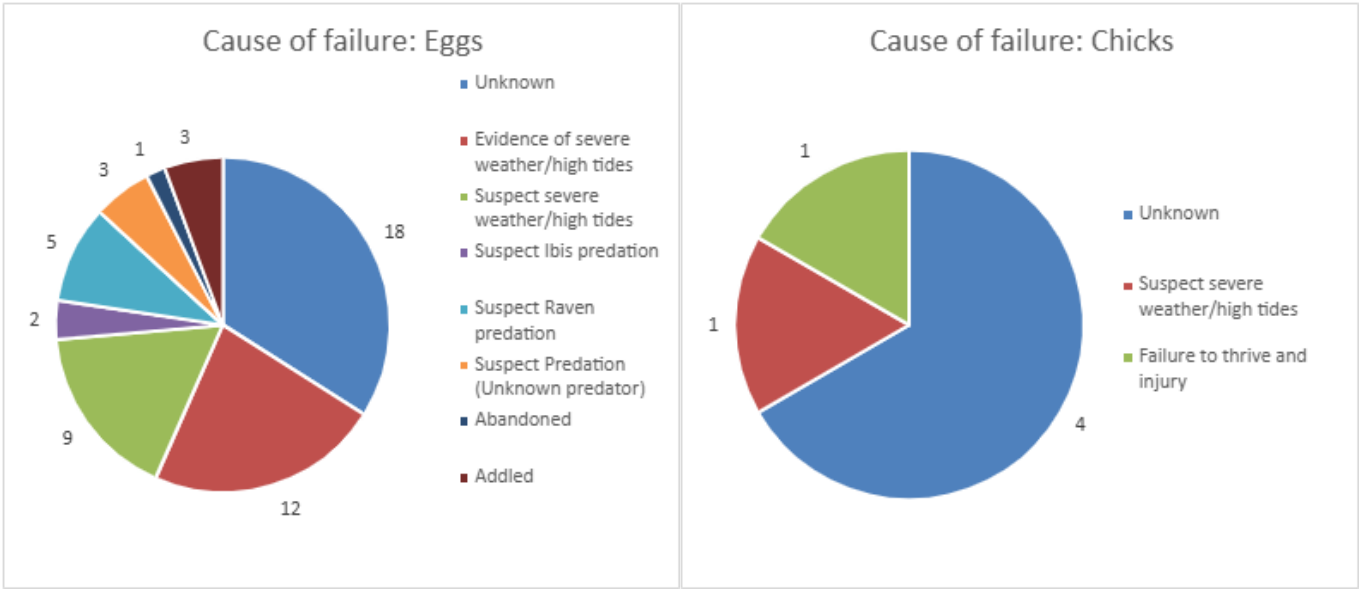

Figure 5: Causes of hooded plover egg and chick failures during the 2024/25 breeding season.

Breeding Success

Breeding success, defined as the average number of fledglings produced per breeding pair, was 0.76 this season which while not as high as last year's 0.83 is still higher than the historical average of 0.53. BirdLife Australia's benchmark (0.5 fledglings per pair) for fledgling production to evaluate success and maintain population numbers over time has been reached again this season and continues to trend upwards overall (Figure 6).

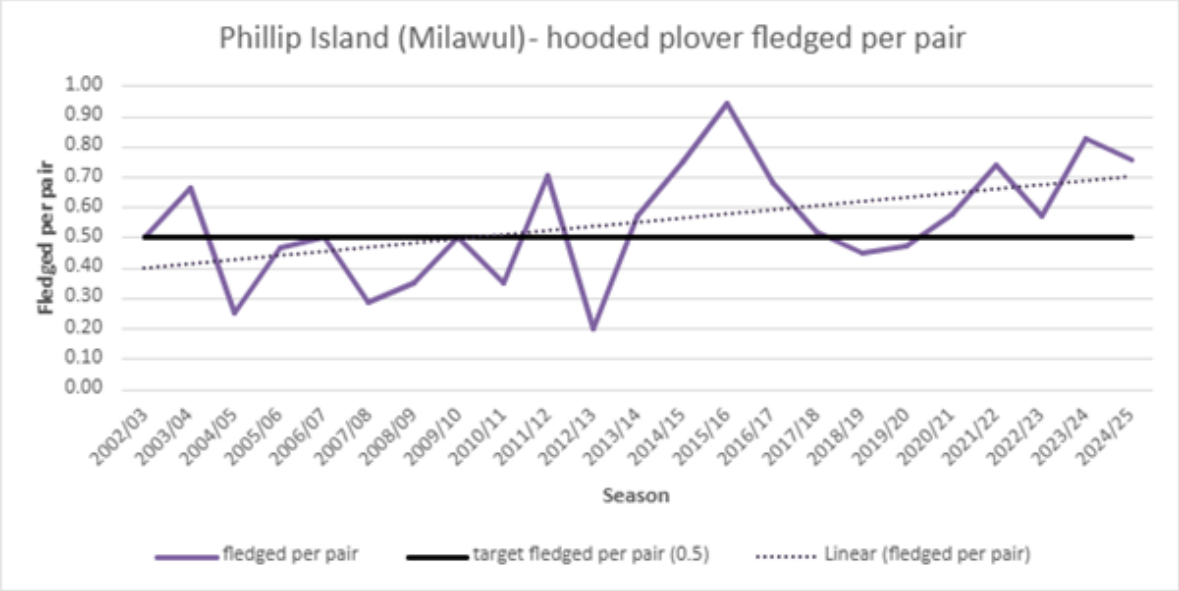

Figure 6: The fledged per pair for each breeding season since 2002/03 with a linear trendline against the target fledged per pair rate of 0.5 suggested by Birdlife Australia.

Egg Floatation

Only three nests (seven eggs) were floated (Table 2), as in most instances there was confidence the hatch date could be determined from field observation due to the frequency of monitoring. Of the nests that were floated; one nest was 10 days old, and two nests were 20 days old. Flotation of the Magiclands nest improved the hatch date prediction by almost two weeks, this allowed us to adjust the roped off refuge to be suitable for chicks ahead of time. Unfortunately, two of the nests failed, Summerlands centre as eggs and Magiclands as chicks, and the Smiths Beach nest was indeterminate due to tide inundation. (See internships and camera trap study below for more information).

Table 2: 2024/25 Breeding season egg float summary

Location	Date nest found	Number of eggs floated	Date eggs floated	Eggs days old	Expected hatch date	Actual hatch date
Summerland Beach (centre)	31/10/24	3	07/11/24	10	25/11/24	Failed
Smiths Beach (far east)	24/01/25	2	12/03/25	20	20/03/25	Failed
Magiclands	04/02/25	2	05/02/25	20	13/02/25	16/2/25

Banding and Flagging

This season 12 chicks were banded, given a unique leg flag, had morphometric features measured, and had feather samples taken for sexing. Of this seven two did not survive to fledge due to failure to thrive. See Appendix B below for a summary of banding details.

A total of 45 banded adults and sub adults were recorded during the Coastal Bird Surveys and via the MyBeachBird portal over the season, 32 (71%) of those were originally flagged and banded on Phillip Island, with four (9%) banded in the 2023/24 season. Weston (2000) estimated that 55% of hooded plover fledglings survive for nine months after their first flight which is their potential first age to breed. Of the five chicks flagged and fledged in 2023/24, four (80%) have been recorded in the 2023/24 breeding season around Victoria at over nine months of age, exceeding published survival estimates (Appendix C). The one that wasn't seen was presumed to have died shortly after fledging.

A banded adult, Yellow 78, was found deceased on Shelly Beach in March after successfully raising two fledglings this season. Its body was too decomposed to confirm the cause of death, but it was a reasonably young bird at five years old.

Population count

The November 2024 Coastal Bird Survey recorded 38 hooded plovers (excluding chicks) which is an improvement on the last two years which both recorded 33 birds (Figure 7). In November 2024 Nature Parks participated in Birdlife Australia's nationwide Biennial Hooded Plover Population count which aims to monitor the population of hooded plovers across their range.

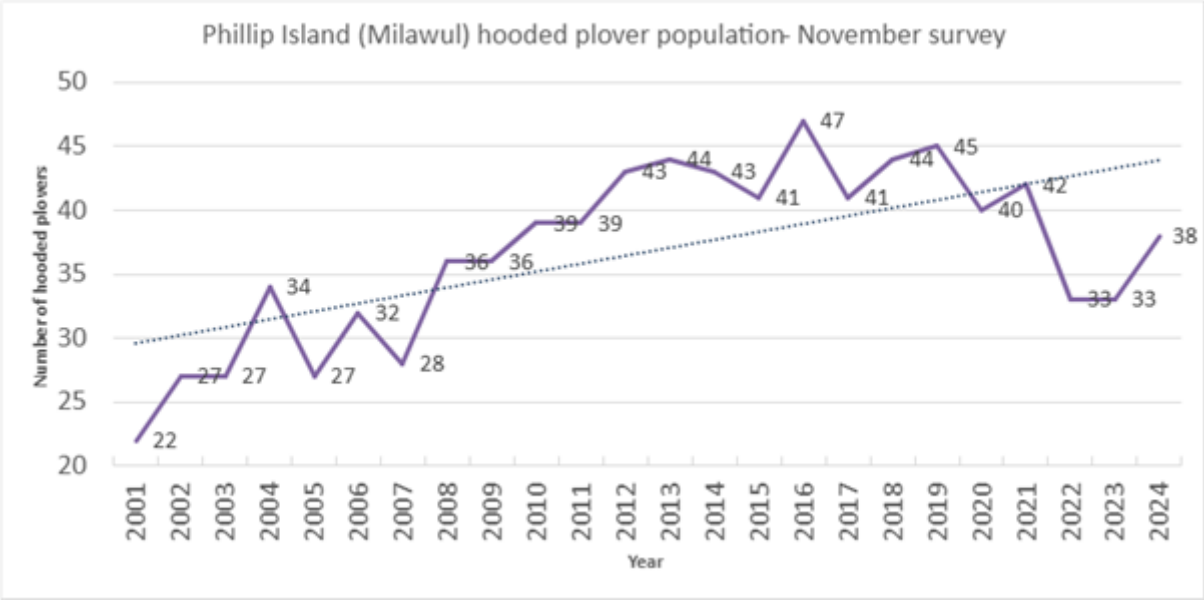

Figure 7: The number of hooded plovers (excluding chicks) counted during Novembers Coastal Bird Survey from 2001-2024 with trendline showing overall increase in the population over time.

Volunteer Activities

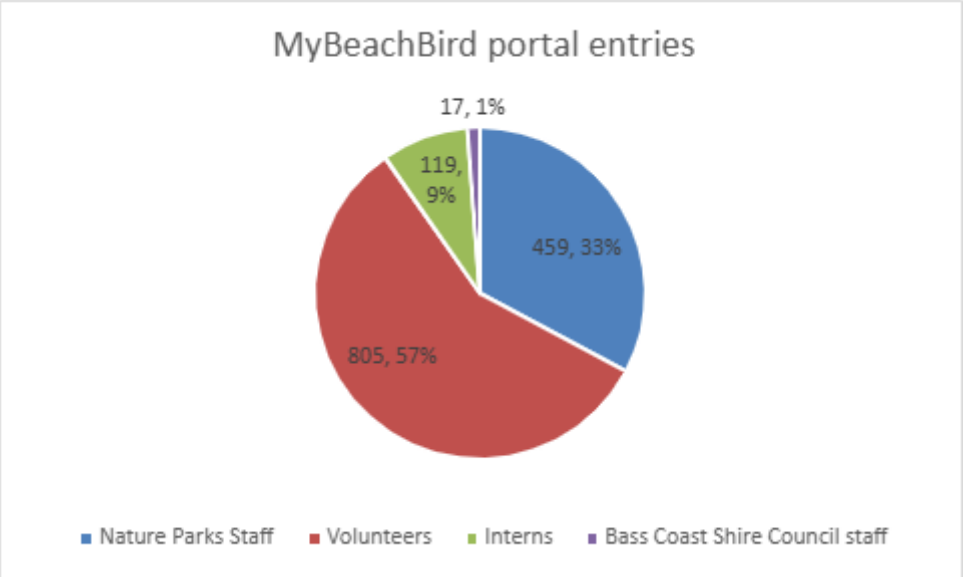

Figure 8: Number of MyBeachBird portal entries by contributors

Volunteers collect important data throughout the breeding season each year by monitoring hooded plover pairs, habitat and threats and putting that data into the BirdLife Australia MyBeachBird portal, as well as contributing to the Coastal Bird Surveys. The MyBeachBird portal data is visible to all users and works as a communication tool that helps direct staff from both Nature Parks and Bass Coast Shire Council in where to install refuges and what beaches need monitoring. The total number of portal entries increased this season to 1400 from 1003 last season. Volunteers put in a massive 467 hours over the course of the 2024/25 season (Table 3) and made up 57% of all MyBeachBird portal entries on Phillip Island (Milawul) (Figure 8).

Table 3: Summary of hooded plover related volunteer activites for the 2020/21 - 2024/25 breeding seasons.

Activity	2020/21	2021/22	2022/23	2023/24	2024/25
General Monitoring/Citizen Scientist hours	75.81	154.84	143.77	238.01	409.13
Coastal Bird Survey hours	6.5	45.20	61.83	82.46	58.84
Total Volunteer hours	**82.31**	**172.84**	**205.6**	**320.47**	**467.97**
Internship hours	205.25	228.90	301.6	357.92	336.74
Number of General Monitoring/Citizen Scientist Volunteers	3	10	11	9	12
Number of Coastal Bird Survey Volunteers	2	9	16	15	12

A pop-up stall was held at the Nippers at Broadwater Ave in January giving staff and volunteers the chance to engage with members of the community about shorebirds and the ‘Sharing our Shores’ campaign, which focuses on how people can enjoy their time at the beach while keeping wildlife safe.

Figure 9: Jon Fallaw (Ranger) and Peter Wagstaff (Volunteer) at the ‘Sharing our Shores’ Pop-up stall.

Internships and Camera trap study

A camera trapping study commenced in the 2020/21 season to provide insights into the causes of hooded plover nest failures. In the 2024/25 season eight cameras were deployed with the help of the Nature Parks interns, Charlotte Bond and Annie Preston, over nine hooded plover nests around Phillip Island (Milawul). The Kitty Miller Bay pair of hooded plovers laid another nest so close to their original one the camera was able to be turned to face the new nest quickly, minimising disturbance. Additionally, they assisted in monitoring beaches and installing wildlife refuges for hooded plovers during their internships. Between the two of them they contributed a huge 336 hours to supporting the beach nesting birds program (Table 2).

Of the three nests that failed when eggs were present, the cameras were able to confirm the cause of failure being from high tides for all of them, except for one egg at Smiths Beach later determined to be addled, even though its incubation was also disturbed by the high tide.

Table 4: Summary of cameras placed on hooded plover nests in the 2024/25 breeding season and the nests fate

Location	Hooded plover pair details	Nest Fate	Camera deployed date	Camera retrieved date
Cowries Beach East	YLF ‘78’ YLF ‘99’	2 chicks fledged	3/12/24	29/01/25
Crazy Birds	YLF 86 YLF 1A	1 chick fledged	10/12/24	27/2/25
Kitty Miller Bay – Nest 1	YLF 4B Unbanded	Failed due to high tide confirmed on camera	11/12/24	-
Kitty Miller Bay – Nest 2	YLF 4B Unbanded	2 chicks fledged	-	11/03/25
Elizabeth Cove	WLF ‘UJ’ Unbanded	2 chicks fledged	2/01/25	11/03/25
Colonnades	YLF ‘03’ Unbanded ‘limpy’	Failed as chick after the camera had been removed.	7/01/25	4/02/25
Anchorage Rd	YLF ‘85’ Unbanded	1 chick fledged	8/01/25	26/03/24
Smith beach far east	YLF ‘1B’ Unbanded	2 eggs moved with high tide, one later proved to be addled as it had a small hole showing no contents.	4/02/25	30/04/25
Colonnades West	YLF ‘31’ YLF ‘49’	Failed due to high tide confirmed on camera	12/02/25	18/03/24

The camera at Smiths Beach helped sort out a complex series of events that could not be determined by site visits alone. Two eggs that had previously disappeared after a high tide reappeared in the nest less than 24 hours after the final egg had hatched. While the camera images didn’t show if the hooded plovers dug up buried eggs or rolled them back into the nest, they did show when the eggs reappeared and that they tried to incubate them for a few more days. The eggs did not hatch and were still in the roped off refuge well after the hatch date. The 2 eggs were found meters away from the nest site, most likely moved by another high tide, they had begun to break open allowing us to see inside the eggs. One egg was completely empty except for some yolk indicating it was addled, and the other had an almost fully developed deceased chick, which confirmed that the eggs were the original two eggs that had been buried by the tide or moved. We suspect the eggs had been buried as there were no eggs in any of the photos of the area surrounding the nest.

Additionally, cameras have captured some of the disturbances that hooded plovers face while nesting, notably one of the Crazy Birds adults performing their broken wing display in response to a blue-tongue skink on the 15th of December when the eggs were only eight days old (Appendix A). Hooded plovers usually only perform their distraction display when they have chicks, which hatch when the eggs are around 28 days old.

Figure 10: Camera trap image a blue tongue skink (bottom left) and the hooded plovers distraction display in response on the sand in front of the nest.

Other Shorebirds

Pied oystercatchers, sooty oystercatchers and red-capped plovers had 31, 62 and 22 entries into the MyBeachBird portal respectively compared to 1285 hooded plover entries which highlights the difference in monitoring efforts. Nests and/or chicks were found for each of these species, but most pairs were not monitored regularly enough to get accurate nesting outcomes. One pair of red-capped plovers was actively monitored at Justice Road beach due to high visitation. Site protection was installed by Bass Coast Shire Council over one nest which failed to produce any fledglings. No site protection was installed for nesting oystercatchers as all nests found were in isolated areas with no consistent monitoring occurring.

Greater crested terns

Greater crested terns nested at the The Nobbies during the 2024/25 season, with 2830 adults counted during the November Coastal Bird Survey. In December 763 chicks were banded by the Victorian Wader Study Group with the support of the Nature Parks staff. The numbers of nests, eggs, chicks and fledglings were not recorded due to the sheer size of the colony.

Fairy terns

During the 2024/25 season fairy terns successfully nested at Observation Point for the first time since 2019/20. When fairy terns were first sighted site management was installed in the form of signage and rope fences to reduce the impact of disturbance while the birds began to establish nest sites. Approximately 140

adults were seen over the season with 72 nests containing 139 eggs producing at least 65 fledglings. 28 of the fledglings were banded and given orange flags engraved with a 3-letter combination.

The project has received funding from the Department of Energy, Environment and Climate Action (DEECA) Nature Fund, which will complement co-investment from Phillip Island Nature Parks, the Penguin Foundation and Melbourne Water. More information can be found on this project in the Threatened-Species-Report-2024.pdf.

Figure 11: Fairy tern chicks at Observation Point. Photo credit Harriet Fallaw

Far eastern curlews

Far eastern curlews were not seen at Observation point during the February 2025 Coastal Bird Survey, but 25 were seen on four separate occasions in January during the monthly Observation Point Survey and during fairy tern monitoring visits. Figure 12 shows that the number of Far eastern curlews being recorded during the February survey is declining over time.

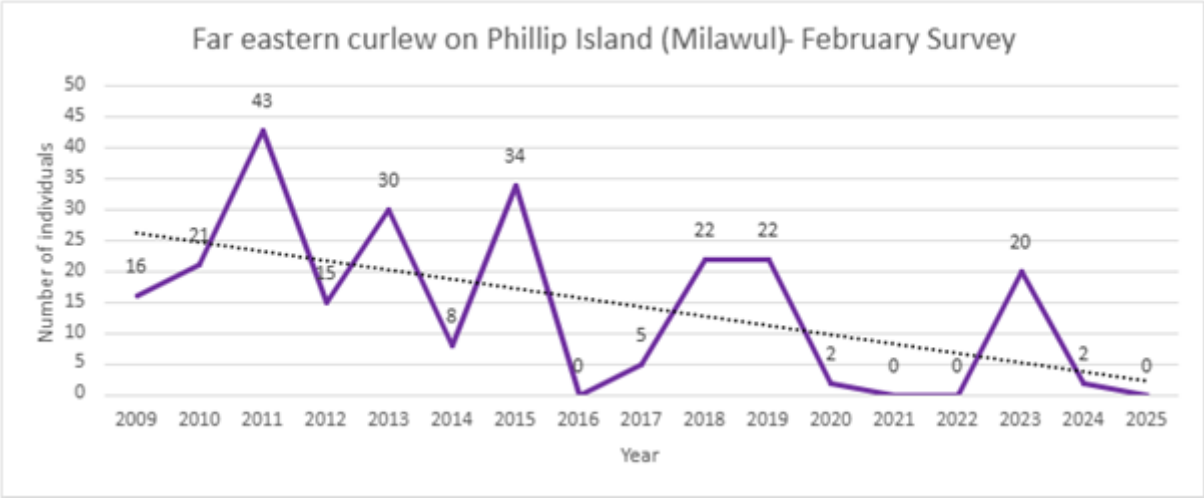

Figure 12: Far eastern curlews recorded during the February Coastal Bird Surveys since 2009 with a trendline showing a decrease over time

Discussion

Hooded plovers

The 2024/25 hooded plover breeding season again saw a return to the average number of breeding pairs nest on Phillip Island (Milawul) and has continued to follow the desired trend heading towards what would be an ideal breeding season for hooded plovers on Phillip Island (Milawul): a high proportion of eggs laid surviving to fledge successfully (Table 1).

While the 2024 November Coastal Bird Survey was higher than the previous two years, 38 hooded plover is still lower than the plateau of 40-47 individuals seen between 2012 and 2021. The drop to 33 individuals may be due to natural fluctuations in populations that left some territories empty which are now being taken up by other birds accounting for the increase to 38 or this may be the start of a localised decline.

Colonnades beach saw the death of one chick due to severe weather/high tides, likely because it is backed by rocky cliff faces instead of sandy dunes and there is no place for chicks to safetly retreat into. This is evidenced by the tide wrack regularly seen lining the base of these cliffs. These cliffs also mean hooded plovers can't make their nests higher up the beach to avoid the tides and they often lay their eggs right at the base of the cliff as far away from the waters edge as possible. This has the potential to become problematic with climate change causing rising sea levels and higher high tides which could make those territories entirely unsuitable in the future. Overall hooded plovers on Phillip Island (Milawul) recorded a successful breeding season by exceeding BirdLife Australia's target of 0.5 fledged per pair as the standardised way of measuring breeding success.

Cause of egg and chick failures continue to remain largely unknown with nest cameras helping provide evidence to the cause of some losses. The increase to ten cameras per season instead of five will hopefully provide even more evidence of nest failure going forward. Not all nests are suited to having a camera installed as correct placement is essential to avoid drawing a potential predator's attention to the nest. We waited for the Interns to start before putting cameras out, next season we will aim to get a couple out before they start which will hopefully allow us to get all ten out.

This season saw an increase in volunteer hours in the Hooded Plover Watch program by 170 hours, this was achieved through the recruitment of several more dedicated volunteers. Volunteer hours have been steadily increasing each year since 2020/21 when many volunteer activities were suspended due to the Covid 19 pandemic while the number of volunteers has been consistent over the last 4 seasons. We are successfully recruiting and inspiring deeply passionate volunteers who are well suited for the role.

Other shorebirds

The successful breeding of fairy terns on Phillip Island this season is a testament to the collaborative efforts with the Bunurong Land Council Aboriginal Corporation in habitat restoration and pest plant and animal management. Observation Point remains critical habitat for many species which has been highlighted by the successful fairy tern breeding as well as the observations of far eastern curlews.

The February Coastal Bird Survey resulting in no far eastern curlew when 25 had been observed on several other occasions highlights the importance of the monthly bird surveys at Observation Point, and the flaws in using just the February Coastal Bird Survey as a representation of total far eastern curlew each year.

Recommendations

Hooded plovers

- It is recommended that Nature Parks continue to monitor the hooded plover population of Phillip Island (Milawul) through the Coastal Bird Surveys to investigate whether the population is in decline or not.
- It is recommended site assessment is undertaken at all current and historic breeding sites to investigate habitat suitability (e.g. abundance of food source, pest plants, dune profile, presence of predators etc) to try and identify why some breeding sites are no longer being used by hooded plovers and inform targeted management strategies.
- The BirdLife Australia's MyBeachBird portal remains a vital tool in the management of Phillip Island's (Milawul) hooded plover population. Threat related data are vital to the tailoring of management strategies implemented for Phillip Island's hooded plover population, so it is recommended that training days are organised by Nature Parks or Birdlife staff for staff and volunteers who use the Birdlife portal to reiterate the importance of collecting these data and what to record.
- Data from the nest camera trap study over the past five years demonstrated the efficacy and validity of remote camera traps at nesting sites to capture evidence of nest failure causes. This evidence supports proactive predator management, which has been noted as a useful management strategy in the past. It is recommended that this study continues along with opportunities for interns to participate.
- Identifying the causes of hooded plover chick failure remains an important yet challenging task (Lees et al. 2019). Despite the difficulties in definitively determining chick failure causes, it should remain a high priority for staff and volunteers into the future to be extra attentive whilst chicks are around. Frequent checking of nest sites where chicks are active is imperative, and where it is suspected a chick has failed, extra attention to details/evidence/tracks should be exercised around the area and any/all data recorded in the Birdlife portal.
    - Additionally investigating the cause of chicks failing to thrive and being a smaller size could assist in better understanding the causes of failures and inform management practices.
- Volunteers and the community make important contributions through identifying nests, informing resource allocation, and protection by minimising disturbance when using beaches. It is recommended that the volunteering program continues alongside community engagement events.

Other Shorebirds

- It is unknown if or how the effects of climate change are impacting pied oystercatcher, sooty oystercatcher and red-capped plover nesting behaviours or recruitment on Phillip Island (Milawul). Furthermore, the current extent and status of their populations on the Island largely remains unknown as well. It is, therefore, recommended that active and continued monitoring of these species' nesting sites be continued for subsequent breeding seasons.
- Continue monthly bird surveys at Observation Point to ensure accurate representation of habitat use as birds move between sites around Westernport.
- Continued monitoring of far eastern curlews through the Coastal Bird Surveys is recommended alongside consideration of targeted management strategies.
- Observation point remains important habitat and management efforts should continue including pest plant and animal control.

Acknowledgements

We would like to firstly acknowledge and thank Phillip Island Nature Parks' volunteers for their dedication which contributed to the successful outcomes of the 2024/25 breeding season on Phillip Island (Milawul).

Charlotte Bond and Annie Preston for conducting the nest camera trap study for this season as interns for the Nature Parks and for assisting with all facets of the hooded plover monitoring program.

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Appendices

Appendix A: *Hooded plover nesting site summary table*

Nest	Location	Find Date	Adult 1 Band	Adult 2 Band	Clutch No.	Eggs	Chicks	Fledged	Chick 1 Band	Chick 2 Band	Comment
1	Broadwater Ave	13/10/2024	ZT WLF	UB	1	3	1	1	4C YLF		Found as 1 egg nest by Bec , egg gone 15/10/24 another egg in a new spot on 17/10/24, another egg 24/10/24. High tide overnight 17/11-18/11/24 moved one egg 10m up beach, other egg gone. Hoodie still incubating. 1 chick 19/11/24. Chick banded and flagged 17/12/24, saw the chick fly on 27/12/24
2	Anchorage Rd	17/10/2024	85 YLF	UB	1	3	1	1	5C YLF		Found as 3 egg nest by Dave Martin 17/10/24, 1 chick 15/11/24 other 2 eggs left in nest un-incubated 4 hours later. Chick banded and flagged 17/12/24, where it flew well, we only managed to catch it because Jon is fantastic
3	Surf Beach (Highview Cres)	22/10/2024	CU WLF	UB	1	3			failed		Found as 3 egg nest by MT, 1 egg had fallen out of nest and was carefully placed back in. Refuge set up 22/10/24, eggs gone 24/10/24, I suspect the refuge would have come down if the tide got that high.
4	Crazy Birds	22/10/2024	86 YLF	1A YLF	1	3			failed		Found as 3 egg nest by MT. Refuge set up 22/10/24, eggs gone 24/10/24. Wrack in line with the nests location
5	Summerland Beach (centre)	31/10/2024	84 YLF	93 YLF	1	3			failed		Found as 3 egg nest by Harriet F above the cliffing in the foredune, no refuge needed as quiet beach. Unsure of hatch date could be up to two weeks old? 3 Eggs floated 7/11/2024 ~10 days old so hatch ~25/11/24.
6	Anzacs (west)	5/11/2024	49 YLF	m/_	1	3			failed		Found by Bec as a one egg nest 05/11/24. 2 eggs 7/11, 3 eggs 10/11. Metal only is likely the same as previous years (Gm/YR), confirmed through band photo a few years ago.
7	Flynns Beach (centre)	12/11/2024	12 YLF	UB	1	1			failed		Found as 1 egg nest by Quentin, still one egg 14/11/24
8	Berrys Beach (west)	22/11/2024	YU OLF	UB	1	1			failed		Scrape on 20/11/24, 1 egg 22/11/24. Refuge signs vandalised and people prints in refuge, but looks like tide has also been through first, egg gone 23/11/24.
9	Anzacs (west)	26/11/2024	49 YLF	m/_	2	2			failed		New 1 egg nest is 60m west of first nest (from 5/11/24). Failed 04/12/24 where another egg was found in nest 50m south, with half eggshell and fresh yolk, Ibis tracks to both nests and peck marks.

10	Surf Beach (Park st)	26/11/2024	CU WLF	UB	2	2	1	1	6C YLF		Found as 1 egg nest 4m up dune face in already roped off area. 2 eggs 29/11/24. 1/12/24 no birds sighted and 1 egg in nest and one rolled 5m down to base of dune, Harriet called Jon and on advice checked the egg wasn't damaged and returned it to the scrape. 4/12/24 bird incubating 2 eggs! After very strong wind only 1 egg 23/12/24. 1 chick 27/12/24 moved to east end beach 29/12/24. Chick banded 6C 28/01/25
11	Smiths Beach (far east)	27/11/2024	1B YLF	UB	1	3			failed		Check band details as pair not there when nest found. 2 eggs 29/11/24 and pair confirmed. Eggs gone 03/12/24
12	Cowries beach east	2/12/2024	78 YLF	99 YLF	1	2	2	2	8C YLF	UB	Found as 2 egg nest by MT 02/12/24. Camera set 03/12/24. 2 chicks seen 30/12/24.attempted banding 29/1/25 very good flights and clearly fledged, will consider loop carpet trap in the coming weeks, one chick caught and banded 12/2/25
13	Crazy Birds	4/12/2024	86 YLF	1A YLF	2	2	2	1	7C YLF		Found as 1 egg nest by Harriet 4/12/24. Refuge set 05/12/24. 2 eggs 9/12/24. Camera set 10/12/24. chicks seen hatching on camera on 4/1/ 25, 2 chicks 5/1/25, 1 chick seen over 3 visits 4/2/25. Banded 7C 5/2/25 after now being seen due to very load tides during a couple visits we saw again on 12/2/25 to confirm fledged
14	Flynns Beach (centre)	4/12/2024	12 YLF	UB	2	2			failed		Found as 2 egg nest by MT 4/12/24 and refuge. No eggs 9/12/24 no sign of failure as the whole area is windswept.
15	Kitty Miller Bay	6/12/2024	4B YLF	UB	1	3			failed		Found as 1 egg nest by HF and refuge set 06/12/24. 2 eggs 9/12/24. 3 eggs 10/12/24. Camera set 11/12/24. Camera recorded high tide washing away the nest just after 2am on the 18/12/24.
16	Berry's Beach (center)	12/12/2024	YU OLF	UB	2	1			failed		Found by Mitch 12/12/24, MT suspected nest 11/12 based on behaviour. Very low down on the beach. No nest when Mitch checked 16/12/24, no clear signs of failure but tide suspected due to location.
17	Ventnor - Devon Ave	12/12/2024	UJ WLF	UB	1	3			failed		Found as 3 egg nest 12/12/24 at east end of beach under the tower. Will need to float eggs to determine hatch date. 16/12/24 no birds sighted, 17/12/24 nest confirmed to have failed.
18	Summerland Beach (east)	12/12/2024	39 YLF	UB	1	3			failed		Found by HF 2 eggs on cobbles. 3 eggs 13/12/25. Only 2 eggs 19/12/24. 8/1/25 birds seen further down the beach with no eggs in the nest, no sign of chicks, likely failed, no evidence of failure. Checked again 10/1/25, no eggs or chicks, new scrape found.
19	Smiths Beach (far east)	23/12/2024	1B YLF	UB	2	1			failed		Found by MT as 1 egg nest 23/12/24. Didn't confirm pair. Egg appears abandoned from 31/12 as no fresh prints. Egg still there with no prints or incubation 6/1/25
20	Summerland Beach (centre)	27/12/2024	84 YLF	7B YLF	1	1			failed		1 egg nest found by HF, Y84 has a new partner. No signs of a nest 30/12/24, lots of raven prints in the location of the nest

21	Elizabeth cove	27/12/2024	UJ WLF	UB	2	2	2	2	1D YLF	2D YLF	Found as a 2 egg nest by Quentin Mattiske. chicks dissapeared but were found at grossard point 30/1, chicks banded 20/2/24 around Devon Ave. Meg saw one juvenile flying 1/3/25.
22	Kitty Miller Bay	31/12/2024	4B YLF	UB	2	2	2	2	9C YLF	0C YLF	Nest suspected by Bec 31/12/24, 2 egg nest confirmed by MT and CB 2/1/25. Exisitng camera swivelled to face new nest. 2 chicks from 27/1/25, Chicks banded 20/2/25. Juveniles seen flying by HF 28/2/25.
23	Colonnades	3/01/2025	03 YLF	UB 'limpy'	1	1	1		failed		Found by MT as 1 egg nest and refuge installed 3/1/2025.1 chick 3/2/25 camera shows chick on 1/2/25. Camera had been tampered with and left open and covered in sand so we retreived it, lucky it was still taking photos. Chick body found washed up by Simon C 10/2/25 no obvious injuries high winds over the last few days but tides weren't extreme
24	Anchorage Rd	3/01/2025	85 YLF	UB	2	2	2	1	3D YLF		Found as one egg nest by Dave 3/1/25, 2 eggs during camera installation on 8/1/25, 2 chicks 3/2/25. Both chicks small at 30 days 05/03/25 (37g and 39g) 1 chick banded 052-78622 yellow 3D other chick released following bleed from band overlap removal. Chick monitored however died 8/03/25 at wildlife clinic, vet thought infection combined with poor development. Short chick flight seen on 19/3/25 then longer one on 26/3/25.
25	Anzacs (east)	13/01/2025	JL WLF	RL WLF	1	1			failed		Found as 1 egg nest by Jesse Cimorelli. Needs a refuge asap. Failed, egg gone 14/01/2025. suspect raven and human prints.
26	Summerland Beach (east)	13/01/2025	39 YLF	UB	2	3					Found as 1 egg nest by HF, in dunes so maybe no refuge? 3 eggs 21/1. Failed 25/1/25, eggshells found by HF with small 1-2mm hole in shell.
27	Broadwater Ave	14/01/2025	ZT WLF	UB	2	3	2	2	4D YLF	5D YLF	Found as 1 egg nest by Nick White, egg gone on later visit by Peter Wagstaff the same day. second egg found 16/1/25 another egg on 21/1/25 making a total of 3 eggs. 2 chicks 16/2/25. Peter w saw excellent flights from both chicks on 29/3/25
28	Colonnades (west)	23/01/2025	31 YLF	49 YLF	1	3			failed		3 egg nest found by MT. Nest gone when checked 29/1, suspect tide, however dog prints also close to nest.
29	Smiths Beach (far east)	24/01/2025	1B YLF	UB	3	3	1		failed		2 egg nest found by MF. 3 eggs 30/1/25. Tide took 2 eggs early 16/2/25. 1 egg recorded 19/2/25. Camera shows 1 chick 22/02/25, then 2 eggs 23/2/25 (and 1 chick). Floated remaining eggs 12/03/25 but think they were addled as no sign of incubation so result unreliable. Eggs still there on 30/4/25, a distance from the nest. one with a small hole (not large enough for predation) which was empty (addled) and the other had a nearly fully developed chick which is evidence that they are the original eggs that have been moved by tide and reappeared from either being buried and uncovered or pushed back into the nest.

30	Summerland Beach (east)	3/02/2025	39 YLF	UB	3	2			failed		2 egg nest found by HF, Nest was washed over by the tide, the birds remade the scrape with one egg in and one egg just outside, a couple of metres below the last high tide mark (sand was still wet). MT carefully returned the second egg to the nest. Eggs gone 10/2, strong wind had blown fresh sand over beach, no evidence of failure.
31	Magiclands	4/02/2025	JL WLF	RL WLF	2	2	2		failed		Nest likely there since at least 27/1/25 when MoP reported they were in the same spot for 4-5 hours. Different MoP reported the two eggs 4/2/25. egg float 5/2/25 showed eggs are only 1 week from hacthing! 2 chicks 16/2/25. Only one chick seen 26/2/25 by BLC and confirmed by Annie.
32	Colonnades (west)	7/02/2025	31 YLF	49 YLF	2	3			failed		1 egg nest found by MT at the very western end of refuge, we fixed a fallen post but didn't move the refuge as there were ravens and maggies around and it was still in there. 3 eggs 11/2/25. Eggs gone 26/2/25. High tide evident in camera 23/2/25

Appendix B: *Summary of hooded plover chick band and flag details 2024/25*

Date banded	Nesting site	Band no.	Band location	Leg flag details	Flag location	Bird status	Weight (g)	Notes
17/12/2024	Broadwater Ave	05278613	Left tarsus	Yellow 4C	Left tibia	Chick	63	
17/12/2024	Anchorage rd.	05278614	Left tarsus	Yellow 5C	Left tibia	Chick	70	
28/01/2025	Surf Beach	05278615	Left tarsus	Yellow 6C	Left tibia	Chick	52	
5/02/2025	Crazy Birds	05278700	Left tarsus	Yellow 7C	Right tibia	Chick	59	
12/02/2025	Cowrie Beach	05278616	Left tarsus	Yellow 8C	Left tibia	Chick	83	Caught and banded after fledging
20/02/2025	Kitty Miller Bay	05278617	Left tarsus	Yellow 9C	Left tibia	Chick	61	
20/02/2025	Kitty Miller Bay	05278618	Left tarsus	Yellow 0C	Left tibia	Chick	52	
20/02/2025	Elizabeth Cove	05278619	Left tarsus	Yellow 1D	Left tibia	Chick	46	
20/02/2025	Elizabeth Cove	05278620	Left tarsus	Yellow 2D	Left tibia	Chick	47	
5/03/2025	Anchorage rd.	05278622	Left tarsus	Yellow 3D	Left tibia	Chick	39	
18/03/2025	Broadwater Ave	05278621	Left tarsus	Yellow 4D	Left tibia	Chick	46	
18/03/2025	Broadwater Ave	05278623	Left tarsus	Yellow 5D	Left tibia	Chick	43	

Appendix C: *Band details of birds recorded in MyBeachBird portal and in Coastal Bird Survey in the 2024/25 season on Phillip Island* (Milawul) *as well as fledglings from 2023/24 who have been sighted elsewhere. Incomplete data for hooded plovers banded elsewhere*

Date banded	Band number	Colour combination	Location banded	Age at banding	Sex	2023/24 fledglings sighted at 9 months of age (yes/no)	Comments
13/02/2013	05248057	03 Left (Yellow)	Silverleaves	Juvenile	Unknown		
16/02/2023	05268700	0A Left (Yellow)	Colonnades West	Juvenile	Male		
8/02/2024	05278609	0B Left (Yellow)	Smiths Beach	Juvenile	Male	Yes	
5/01/2015	05268605	12 Left (Yellow)	Anchorage Rd	Juvenile	Female		
29/07/2015	05268612	19 Left (Yellow)	Surf Beach	Adult	Male		
02/02/2022	05268691	1A Left (Yellow)	Ventnor, Devon Av	Juvenile	Male		
04/03/2022	05268692	1B Left (Yellow)	Kitty Miller Bay	Juvenile	Unknown		
1/03/2024	05278610	1C Left (Yellow)	Colonnades	Juvenile	Male	Yes	
16/02/2023	05278601	2B Left (yellow)	Summerland Beach	Juvenile	Male		
23/01/2017	05268623	31 Left (Yellow)	Surf Beach	Juvenile	Male		
24/02/2017	05268631	39 Left (Yellow)	Elizabeth Cove	Juvenile	Male		

02/03/2023	05278602	3B Left (Yellow)	Summerland Beach Center	Juvenile	Female	
27/12/2017	05268636	44 Left (Yellow)	Smiths Beach	Juvenile	Male	
24/01/2018	05268641	49 Left (Yellow)	Woolshed Bight	Juvenile	Female	
02/03/2023	05278603	4B Left (Yellow)	Crazy Birds	Juvenile	Male	
18/04/2023	05278604	5B Left (Yellow)	Surf Beach	Juvenile	Female	
22/02/2019	05268658	66 Left (Yellow)	Surf Beach	Juvenile	Male	
06/01/2023	05268697	6A Left (Yellow)	Anchorage Rd	Juvenile	Male	
27/10/2020	05268670	78 Left (Yellow)	Anchorage Rd	Juvenile	Female	
19/01/2024	05278606	7B Left (Yellow)	Crazy Birds	Juvenile	Female	Yes
08/12/2020	05268676	84 Left (Yellow)	Ventnor, Devon Av	Juvenile	Male	
29/12/2020	05268677	85 Left (Yellow)	Cape Woolamai	Juvenile	Female	
14/01/2021	05268678	86 Left (Yellow)	Crazy Birds	Adult	Female	
06/01/2023	05268698	8A Left (Yellow)	Anchorage rd	Juvenile	Male	

1/04/2021	05268683	91 Left (Yellow)	Flynns Beach	Juvenile	Male		
18/01/2022	05268685	93 Left (Yellow)	Anchorage Rd	Juvenile	Female		
02/02/2022	05268688	97 Left (Yellow)	Smiths Beach	Juvenile	Unknown		
02/02/2022	05268690	99 Left (Yellow)	Ventnor, Devon Av	Juvenile	Male		
8/02/2024	05278608	9B Left (Yellow)	Smiths Beach	Juvenile	Female	Yes	
4/04/2014	05306135	BR Right (Orange)	Boags Rocks	Juvenile	Male		
20/03/2017	05280592	CU Right (White)	Cape Patterson	Juvenile	Male		
		CX Left (White)					
18/02/2011	05248036	Gm/YR (m/_ _) (Metal band only remains)	Crazy Birds	Juvenile	Unknown		Coloured bands missing, now metal only (confirmed through photo of the band)
		EN Left (White)					
		EU Left (White)					
13/02/2019	05287997	JL Right (White)	Gunnamatta Fingal Track	Juvenile	Female		

12/02/2020	05306194	KB Left (White)	Williamsons Beach west	Juvenile	Unknown
		KU Left (White)			
26/07/2010	05245490	PX Right (Orange)	Forrest Caves	Sub Adult	Unknown
7/02/2018	05306191	RL Left (White)	Twin Reefs	Juvenile	Male
		TS Left (White)			
		UJ (White)			
		WE Right (White)			
8/01/2016	05280577	YU Right (Orange)	Sandy Waterhole	Juvenile	Male
31/01/2023		ZT Left (White)	San Remo	Adult	Male