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A SUMMARY OF BREEDING SUCCESS FOR THE 2023-2024 SEASON

Monitoring Hooded Plovers on the Adelaide coast and Fleurieu Peninsula

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A summary of the breeding success for the 2023-2024 season.

Cover photo: Minda Dunes (Brian Wilson)

Second page photo: Snapper Point (Sue and Ash Read)

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Executive Summary

The Hooded Plover monitoring, site protection and community engagement is coordinated through Birdlife Australia's Sharing our Shores with Coastal Wildlife Project staff and supported by the Green Adelaide Board. It is funded primarily through the Green Adelaide Board with additional support from the Australian Government's National Landcare Program, administered by the Hills and Fleurieu Landscape Board. It is further supported by BirdLife Australia's National Beach-nesting Bird team and resources. The work is undertaken in collaboration with Adelaide metro and Fleurieu coastal councils and relies on dedicated support from trained BirdLife Australia volunteers.

During the 2023/24 Hooded Plover breeding season, 87 people entered 4,872 observations into the MyBeachBird data portal, (compared to 75 people in 2022/23). Volunteers, Volunteer Regional Coordinators (VRCs) and Beach Leaders contributed a remarkable 6,906 hours over the season. An additional 728 entries were completed before and after the August to April breeding season, capturing valuable information about flocking and roosting sites. There were 63 sites visited through the season with 47 sites monitored frequently. There were 36 Hooded Plover breeding pairs confirmed to be actively nesting at 37 sites on the Adelaide Metro and Fleurieu coast with two additional sites with scrapes. The remaining sites recorded no breeding activity. The number of breeding pairs is the same as the previous season (36 breeding pairs in 2022/23) and these are the highest recorded number of breeding pairs since the program began in 2009/10 when there were 12 breeding pairs.

Over the 2023/24 season, the number of breeding attempts, eggs and chicks were the highest recorded since the program began. There were 123 breeding attempts, 315 eggs observed, 97 chicks observed and 18 fledglings (compared to 57 chicks and 16 fledglings in 2022/23 and 73 chicks and 19 fledglings in 2021/22). The number of nests that failed at egg stage was 66.7%, lower than last season (77.3% in 2022/23), and similar to the season prior to this (67.7% in 2021/22). Twenty-four nest failures (accounting for 19.51% of failures) were suspected to have been the result of fox depredation with records of fox prints around these nests and foxes were confirmed via remote nest camera as the cause of failure for two of these nests (compared to 25.45% in 2022/23 season). High tides and storm surges caused 15 nest failures (12.19%). Although there was the highest number of chicks observed since the program began there was the lowest percentage of chick survival recorded (18.6%). Known causes of failure of chicks include kestrels, silver gulls and dogs with additional causes of failure suspected to be fox predation, hot weather, strong winds and human disturbance. Despite the loss of eggs and chicks, the Hooded Plover fledgling per pair result was 0.50, which meets the target range of 0.4-0.5 to maintain population viability over time.

The 18 fledglings from the 2023/24 breeding season came from across the region. There were two new breeding sites this season, Minda Dunes and Bird Island. Minda Dunes, in Holdfast Bay council area, had two fledglings and these were the earliest recorded fledglings for the national program this season. Bird Island had one fledgling. There were seven fledglings in the Onkaparinga council area, with five of these from Port Willunga sites. There were six fledglings from the Yankalilla council area and two from Victor Harbor. Of the 18 fledglings, five were from remote sites (Bird Island – 1, Shelley Beach – 3, and Tunkalilla East – 1).

Of the 123 confirmed nests on the Adelaide Metro and Fleurieu Peninsula coast, 94 (76.42%) nests had some form of nest site management (predominantly temporary fencing and signage). Of the 18 fledglings this season, 17 came from nests with some form of management. The other fledgling was from Tunkalilla East, a remote site.

Suspected fox depredation was present across the region, from Adelaide metro to the South Coast. This season Green Adelaide invested in research into the effectiveness of sound deterrents on foxes predating Hooded Plover nests. Green Adelaide also funded fox den searches with staff, a contractor and utilising sniffer dogs followed by den fumigation done in partnership with local government, DEW and private land managers. Fox den searches were undertaken across the Adelaide Metro and Fleurieu region, and 119 fox dens were found and treated.

Dog disturbance and impacts on nesting activity is still of high concern. Council compliance teams have invested considerable staff resources for compliance visits to Hooded Plover sites and most councils have now incorporated a By-law requiring dogs-on-lead at Hooded Plover breeding sites. The Yankalilla Council's By-law was open for review in 2024 and BirdLife Australia provided a submission supporting the proposed changes for an exclusion zone around a nesting site and recommending a 100-metre dog-on lead zone around Hooded Plover breeding areas, consistent with other local government areas. Compliance visits and use of council dog signs has gradually increased since 2017 when councils, working with BirdLife Australia and Green Adelaide (AMLR NRM Board at the time), first started introducing the new regulations. However, review of threat data collected by volunteers for each council area reveals that numbers of off leash dogs detected within the 100 metres of Hooded Plover breeding sites are still prohibitively high. Stricter regulations will become a future necessity if successful coexistence (i.e. as a minimum, leashing dogs in the vicinity of actively breeding Hooded Plovers) cannot be achieved.

Vehicles on beaches adds yet another threat to beach-nesting birds. Vehicles can cause disturbance to nesting birds forcing the incubating adults to leave the nest. Vehicles can also strike flightless chicks and disturb their access to critical foraging areas by the shoreline, resulting in starvation. In addition, Hooded Plovers are still vulnerable to vehicle strike when newly fledged as they are dispersing across unfamiliar coastlines and becoming exposed to new threats. An example of this vulnerability was seen when a fledgling was found between tyre tracks at Sellicks Beach. BirdLife

Australia continues to advocate for better protection of beach-nesting birds, for example in December 2023 BirdLife Australia provided a submission to the Yankalilla Council Foreshore By-law review 2023 regarding vehicle exclusion areas and recommending a vehicle management plan be developed.

Individual Council and National Parks (Newland Head Conservation Park) reports are produced each year summarising breeding success, threats, and recommendations. BirdLife Australia's Sharing our Shores with Coastal Wildlife staff have start-of season meetings with all councils and Department for Environment and Water (DEW) National Parks rangers to discuss the actions and to plan for the season ahead.

Two Port Willunga fledglings, Oct 2023 (Photo Sue & Ash Read)

Introduction

Over 85% of the Australian population lives within 50 kilometres of the coast. A growing trend for a 'sea change', and with coastal tourism representing $24.7 billion Australia wide in 2019, significant and increasing pressure is placed on shorebirds. In South Australia, there are four species of resident shorebirds, the Pied and Sooty Oystercatchers, Red-capped Plovers and Hooded Plovers, that nest on ocean beaches and offshore islands, as well as seabirds such as the Fairy Tern that is listed as threatened nationally and endangered in South Australia.

Hooded Plovers are listed as Vulnerable and both Oystercatcher species as Rare in South Australia under the National Parks and Wildlife Act 1972. Hooded Plovers (Eastern) are also listed as Vulnerable under national legislation, the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). This listing occurred in 2015 based on citizen science data collected through biennial counts and monitoring of breeding success, providing evidence for the species eligibility under threatened criteria. Under the EPBC Act, a Conservation Advice has been prepared for the Eastern Hooded Plover in 2014. This conservation advice aims to provide national direction to implement priority actions and mitigate against key threats. A review and update were undertaken in 2019 but awaits Ministerial approval.

Hooded Plovers are the most threatened of beach-nesting resident shorebirds because they are habitat specialists. They are limited to breeding and feeding exclusively on ocean beaches in South Australia, with the rare exception of some coastal saline lakes in parts of the Southeast coast, Yorke Peninsula and on the Eyre Peninsula. The Fairy Tern is a small bird, that feeds primarily on fish and is generally restricted to shallow water coastal areas and estuaries. Fairy Terns prefer to nest close to available food resources to forage, whereas oystercatchers have a broader nesting habitat range which includes rocky outcrops, islands and more heavily vegetated dune areas. Red-capped Plovers occupy a range of habitats including samphire saltmarsh, freshwater wetlands, low energy beaches, salt fields and claypans.

Beach-nesters make simple nest-scrapes in the sand and their well-camouflaged eggs and chicks are extremely difficult to spot, and therefore at great risk of being trampled by visitors to the beach. People, unleashed dogs, horses and vehicles on beaches not only pose a direct threat, but they also disturb incubating adults, resulting in temporary nest abandonment which exposes the eggs and chicks to harsh temperatures, and both natural and introduced predators such as ravens, gulls, magpies, foxes and cats. This is particularly true of disturbances caused by unleashed dogs and vehicles, where adults spend long periods away from the nests and chicks. Furthermore, residential development and littering attract increased numbers of predators to beaches.

Chicks cannot fly for five weeks and need to forage on the beach to survive: this places them in harm's way, and they are easily crushed or disturbed by people, dogs and vehicles on the beach. If they spend too much time in hiding, they can starve to death or be exposed to harsh temperatures in the absence of a brooding adult. The adult birds attempt to distract potential threats, leaving the chicks unattended and exposed to predators. In addition, vehicles on beaches compact the sand, impacting on the bulk of prey items that these shorebirds rely on Hooded Plovers remain vulnerable to vehicle strike when newly fledged as they are dispersing across unfamiliar coastlines and becoming exposed to new threats.

Given the severe pressures placed on coastal breeding birds, in particular the threatened status of the Hooded Plover, BirdLife Australia embarked on a project to 'promote coexistence between recreationists and Beach-nesting Birds' in 2006. Beaches will always be popular places for recreation within Australian culture, and the best solution to a problem which is very much human generated, is to try and engage people to change their behaviours and help protect these birds so they have a future. This project has evolved into the National Beach-nesting Birds Program and is currently funded by a range of Government grants and stakeholder partnerships, as well as various philanthropic trusts and donors across Australia.

The Beach-nesting Birds program on the Fleurieu Peninsula was initiated as a collaboration between BirdLife Australia and Adelaide and Mt Lofty Ranges Natural Resources Management Board in 2008 - 2009, with initial investment supporting the 2008 Hooded Plover Biennial Count. With the enactment of the Landscape South Australia Act 2019, NRM Boards were superseded by Landscape Boards. The Adelaide Metro and Fleurieu Peninsula Hooded Plover population spans across both the Green Adelaide and Hills and Fleurieu Landscape Board regions. This season there were 13 pairs nesting at 13 sites on Green Adelaide's coastline, representing 36.1% of the population. This is an increase from 12 pairs in 2022/23 nesting at 12 sites. The remaining 23 pairs (63.9%) occur along the Hills and Fleurieu Landscape Board's coastline (down from 24 pairs in 2022/23). Green Adelaide continues to support the program through funding and staff across the two regions. Resourcing through the Australian Governments National Landcare Program was also accessed via the Hills and Fleurieu Landscape Board to support the program from 2019-2023.

The Hooded Plover program is an excellent example of conservation success. Strong partnerships, volunteer investment and community working together, to not just halt the decline of this threatened species, but to ensure it thrives. Busy urban beaches have seen remarkable success and is an excellent case study showing that wildlife and the community can co-exist.

Aims of the program

The main aim of the National Beach-nesting Birds (BNB) program is to involve coastal communities and land managers in the protection of breeding sites to see an overall improvement in breeding

success. The program focuses on the Hooded Plover in Victoria, South Australia and Western Australia and uses an adaptive management approach, improving on-ground management and community awareness strategies over time. The results are applicable in a broader sense to other beach-nesting birds around Australia.

The national objectives of this recovery program are to:

1. Improve breeding success and population resilience of Hooded Plovers through:
   - On-ground threat mitigation at priority sites across the species range.
   - Research to overcome key knowledge gaps including improving threat mitigation, as well as to evaluate and adapt best practice for Hooded Plover recovery.
   - Education to shape sustainable beach use behaviours.
2. Identify, protect, and restore critical habitat so that the current distribution is protected and maintained or improved.
3. Develop tools, resources, capacity and supportive policy to ensure long-term sustainability and consistent delivery of recovery actions.

In the Adelaide metro and Fleurieu Peninsula specifically, our aims are expanded into the following detailed actions:

1. Improve breeding success and population resilience of Hooded Plovers:

i. Monitor the breeding status of all known pairs on the Fleurieu Peninsula during the breeding months (August-March). Seek to maintain monitoring of sites over time to quantify improvements in breeding success related to management investment.

ii. Ensure all sites where birds are monitored, have potential threats being simultaneously monitored. This is to assess changes in the occurrence and severity of threats over time, to detect new and emerging threats, and to assess the impact of threats on breeding outcomes.

iii. Implement on-ground protection of individual breeding sites assessed as vulnerable, following best practice management protocols outlined in 'A practical guide to managing beach-nesting birds in Australia' (Maguire 2008).

iv. Implement an adaptive management approach, by investigating the effectiveness of nest site protection and modifying where appropriate (and following best practice) in subsequent seasons. For example, management techniques can be adapted to local geomorphological and beach user specifications.

v. Install remote cameras at nest sites where nests repeatedly fail to detect and identify nest predators. This is done following strict protocols and there are strict limits on the frequency of use of remote cameras to avoid any predator associations between cameras and nests.

vi. Band a sample of Hooded Plovers on the Fleurieu Peninsula and maintain a database of future sightings to track movements, survival rates and site and pair fidelity. This will lead

to better knowledge about the exchange of birds between the Fleurieu Peninsula and other regions of South Australia, and possibly other states, enabling a better idea of what we consider a population. Blood samples are taken to contribute to a collaborative study of population genetics carried out by Museums Victoria, Deakin University and BirdLife Australia.

vii. Increase awareness and engagement of communities in Hooded Plover conservation via media, social media, and organised events and activities such as the biennial count, scope viewing, dog's breakfasts, community art projects, school visits and craft stalls. Awareness raising and opportunities to participate are carried out with the aim of changing beach user behaviour to promote long-term coexistence and minimise human impacts.

2. Protect and restore critical habitat so that the current distribution is maintained and protected

i. Maintain a current distribution map and database of the location of breeding pairs of Hooded Plovers on the Adelaide coast and Fleurieu Peninsula.
ii. Participate in the Hooded Plover eastern mainland census (Biennial Count) every two years (e.g. November 2022, November 2024) to inform population trend and high-level threat trend analyses.
iii. Using threat assessments from the Biennial Count, coupled with local volunteer knowledge of intensively monitored sites, identify sites where habitat is being degraded by invasive or introduced weeds and target these sites for weed control.
iv. Identify sites at risk of tidal inundation and investigate potential for habitat retreat or habitat improvements to create longer-term resilience to adapt to rising sea levels.
v. Protect sites from habitat modifications that will impact suitability for nesting, foraging, roosting or flocking.
vi. Seek to understand impacts of climate change on population distribution and to prioritise sites for habitat protection, including protection from future coastal armouring projects.

3. Develop tools, resources, capacity and supportive policy to ensure long-term sustainability and consistent delivery of recovery actions.

i. Establish 'Friends of the Hooded Plover' regional groups on the Adelaide Coast and Fleurieu Peninsula to encourage community ownership and long-term sustainability of the program.
ii. Develop new resources and materials to support and improve participation of volunteers and land managers in monitoring and recovery actions for the Hooded Plover.
iii. Hold regular meetings, workshops and training opportunities and support communications between volunteers, land managers and program coordinators so that all participants share feedback and work collaboratively toward improved recovery outcomes.
iv. Ensure all data is entered into BirdLife Australia's MyBeachBird portal to contribute to the national program.

v. Work in partnership with land managers to deliver consistent on-ground recovery actions, signage and messaging.

vi. Engage with local, state and federal government policy and decision makers to ensure threats to Hooded Plovers and their habitat are acknowledged and managed accordingly. This may for example include influencing local bylaws, statewide threatened species or coastal planning legislation, tourism or events management, beach renourishment projects, etc.

The main roles of the different groups working on this project are as follows:

- BirdLife Australia staff provide strategic direction for recovery of Hooded Plovers across the Eastern mainland, register and induct volunteers, maintain ethics and permit approvals, provide advice, workshops, training, and technical support, as well as data analysis and maintenance of the national MyBeachBird database. BirdLife Australia staff carry out research to improve recovery efforts, analyse and review data to maintain an adaptive management approach, and maintain a national network for information sharing and supporting recovery of the Hooded Plover. BirdLife Australia staff work to raise awareness and provide education to coastal communities. BirdLife Australia staff work with BirdLife Australia volunteers, Green Adelaide Coast and Seas team, councils, Hills and Fleurieu Landscape Board, and Department for Environment and Water (DEW) to coordinate or advise on nest protection responses across the coast.
- In some regions along the Adelaide and Fleurieu coast, Coastal Conservation Officers from the Green Adelaide's Coast and Seas team coordinate nest protection responses for the project and support BirdLife Australia volunteers, and local council staff for on ground implementation.
- A Regional Support Officer role funded by the Hills and Fleurieu Landscape Board assists with delivery of volunteer support, awareness raising and site protection.
- BirdLife Australia Volunteer Regional Coordinators and Volunteers undertake the important roles of monitoring breeding birds and site threats, recording data on the portal, installing fences/signs, and talking with the public, etc.

Connection to regional and statewide plans

At a regional level, two Coastal Action Plans have been completed for the Adelaide and Mount Lofty Ranges Natural Resources Management Board region: the Southern Fleurieu Coastal Action Plan (SFCAP) and for relevant coastal areas of the Metropolitan Adelaide and Northern Coastal Action Plan (MANCAP). These plans contain detailed coastal maps and plant and animal lists and are currently being reviewed in 2023-24 to contain the most up to date and relevant data and recommendations. The plans also outline key conservation priorities along the coast, provide suggested actions and identify key partners and stakeholders to be involved.

The Coastal Action Plans are used to assist in priority setting of coastal management actions for the Green Adelaide and the Hills and Fleurieu Landscape Boards, councils, DEW and private landholders. In implementing the Coastal Action Plans, the Green Adelaide and Hills and Fleurieu Landscape Boards address local initiatives identified in the Coastal Action Plans to conserve Hooded Plovers and other Beach-nesting Birds, as well as providing resourcing towards BirdLife Australia coordination.

Green Adelaide is currently reviewing MANCAP priority actions and achievements with local councils, stakeholders, partners and Hills and Fleurieu Landscape Board are also reviewing the SFCAP. This will update the extension of Hooded Plover territories and flocking sites in the metro Adelaide area and capture additional threats not previously included. In view of the status of this species, the Hooded Plover has been flagged as a focal species for the SFCAP and the MANCAP area.

The South Australian Recovery Plan for the Hooded Plover (Baker-Gabb and Weston 2006) remains in draft form. Relevant actions and priorities of this draft were incorporated into the Coastal Action Plan's detailed local actions to manage foreshore use to minimise impact on the species during the nesting and fledging season. Key players identified were the Department for Environment and Water, councils, community, and the previous Natural Resources Management Board. Many of these actions and priorities, need updating due to the considerable advances in research and knowledge of South Australian Hooded Plover sites, threats, and actions since 2006. While BirdLife Australia has developed a Conservation Action Plan (2019-current) and is currently acting to coordinate recovery actions, working alongside each of the Landscape Boards, across South Australia, there would be great benefit to updating the South Australian Hooded Plover recovery plan and formalising this to strengthen support and awareness of the current aims and approach.

An Overview of the 2023/2024 Breeding Season

Monitoring effort and site use

As part of BirdLife Australia's Beach-nesting Birds Program, monitoring of breeding Hooded Plover pairs using the MyBeachBird portal occurred at priority sites across South Australia. On the Adelaide Metro coast and Fleurieu Peninsula, an attempt is made to monitor all occupied sites, i.e., the entire population of Hooded Plovers, while elsewhere in South Australia, only a sample of breeding pairs are monitored within each Landscape region due to logistical and resource constraints, and the smaller population sizes from which to recruit volunteers.

The volunteers and staff on the Adelaide Metro coast and Fleurieu Peninsula once again displayed a tremendous effort in entering their sightings into the MyBeachBird portal with a total of 4,872 data records entered during the 2023/2024 Hooded Plover breeding season and an additional 728 outside of the breeding period, capturing valuable information about flocking and roosting sites. There were 81 BirdLife Australia volunteers that entered observations into the MyBeachBird portal along with four BirdLife staff and two Green Adelaide staff.

Overall, 37.75% of the data entries for the national Hooded Plover program, and 73.84% of all South Australian entries were from the Adelaide Metro and Fleurieu Peninsula, which is to be commended. It also highlights the value of having BirdLife Australia's Sharing the Shores with Coastal Wildlife Project staff based in Adelaide (supported by the Green Adelaide Board), the support from multiple VRCs and Beach Leaders and the additional support available from the Green Adelaide Coast and Seas team.

Volunteers contributed a remarkable 6,906 hours over the breeding season. Volunteer time includes time monitoring the birds and installing site protection management, travel time, data entry time, planting spinifex at the Our Plover Coast weed control sites, and the additional coordination and actions undertaken by the Volunteer Regional Coordinators (VRCs) and Beach Leaders. The VRCs and Beach Leaders contributed approximately 1,968 of the volunteer hours. It is important to note that these hours are best estimates but certainly an underestimate as they do not reflect all of the hours volunteers put in over emails, training & meetings, going through photos, in observations outside of the breeding season and other situations that have not been accounted for. In addition, these volunteer hours do not include hours spent monitoring other species of beach-nesting birds.

There were 63 sites visited by volunteers over the breeding season, 47 of these were regularly monitored for breeding. Historically occupied sites and flocking sites were visited in addition to known breeding sites, to determine if there were new breeding pairs. Of the 63 sites, 39 sites had pairs demonstrating breeding behaviour, with nests on 37 sites and two sites with scrapes only. New nesting sites were established at Bird Island and Minda Dunes. The pair that established the site at Minda Dunes nested 3 times at that location before moving to Seacliff/Brighton for their 4th

and final nest of the season. Moana Beach South, Snapper Point and Yankalilla River Mouth all had partner changes during the season.

Data included in the report is from breeding pairs that have had monthly visits (as a minimum). Anything less than monthly visits means that it is not possible to confirm the number of nesting attempts and could potentially miss an entire fledging event if enough months are missed.

Five sites had no birds sighted for the season but are still checked as some were historically occupied and potentially a location where young birds may try to establish a territory. The remaining sites had birds sighted, either individuals or flocks at least once during the season. Access to Port Stanvac was possible this season and last season, enabling BirdLife staff and volunteers to monitor the breeding pair. This access was restricted previously during the decommissioning phase; however, there is evidence of people and their dogs accessing the site as the southern boundary fence is being regularly vandalised and an open entry point now exists for the public.

Tables 1-4 provide an overview of breeding sites monitored and Figures 1 and 2 show breeding site locations. A breakdown of the number of data portal entries for each site, and threat assessments at each site can be found in Table 1.

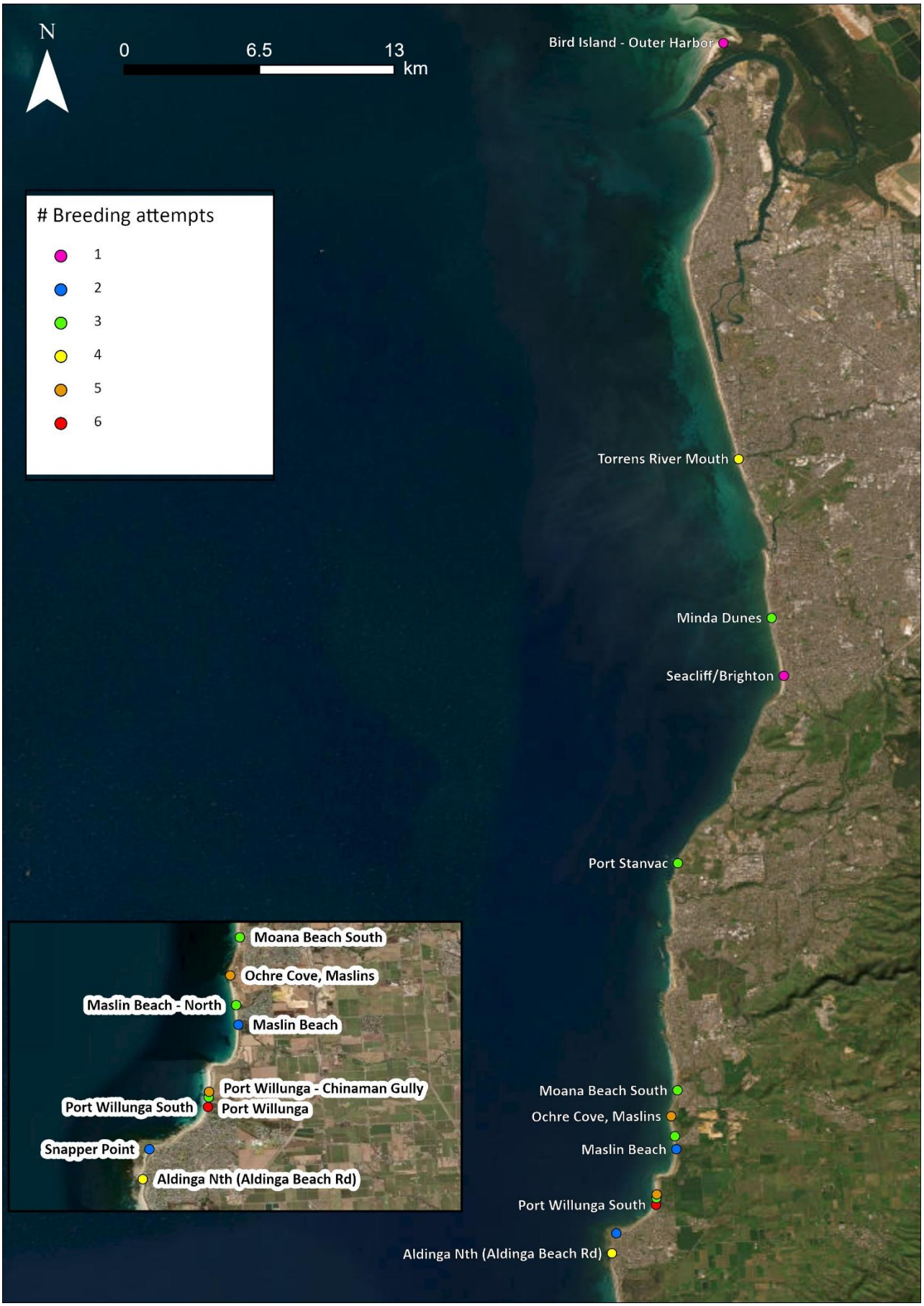


Figure 1. Hooded Plover breeding sites and number of breeding attempts at each site within Green Adelaide (Bird Island to Aldinga North) for the 2023/2024 season.

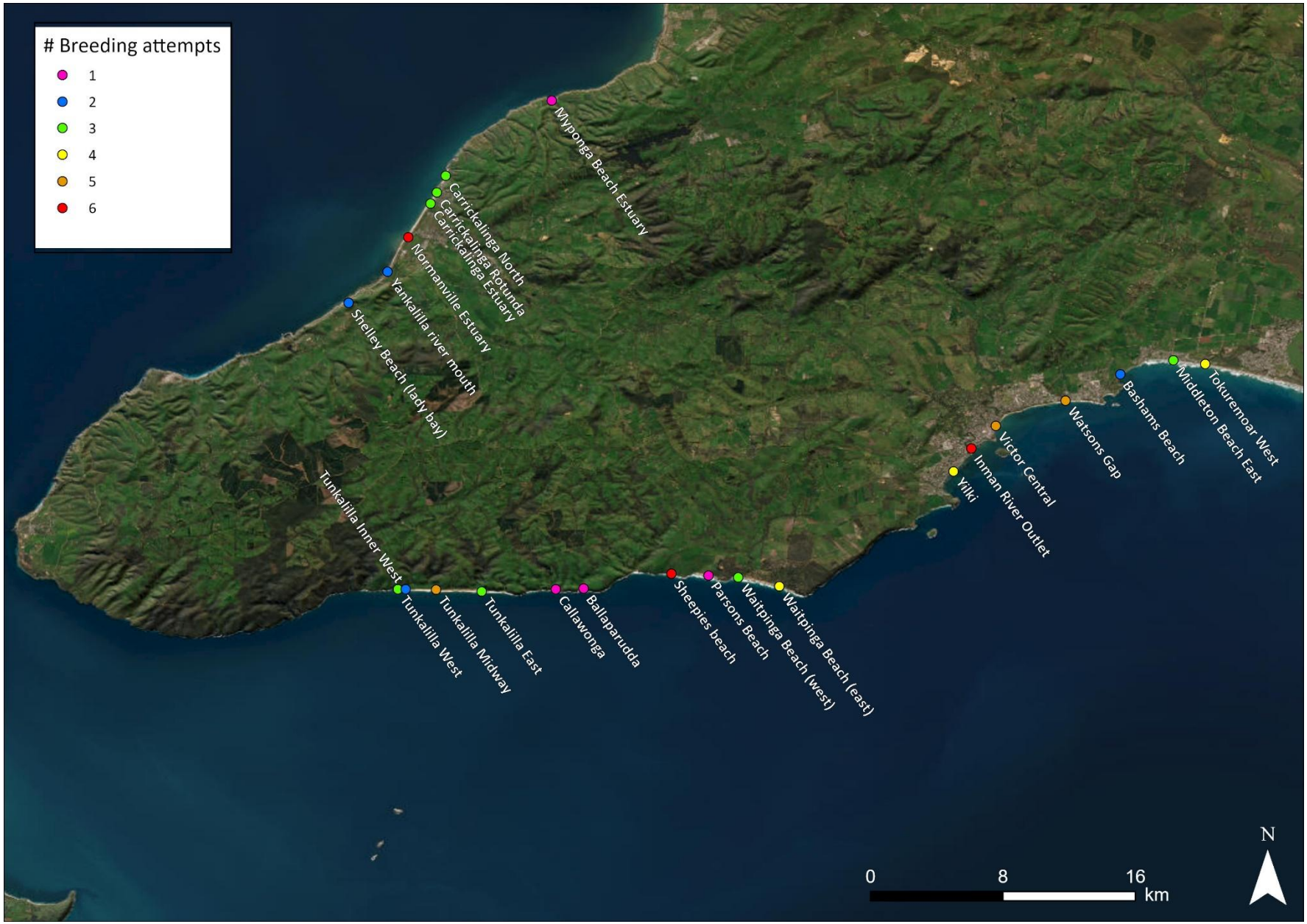


Figure 2. Hooded Plover breeding sites and number of breeding attempts at each site within Hills and Fleurieu Landscape Board region (Myponga Beach to Tokuremoar West) for the 2023/2024 season.

Table 1. Number of portal entries and threat assessments on the Fleurieu Peninsula during the 2023/24 breeding season. Portal entries are the number of entries entered via the online 'Mybeachbird' data portal. Full threat assessments include both the observed number of threats plus print assessments. There are some sites where the substrate does not allow for print data to be collected (e.g. Rocky coastline, with no sand). *Denotes sites that were visited infrequently and not included in the 'sites monitored' in Table 2.

Site Territory	Portal Entries	Number threat assessments	Full threat assessments	% Full threat assessments completed
Aldinga*	7	5	5	71.43%
Aldinga Nth (Aldinga Beach Rd)	216	163	88	40.74%
Aldinga South*	2	2	1	50.00%
Ballaparudda/Callawonga	12	12	12	100.00%
Bashams Beach	85	85	85	100.00%
Bird Island - Outer Harbor	7	4	1	14.29%
Carrickalinga Estuary	68	31	13	19.12%
Carrickalinga North	130	82	44	33.85%
Carrickalinga Rotunda	78	38	7	8.97%
Carrickalinga South	17	2	0	0.00%
Deep Creek CP Blowhole Beach*	1	1	1	100.00%
Hallett Cove	27	27	26	96.30%
Henley Beach*	1	1	1	100.00%
Hindmarsh River Mouth	27	24	23	85.19%
Inman River Outlet	179	178	151	84.36%
Lands End	9	7	5	55.56%
Marino Rocks	7	1	0	0.00%
Maslin Beach	176	162	44	25.00%
Maslin Beach - North	198	154	63	31.82%
Middleton Beach East	134	134	129	96.27%
Middleton Beach West	45	45	45	100.00%
Minda Dunes	320	194	72	22.50%

Site Territory	Portal Entries	Number threat assessments	Full threat assessments	% Full threat assessments completed
Moana Beach	39	28	21	53.85%
Moana Beach South	161	123	101	62.73%
Morgans Beach Fleurieu*	1			0.00%
Myponga Beach East	10	2	2	20.00%
Myponga Beach Estuary	26	22	14	53.85%
Normanville Estuary	165	101	19	11.52%
Normanville North*	9	6	2	22.22%
Ochre Cove, Maslins	270	238	153	56.67%
Olivers Reef*	1	1	1	100.00%
Parsons Beach	27	25	25	92.59%
Port Stanvac	32	32	27	84.38%
Port Willunga	360	306	154	42.78%
Port Willunga - Chinaman Gully	327	267	148	45.26%
Port Willunga South	185	150	125	67.57%
Seacliff/Brighton	92	55	36	39.13%
Sellicks Beach	29	23	21	72.41%
Semaphore Park (Mirani Ct - Recreation Pde)*	4	2	2	50.00%
Semaphore Sth (Recreation Pde - Bower Rd)*	10	7	7	70.00%
Sheepies beach	25	15	14	56.00%
Shelley Beach (Lady Bay)	71	66	55	77.46%
Silver Sands*	4	2	2	50.00%
Snapper Point	230	197	50	21.74%
Southport*	1			0.00%

Site Territory	Portal Entries	Number threat assessments	Full threat assessments	% Full threat assessments completed
Tennyson Dunes (Estcourt Rd Fort St)*	4	2	2	50.00%
Tokuremoar West	130	127	112	86.15%
Torrens River Mouth	157	110	12	7.64%
Tunkalilla 1st alcove far east*	4	2	2	50.00%
Tunkalilla East	18	18	18	100.00%
Tunkalilla Inner West	18	18	18	100.00%
Tunkalilla Midway	22	21	19	86.36%
Tunkalilla West	19	19	19	100.00%
Victor Central	325	292	219	67.38%
Waitpinga Beach (east)	23	23	23	100.00%
Waitpinga Beach (west)	24	24	24	100.00%
Waitpinga Estuary	20	20	20	100.00%
Watsons Gap	105	105	104	99.05%
West Lakes Beach (Estcourt Rd - Mirani Ct)*	3	1	1	33.33%
Yankalilla River Mouth	34	27	23	67.65%
Yilki	141	141	117	82.98%
Grand Total	**4,872**	**3,970**	**2,528**	**51.89%**

Breeding success results

In the 2023/24 breeding season there were 123 nesting attempts by 36 breeding pairs on the Adelaide Metro coast and Fleurieu Peninsula. This is the highest number of nests, and thus eggs and chicks, recorded since monitoring began in 2009 (see Table 2). The results are likely supported by a combination of the recovery actions and increased efforts across the region, leading to the gradual recovery of the number of breeding pairs across the region and resulting in more breeding attempts. Pressures on chick survival should be further investigated and efforts directed to reducing those.

Table 2. Summary of number of breeding pairs, sites monitored for breeding (see Table 1 for sites monitored), nests, hatching or failing at egg stage, total number of eggs and chicks confirmed, and total chicks that fledged.

Season	# pairs (# sites monitored)	# nests	# nests hatch	# nests fail egg stage	#eggs	# chicks obsv. (% of eggs)	# fledglings (% of chicks)	Fledglings/ Pair
2009/10	12 (12)	18	9 (50.0%)	9	49	19 (38.8%)	7 (36.8%)	0.58
2010/11	19 (23)	36	14 (38.9%)	22	83	26 (31.3%)	9 (34.6%)	0.47
2011/12	14 (26)	24	10 (41.7%)	14	60	22 (36.7%)	8 (36.4%)	0.57
2012/13	20 (38)	34	11 (32.4%)	23	76	23 (30.3%)	9 (39.1%)	0.45
2013/14	18 (35)	35	12 (34.3%)	23	84	23 (27.4%)	9 (39.1%)	0.50
2014/15	20 (44)	46	17 (37.0%)	29	107	32 (29.9%)	10 (31.3%)	0.50
2015/16	21 (45)	42	26 (61.9%)	16	112	63 (56.3%)	19 (30.2%)	0.90
2016/17	24 (46)	56	19 (33.9%)	37	141	39 (27.7%)	16 (41.0%)	0.67
2017/18	27 (47)	59	23 (39.0%)	36	153	52 (34.0%)	18 (34.6%)	0.67
2018/19	33 (50)	86	22 (25.6%)	64	223	46 (20.6%)	10 (21.7%)	0.30
2019/20	28 (43)	82	32 (39.0%)	50	218	69 (31.7%)	17 (24.6%)	0.61
2020/21	31 (49)	98	26 (26.5%)	72	232	52 (22.4%)	14 (26.9%)	0.45
2021/22	31 (48)	93	30 (32.3%)	63	229	73 (31.9%)	19 (26.0%)	0.61
2022/23	36 (52)	110	26 (23.6%)	85	266	52 (19.5%)	16 (30.8%)	0.47
2023/24	36 (47)	123	41 (33.3%)	82	315	97 (30.8%)	18 (18.6%)	0.50

There were 18 fledglings in the 2023/2024 breeding season, up from 16 in the previous season. Despite a relatively large number of fledglings, of the chicks that hatched (97), survival rates to fledging were the lowest that have been recorded on the Fleurieu and Adelaide coast. However, the approximate benchmark for fledgling production to maintain population viability over time is set as 0.40 – 0.50 fledglings per pair per season, and this season meets this target (0.50). In addition to setting a benchmark to measure success, variation in the pairs responsible for fledgling production needs to be ensured to maintain genetic variation. The fledgling success was spread across the region this season, with 1 fledgling from Bird Island, 2 from Minda Dunes, 7 in the Onkaparinga region and the remaining 8 spread around the south coast. Figures 3 and 4 provide a geographic overview of locations where chicks hatched, figures 5 and 6 are of those sites that fledged chicks. Table 3 provides a summary of nesting attempts for each pair monitored and Table 4 presents more detail about each individual nesting attempt. Unfortunately, we know the fate of 1 of the 18 fledglings where it was

found deceased on Sellicks Beach amongst vehicle tracks, with a necropsy confirming blunt force trauma the cause of death.

This season's first nest was on the 31st July 2023 at the Torrens River Mouth, closely followed by one at Minda Dunes on 2nd August and Ochre Cove on 6th August. This first Ochre Cove nest failed because of tidal inundation. The Torrens River Mouth nest successfully hatched the first 3 chicks of the season which were observed on 29th August, but all chicks disappeared within the first week with a Nankeen kestrel the known cause of one failure and the other causes unknown. The Minda Dunes nest hatched with 3 chicks observed on 31st August. One chick was lost to an unknown cause but the other two were the first fledglings of the season, both for the Adelaide Metro and Fleurieu Coast and for the Beach-nesting Birds program nationally.

Nesting began early this season with the nest on 31st July at the Torrens River Mouth the earliest recorded on the Fleurieu and Adelaide coast since the program began (3rd August 2022 at Victor Central is the second earliest recorded). This season 17 pairs had nests before the end of August (compared to 11 in 2022/23, 12 in 2021/22, and 6 in 2020/21). Additionally, two of the pairs had a second nest attempt before the end of August. Three of these nesting attempts successfully led to fledglings in October with 2 fledglings at Minda Dunes, 2 fledglings at Port Willunga and 2 at Victor Central.

This season finished later than last season with one final fledgling from Victor Central on the 30th March. There were two new nests in February; however, both nests failed. In 2022/23, there were 5 new nests producing 10 chicks during February, the final chick disappearing on day 34 at Aldinga, on 11th March. In 2021/22, there were 5 nests and 14 chicks during January with the final nest with 2 chicks hatching on the 2nd of February at Aldinga and the last chick fledging on 2nd of February at Yilki. In 2020/21 the last fledgling was on 11th April at Tunkalilla West.

There were 18 fledglings this season beginning with 5 chicks fledging in October (27.78%) followed by 4 in November (22.22%), 5 in December (27.78%), 2 in January (11.11%), 1 in February (5.55%), and 1 in March (5.55%). December included a successful fledging of a complete clutch of eggs leading to triplets at Shelley Beach.

This season six pairs (16.21%) had only one nesting attempt for the entire season; 6 pairs (16.21%) had 2 nesting attempts; 9 pairs (24.32%) had 3 nesting attempts; 6 pairs (16.21%) had 4 nesting attempts; 6 pairs (16.21%) had 5 nesting attempts; and 4 pairs (10.81%) had 6 nesting attempts. Again this season, there was only one nesting attempt at Parsons Beach after one nest in 2022/23, a scrape only in 2021/22 and no attempt at this site in 2020/21. There was also only one nesting attempt at Myponga Beach Estuary. The four pairs with 6 nesting attempts were at: Port Willunga South, Normanville Estuary, Sheepies Beach, and Inman River Outlet and of all these attempts only 3 nests hatched successfully. No fledglings came from any of these sites with such high breeding effort.

Through the flagging program, we were able to confirm changes in territories of individual birds and pairs, the movement of juveniles, and the identity of breeding pairs (see flagging section below for details). In the 2023/24 season, there were new territories (Minda Dunes and Bird Island, both of which had successful fledging events), and territories that were not used, though they have been historically used for breeding.

There were territory changes during the 2023/24 season. These territory changes include those by JR (White) who changed territory during this season with a 3-egg nest at Snapper Point followed by a 3-egg nest at Moana Beach South. The nest at Snapper Point did not hatch. The Moana Beach South nest was the first nest produced by JR Left (White) to successfully hatch, with 2 chicks that were then taken by a kestrel at 2 days old. JR is a 5-year-old female Hooded Plover that previously nested at Maslin Beach/+North (1 nest, 2 eggs, 2022/23), Aldinga South (1 nest, 1 egg, 2021/22) with no eggs hatching during these breeding attempts. This season PX Right (White) was observed at Hindmarsh River Mouth and Oliver's Reef producing scrapes but no nests. However, PX did actively breed this season at Victor Central producing 5 nests and two fledglings. It is assumed that another territory change was made by an unbanded pair that nested three times at Minda Dunes and then moved to Seacliff/Brighton for a 4th nest this season. One of the individuals is now banded XM Right (White) and movements can now be recorded.

Fledglings were produced across the Adelaide Metro and Fleurieu Coast. The new breeding territory at Minda Dunes, in the Holdfast Bay council area, had 2 fledglings and these were the earliest recorded fledglings for the national program this season. Bird Island, also a new breeding territory, had 1 fledgling. There were 7 fledglings in the Onkaparinga council area, with 5 of these from Port Willunga sites. There were 6 fledglings from the Yankalilla council area and 2 from Victor Harbour.

For the first time since monitoring began, there has been breeding success at Carrickalinga North with the pair's first nest attempt for the season producing 2 fledglings on 3rd November. The pair's subsequent two nesting attempts failed. Nesting has been observed at Carrickalinga North since the 2010/11 season (there were 2 seasons where nesting did not occur: 2012/13 and 2013/14). Every year the nests have failed except in 2015/16 and 2019/20 seasons where nests hatched, but chicks failed, and this season with its successful fledglings. PD Right (Orange) nested at Carrickalinga North in 2016/17, 2017/2018 and 2018/19, and an unbanded pair have nested there since.

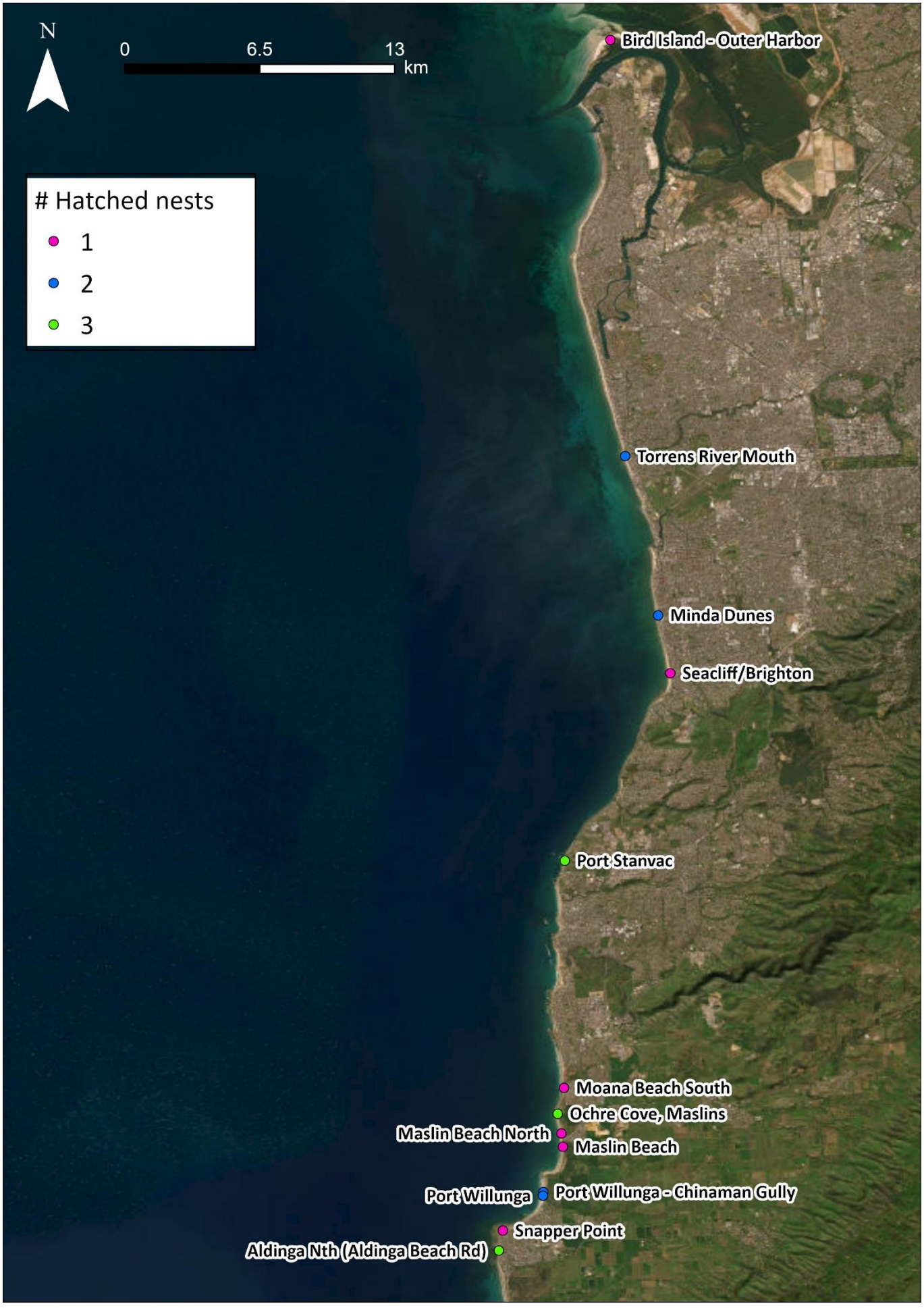


Figure 3. Sites within Green Adelaide where chicks hatched during the 2023/2024 season.

Figure 4. Sites within the Hills and Fleurieu Landscape Region where chicks hatched during the 2023/2024 season.

Table 3. Summary of nests, number of nests that failed, hatched and fledged, and total number of eggs confirmed, chicks observed and chicks that fledged from each site monitored in the 2023/24 breeding season.

Site	Pair ID (Bird 1)	# Nests	# Nests failed	# Nests hatched	# Nests fledged	# Eggs obs	# Chicks obs	# Fledglings
Bird Island - Outer Harbor	unbanded x2	1	0	1	1	2	1	1
Torrens River Mouth	RT Right (White) & unb	4	2	2	0	11	6	0
Minda Dunes	unbanded x2	3	1	2	1	9	6	2
Seacliff/Brighton	XM Right (White) & unb	1	0	1	0	3	3	0
Port Stanvac	AR Left (Orange) & ES Right (White)	3	0	3	0	9	6	0
Moana Beach South	unbanded x2	2	2	0	0	5	0	0
Moana Beach South	JR Left (White) & unb	1	0	1	0	3	2	0
Ochre Cove, Maslins	NA Right (Orange) & unb	5	2	3	0	14	7	0
Maslin Beach/+North	RV Right (Orange) & unb	5	3	2	0	13	4	0
Port Willunga - Chinaman Gully	YL Right (White) & unb	5	3	2	1	13	4	1
Port Willunga	HV Right (Orange) & unb	3	1	2	2	9	6	4
Port Willunga South	JT Right (White) & KV Right (White)	6	6	0	0	18	0	0
Snapper Point	JR Left (White) & unb	1	1	0	1	3	0	0
Snapper Point	unbanded x2	1	0	1	1	3	3	1

Site	Pair ID (Bird 1)	# Nests	# Nests failed	# Nests hatched	# Nests fledged	# Eggs obs	# Chicks obs	# Fledglings
Aldinga Nth (Aldinga Beach Rd)	unbanded x2	4	1	3	1	12	9	1
Myponga Beach Estuary	unconfirmed banded adult & unb	1	0	1	0	3	2	0
Carrickalinga North	unbanded x2	3	2	1	1	9	3	2
Carrickalinga Rotunda	unbanded x2	3	3	0	0	5	0	0
Carrickalinga Estuary	CS Right (White) & unb	3	3	0	0	9	0	0
Normanville Estuary	NC Right (White) & unb	6	4	2	0	14	6	0
Yankalilla river mouth	unknown & unknown	1	1	0	0	0	0	0
Yankalilla river mouth	RJ Right (White) & unb	1	1	0	0	3	0	0
Shelley Beach (lady bay)	DT Right (White) & unb	2	1	1	1	5	3	3
Tunkalilla West	unbanded x2	3	2	1	0	6	1	0
Tunkalilla Inner West	PR Right (White) & unb	2	2	0	0	5	0	0
Tunkalilla Midway	ME Right (Orange) & unb	5	5	0	0	7	0	0
Tunkalilla East	unbanded x2	3	1	2	1	9	3	1
Ballaparudda/Callawonga	unbanded x2	2	1	1	0	3	0	0

Site	Pair ID (Bird 1)	# Nests	# Nests failed	# Nests hatched	# Nests fledged	# Eggs obs	# Chicks obs	# Fledglings
Sheepies Beach	KD Right (White) & NZ Left (Orange)	6	6	0	0	17	0	0
Parsons Beach	unbanded x2	1	1	0	0	1	0	0
Waitpinga Beach (west)	unbanded x2	3	3	0	0	6	0	0
Waitpinga Beach (east)	UA Right (White) & unb	4	4	0	0	11	0	0
Yilki	KV Right (Orange) & RR Right (Orange)	4	3	1	0	12	3	0
Inman River Outlet	unb/ZE Right (White) & unb	6	5	1	0	14	2	0
Victor Central	PX Right (White) & unb	5	3	2	2	13	4	2
Watsons Gap	unbanded x2	5	4	1	0	11	2	0
Bashams Beach	MS Left (White) & unb	2	2	0	0	6	0	0
Middleton Beach East	YV Right (White) & unb	3	1	2	0	9	6	0
Tokuremoar West	TT Right (Orange) & SV Right (White)	4	2	2	0	10	5	0
TOTAL		**123**	**82**	**41**	**13**	**315**	**97**	**18**

Figure 5. Sites within the Green Adelaide Region where chicks fledged during the 2023/2024 season.

Figure 6. Sites within the Hills and Fleurieu Landscape Region where chicks fledged during the 2023/2024 season.

Of the 123 confirmed nests that were monitored, 66.7% (82 nests) failed and 33.3% (41 nests) hatched. It is difficult to determine the causes of fate without using remote cameras or being present at the exact moment of nest failure, and so many causes of nest failure are recorded as unknown. In 2023/24, of the nests that failed, 79.27% (65 nests) failed to unknown causes. However, for 42 (64.62%) of these nests that had an unknown cause for failure, there were prints or evidence around the nest suggesting the potential causes of failure. Predation was suspected as the cause of failure for 34 (80.95%) of these nests with the majority of these being lost to suspected fox depredation for 21 of the 42 nests (50.00%); fox or dog was the suspected cause of another nest (2.38%). Avian predators were suspected in the loss of nests including ravens (4 nests, 9.52%), magpies (2 nests, 4.76%) and 'other avian predators' (2 nests, 4.76%). A brown snake was the suspected predator for 1 nest (2.38%); fox or magpie for 1 nest (2.38%), and fox or cattle for 1 nest (2.38%). Other suspected causes of failure include tidal inundation (5 nests, 11.90%), strong winds (2 nests, 4.76%), crushing by a tractor (1 nest, 2.38%), and crushing by a kangaroo (1 nest, 2.38%) (see Table 4 for suspected causes of nest failure).

Of the nest failures where the cause could be confirmed (17 nests), 10 nests (58.82%) failed due to tidal inundation with 8 of these nests lost in the month of September (compared to 20 nests in 2022/23). Remote sensor cameras confirmed fox predation as the cause of failure at 2 nests (11.76% of known causes of nest failure). Other confirmed causes of nest failure include nest abandoned (2 nests, 11.76%), raven (1 nest, 5.88%), eggs buried by sand (1 nest, 5.88%), and a shingleback lizard (1 nest, 5.88%) (see Table 4 for causes of nest failure).

As mentioned previously, Port Willunga South and Sheepies Beach both had 6 nesting attempts with no chicks hatching. At Sheepies Beach the suspected cause of 1 nest failure was fox and for another of the nests the suspected cause of failure was fox or magpie. A third failure was confirmed to be caused by a fox when the fox was captured on remote camera. Of the 6 nests at Port Willunga South, 5 nest failures were suspected to be caused by foxes and the sixth nest was confirmed to be lost to a fox which was captured on remote camera.

There was no nesting at Sellicks Beach with continued concerns about vehicles driving at speed on the sandy beach and on the pebble beach impacting the suitability of the locations. SR Right (Orange) & unbanded had nested here in previous seasons with 5 nests and no chicks in 2022/23, 2 nests in 2021/22, and 3 nests in 2020/21.

Out of the total number of nests (123), 41 were confirmed as hatched (33.3%) and 13 of these hatched nests successfully fledged chicks (i.e., 31.7% of hatched nests fledged). Of the 109 chicks observed, 18 (16.5%) fledged. The 18 fledglings produced this season were from 10 pairs of Hooded Plovers. The Port Willunga pair successfully fledged 4 chicks from one site in two separate attempts. The pair at Shelley Beach (Lady Bay) fledged 3 chicks and all were from the same nest. The pairs that successfully fledged 2 chicks were from: Minda Dunes, Carrickalinga North and Victor Central. The pairs that successfully fledged 1 chick were from: Bird Island, Port Willunga – Chinaman Gully,

Snapper Point, Aldinga Nth and Tunkalilla East. The nesting attempts at Snapper Point were the first nesting attempts since 2019/20 and the fledgling was the first at this site since 2015/16.

Hooded Plover fledging success was geographically spread across the region. There was repeated success for some territories across the last two seasons including: Port Willunga – Chinaman Gully (1 fledgling 2023/24, 2 in 2022/23), Port Willunga (4 fledglings 2023/24, 1 in 2022/23), Shelley Beach (Lady Bay) (3 fledglings 2023/24, 1 in 2022/23), and Victor Central (2 fledglings 2023/24, 2 in 2022/23). On Port Willunga beaches, volunteers coordinated wardening, spending over 1200 hours on the beach and this no doubt is an ingredient for repeated success here.

The fledging of a chick from Aldinga North is a great feat, with over 200 monitoring/wardening visits to this site. The fledgling from Aldinga North is only the second fledgling to come from the Aldinga and Sellicks beaches. Previously there was one fledgling recorded at Aldinga South in 2017. Nesting on Aldinga Beach is particularly challenging due to the number of people and vehicles on the beach in the summer months. The only nesting in this area this season was at Aldinga North where vehicles are not permitted. Unfortunately, there were still vehicles accessing this area illegally. Although Hooded Plovers were regularly seen at Aldinga, Aldinga South and Sellicks beach, there were no nesting attempts.

Permitting vehicles on the beach, adds yet another threat on top of the numerous challenges beach-nesting birds already face. Hooded Plovers will nest above the high tide mark, on the sand or pebble banks. Not only are new nests that are not yet fenced incredibly vulnerable to being run over, but the flightless chicks have limited mobility for escaping vehicles and can often shelter in vehicle ruts making them vulnerable to crushing. Even when nests are fenced, the constant disturbance by passing vehicles forces the incubating adult to leave the nest, leaving the nest vulnerable to predators and weather conditions. If the eggs hatch, the adults have a limited area on this beach, in which they can freely raise their young and not be constantly disturbed by passing vehicles. Young chicks need to feed regularly and for this they need unrestricted access to their food source which is found along the shoreline. Without unrestricted access, the tiny chicks can easily starve. When the beach is lined with parked vehicles, sometimes four- five cars deep, it is impossible for the birds to access the shoreline frequently.

A clause has been introduced by the City of Onkaparinga under By-law 6 - Foreshore, prohibiting vehicles from Hooded Plover breeding sites (within 20m of a sign that indicates the words 'Hooded Plover breeding site'). By-law 6 Foreshore came into effect in November 2023 and if enforced, will prevent vehicles from parking directly in front of breeding areas. Whilst this is unlikely to address all vehicle related risks to breeding Hooded Plovers, council are to be commended for implementing by-laws in an attempt to better protect breeding sites. Unfortunately, although a speed limit of 10km/hr is in place, over the 2023/24 season, vehicles were regularly speeding along the sandy and pebble beaches in this area. As with all regulations, enforcement patrols are critical for building compliance and changing social norms.

Table 4. Detailed summary of nest progress for each site according to data entered in the MyBeachBird data portal for the 2023/24 breeding season.

Site	Pair ID	Nesting attempt #	Date nest found	# Eggs obsv.	Nest fail date	Nest fail cause	Chicks first obsv.	# Chicks obsv.	Chick fail date(s)	Chick failure causes	# fledged	Date fledged
Bird Island - Outer Harbor	unb & unb	1	11/09/23	2			6/10/23	1			1	14/11/23
Torrens River Mouth	RT Right (White) & unb	1	31/07/23	3			29/08/23	3	1/09/23, 4/09/23, 4/09/23	Nankeen Kestrel (x1) Unknown (x2)		
Torrens River Mouth	RT Right (White) & unb	2	19/09/23	3	15/10/23	Shingleback lizard						
Torrens River Mouth	RT Right (White) & unb	3	13/11/23	2	30/11/23	Unknown						
Torrens River Mouth	RT Right (White) & unb	4	22/12/23	3			17/01/24	3	19/01/24, 21/01/24, 23/01/24	Silver Gull (x1) Unknown (x1) Unknown (x1 suspect heat/people)		
Minda Dunes	unb & unb	1	2/08/23	3			31/08/23	3	19/09/23	Unknown	2	5/10/23
Minda Dunes	unb & unb	2	16/10/23	3			14/11/23	3	17/11/23 (1- 5pm), 17/11/23 (1- 5pm), 17/11/23 (5:25- 7:45pm)	Unknown (x1 suspect Kestrel), Kestrel (x1)		
Minda Dunes	unb & unb	3	2/12/23	3	26/12/23	Wind buried eggs in sand						
Seacliff/Brighton	XM Right (White) & unb	1	10/01/24	3			8/02/24	3	12/02/24, 12/02/24, 13/02/24	Unknown (x2) Unknown (suspect silver gull x1)		
Port Stanvac	AR Left (Orange) & ES Right (White)	1	8/08/23	3			13/09/23	2	20/09/23, 3/10/23	Unknown (x1), Unknown (x1 suspect people)		

Site	Pair ID	Nesting attempt #	Date nest found	# Eggs obsv.	Nest fail date	Nest fail cause	Chicks first obsv.	# Chicks obsv.	Chick fail date(s)	Chick failure causes	# fledged	Date fledged
Port Stanvac	AR Left (Orange) & ES Right (White)	2	19/10/23	3			21/11/23	2	25/11/23, 28/11/23	Unknown		
Port Stanvac	AR Left (Orange) & ES Right (White)	3	18/12/23	3			15/01/24	2	22/01/24, 22/01/24	Unknown		
Moana Beach South	unb & unb	1	13/08/23	3	27/08/23	Unknown (suspect avian)						
Moana Beach South	unb & unb	2	30/08/23	2	5/09/23	Tide						
Moana Beach South (JR White)	JR Left (White) & unb	3	7/10/23	3			9/11/23	2	11/11/23, 11/11/23	Nankeen Kestrel		
Ochre Cove, Maslins	NA Right (Orange) & unb	1	6/08/23	3	8/09/23	Tide						
Ochre Cove, Maslins	NA Right (Orange) & unb	2	14/09/23	3	4/10/23	Unknown (suspect fox)						
Ochre Cove, Maslins	NA Right (Orange) & unb	3	13/10/23	3			14/11/23	3	20/11/23, 20/11/23, 26/11/23	Unknown (x2 suspect fox), Unknown (x1)		
Ochre Cove, Maslins	NA Right (Orange) & unb	4	7/12/23	3			9/01/24	3	10/01/24, 12/01/24, 14/01/24	Unknown		
Ochre Cove, Maslins	NA Right (Orange) & unb	5	30/01/24	2			6/03/24	1	13/03/24	Unknown		
Maslin Beach/+North	RV Right (Orange) & unb	1	23/08/23	3	8/09/23	Tide						
Maslin Beach/+North	RV Right (Orange) & unb	2	13/09/23	3	19/09/23	Unknown						
Maslin Beach/+North	RV Right (Orange) & unb	3	27/09/23	3	5/10/23	Unknown (suspect fox)						

Site	Pair ID	Nesting attempt #	Date nest found	# Eggs obsv.	Nest fail date	Nest fail cause	Chicks first obsv.	# Chicks obsv.	Chick fail date(s)	Chick failure causes	# fledged	Date fledged
Maslin Beach/+North	RV Right (Orange) & unb	4	18/10/23	3			16/11/23	3	19/11/23, 26/11/23, 2/12/23	Unknown		
Maslin Beach/+North	RV Right (Orange) & unb	5	27/01/24	1			5/03/24	1	24/03/24	Unknown		
Port Willunga - Chinaman Gully	YL Right (White) & unb	1	9/08/23	3	18/08/23	Unknown						
Port Willunga - Chinaman Gully	YL Right (White) & unb	2	27/08/23	3	8/09/23	Tide						
Port Willunga - Chinaman Gully	YL Right (White) & unb	3	19/09/23	1	19/09/23	Tide						
Port Willunga - Chinaman Gully	YL Right (White) & unb	4	22/09/23	3			27/10/23	1			1	3/12/23
Port Willunga - Chinaman Gully	YL Right (White) & unb	5	24/12/23	3			23/01/24	3	26/01/24, 26/01/24, 23/02/24	Unknown (x1 suspect weather), Unknown (x1 necropsy and histopathology could not determine cause of death, suspect weather), Unknown (x1)		
Port Willunga	HV Right (Orange) & unb	1	10/08/23	3			12/09/23	3	9/10/23	Dog	2	18/10/23
Port Willunga	HV Right (Orange) & unb	2	31/10/23	3	8/11/23	Unknown (suspect magpie)						

Site	Pair ID	Nesting attempt #	Date nest found	# Eggs obsv.	Nest fail date	Nest fail cause	Chicks first obsv.	# Chicks obsv.	Chick fail date(s)	Chick failure causes	# fledged	Date fledged
Port Willunga	HV Right (Orange) & unb	3	18/11/23	3			18/12/23	3	26/12/23	Unknown (suspect strong winds)	2	25/01/24
Port Willunga South	JT Right (White) & KV Right (White)	1	20/08/23	3	27/08/23	Unknown (suspect fox)						
Port Willunga South	JT Right (White) & KV Right (White)	2	11/09/23	3	25/09/23	Unknown (suspect fox)						
Port Willunga South	JT Right (White) & KV Right (White)	3	5/10/23	3	17/10/23	Unknown (suspect fox)						
Port Willunga South	JT Right (White) & KV Right (White)	4	27/10/23	3	5/11/23	Unknown (suspect fox or dog)						
Port Willunga South	JT Right (White) & KV Right (White)	5	19/11/23	3	27/11/23	Unknown (suspect fox)						
Port Willunga South	JT Right (White) & KV Right (White)	6	10/12/23	3	27/12/23	Fox						
Snapper Point (JR White)	JR Left (White) & unb	1	1/09/23	3	29/09/23	Unknown						
Snapper Point (unb)	unb & unb	2	28/12/23	3			7/01/24	3	11/01/24, 27/01/24	Unknown (x1 suspect hot weather or gull), Unknown (x1)	1	12/02/24

Site	Pair ID	Nesting attempt #	Date nest found	# Eggs obsv.	Nest fail date	Nest fail cause	Chicks first obsv.	# Chicks obsv.	Chick fail date(s)	Chick failure causes	# fledged	Date fledged
Aldinga Nth (Aldinga Beach Rd)	unb & unb	1	25/08/23	3			11/09/23	3	18/09/23, 20/09/23, 21/09/23	Unknown		
Aldinga Nth (Aldinga Beach Rd)	unb & unb	2	6/10/23	3			6/11/23	3	18/11/23, 18/11/23	Unknown	1	11/12/23
Aldinga Nth (Aldinga Beach Rd)	unb & unb	3	22/12/23	3	28/12/23	Unknown (suspect fox)						
Aldinga Nth (Aldinga Beach Rd)	unb & unb	4	5/01/24	3			7/02/24	3	9/02/24, 9/02/24, 16/02/24	Unknown (x2), Unknown (x1 suspect fox)		
Myponga Beach Estuary	Unconfirmed banded adult & unb	1	4/09/23	3			29/09/23	2	11/10/23, 23/10/23	Unknown		
Carrickalinga North	unb & unb	1	5/09/23	3			2/10/23	3	12/10/23	Unknown	2	3/11/23
Carrickalinga North	unb & unb	2	14/12/23	3	17/12/23	Unknown (suspect magpie/raven)						
Carrickalinga North	unb & unb	3	1/01/24	3	22/01/24	Unknown (suspect raven)						
Carrickalinga Rotunda	unb & unb	1	5/11/23	3	21/11/23	Unknown						
Carrickalinga Rotunda	unb & unb	2	15/12/23	1	21/12/23	Unknown (suspect weather/ strong winds)						
Carrickalinga Rotunda	unb & unb	3	3/01/24	1	4/01/24	Unknown (suspect fox)						
Carrickalinga Estuary	CS Right (White) & unb	1	3/10/23	3	7/10/23	Unknown						

Site	Pair ID	Nesting attempt #	Date nest found	# Eggs obsv.	Nest fail date	Nest fail cause	Chicks first obsv.	# Chicks obsv.	Chick fail date(s)	Chick failure causes	# fledged	Date fledged
Carrickalinga Estuary	CS Right (White) & unb	2	17/10/23	3	12/11/23	Unknown (suspect fox)						
Carrickalinga Estuary	CS Right (White) & unb	3	12/12/23	3	21/12/23	Unknown (suspect fox)						
Normanville Estuary	NC Right (White) & unb	1	21/08/23	2	22/08/23	Unknown						
Normanville Estuary	NC Right (White) & unb	2	12/09/23	3			10/10/23	3	12/10/23, 14/10/23, 14/10/23	Unknown		
Normanville Estuary	NC Right (White) & unb	3	24/10/23	1	28/10/23	Unknown						
Normanville Estuary	NC Right (White) & unb	4	6/11/23	2	7/11/23	Unknown						
Normanville Estuary	NC Right (White) & unb	5	20/11/23	3	11/12/23	Unknown (suspect weather/ strong winds)						
Normanville Estuary	NC Right (White) & unb	6	13/01/24	3			11/02/24	3	16/02/24 (between 9:45 - 11am), 22/02/24 (between 9:10am - 2:20pm), 25/02/24	Unknown (1x necropsy and histopathology show pulmonary oedema and fibrin - cause unknown), Unknown (x1 suspect human disturbance), Unknown (x1)		

Site	Pair ID	Nesting attempt #	Date nest found	# Eggs obsv.	Nest fail date	Nest fail cause	Chicks first obsv.	# Chicks obsv.	Chick fail date(s)	Chick failure causes	# fledged	Date fledged
Yankalilla river mouth	unknown & unknown	1	17/09/23	0	2/10/23	Unknown (suspect tractor)						
Yankalilla river mouth	RJ Right (White) & unb	2	29/01/24	3	26/02/24	Unknown						
Shelley Beach (lady bay)	DT Right (White) & unb	1	22/09/23	2	4/10/23	Unknown						
Shelley Beach (lady bay)	DT Right (White) & unb	2	27/10/23	3			15/11/23	3			3	21/12/23
Tunkalilla West	unb & unb	1	9/10/23	1	20/10/23	Unknown (suspect crush by kangaroo)						
Tunkalilla West	unb & unb	2	3/11/23	3	1/12/23	Unknown (suspect fox)						
Tunkalilla West	unb & unb	3	22/12/23	2			19/01/24 (via nest camera - vols never saw)	1	26/01/24	Unknown		
Tunkalilla Inner West	PR Right (White) & unb	1	1/09/23	2	12/09/23	Unknown (suspect tide)						
Tunkalilla Inner West	PR Right (White) & unb	2	22/12/23	3	18/01/24	Unknown						
Tunkalilla Midway	ME Right (Orange) & unb	1	1/09/23	2	12/09/23	Unknown (suspect tide)						
Tunkalilla Midway	ME Right (Orange) & unb	2	28/09/23	1	28/09/23	Unknown (suspect fox)						
Tunkalilla Midway	ME Right (Orange) & unb	3	11/10/23	0	20/10/23	Unknown						

Site	Pair ID	Nesting attempt #	Date nest found	# Eggs obsv.	Nest fail date	Nest fail cause	Chicks first obsv.	# Chicks obsv.	Chick fail date(s)	Chick failure causes	# fledged	Date fledged
Tunkalilla Midway	ME Right (Orange) & unb	4	20/11/23	3	1/12/23	Unknown						
Tunkalilla Midway	ME Right (Orange) & unb	5	29/12/23	1	6/01/24	Unknown (suspect fox)						
Tunkalilla East	unb & unb	1	1/09/23	3	12/09/23	Unknown (suspect tide)						
Tunkalilla East	unb & unb	2	28/09/23	3			20/10/23	2	1/12/23	Unknown	1	25/11/23
Tunkalilla East	unb & unb	3	22/12/23	3			6/01/24	1	18/01/24, 18/01/24, 18/01/24	Unknown		
Ballaparudda/Callawonga	unb & unb	1	13/10/23	3	13/11/23	Unknown (suspect fox or cattle)						
Ballaparudda/Callawonga	unb & unb	2	not found	0			14/02/24	0	24/02/24, 24/02/24, 24/02/24	Unknown		
Sheepies beach	KD Right (White) & NZ Left (Orange)	1	1/09/23	3	10/09/23	Tide						
Sheepies beach	KD Right (White) & NZ Left (Orange)	2	23/09/23	3	30/09/23	Unknown (suspect fox)						
Sheepies beach	KD Right (White) & NZ Left (Orange)	3	30/09/23	2	13/10/23	Unknown (suspect fox or magpie)						
Sheepies beach	KD Right (White) & NZ Left (Orange)	4	30/10/23	3	20/11/23	Unknown (suspect tide)						

Site	Pair ID	Nesting attempt #	Date nest found	# Eggs obsv.	Nest fail date	Nest fail cause	Chicks first obsv.	# Chicks obsv.	Chick fail date(s)	Chick failure causes	# fledged	Date fledged
Sheepies beach	KD Right (White) & NZ Left (Orange)	5	7/12/23	3	16/12/23	Unknown						
Sheepies beach	KD Right (White) & NZ Left (Orange)	6	23/12/23	3	9/01/24	Fox						
Parsons Beach	unb & unb	1	30/11/23	1	7/12/23	Unknown (suspect fox)						
Waitpinga Beach (west)	unb & unb	1	31/08/23	1	10/09/23	Unknown (suspect tide)						
Waitpinga Beach (west)	unb & unb	2	25/11/23	2	2/12/23	Unknown (suspect fox)						
Waitpinga Beach (west)	unb & unb	3	7/12/23	3	16/12/23	Unknown						
Waitpinga Beach (east)	UA Right (White) & unb	1	18/10/23	2	23/10/23	Unknown						
Waitpinga Beach (east)	UA Right (White) & unb	2	11/11/23	3	25/11/23	Unknown						
Waitpinga Beach (east)	UA Right (White) & unb	3	2/12/23	3	16/12/23	Unknown						
Waitpinga Beach (east)	UA Right (White) & unb	4	4/02/24	3	10/02/24	Unknown						
Yilki	KV Right (Orange) & RR Right (Orange)	1	28/08/23	3	5/09/23	Tide						
Yilki	KV Right (Orange) & RR Right (Orange)	2	29/10/23	3	17/11/23	One egg abandoned (suspect magpie for other eggs)						

Site	Pair ID	Nesting attempt #	Date nest found	# Eggs obsv.	Nest fail date	Nest fail cause	Chicks first obsv.	# Chicks obsv.	Chick fail date(s)	Chick failure causes	# fledged	Date fledged
Yilki	KV Right (Orange) & RR Right (Orange)	3	22/11/23	3			26/12/23	3	29/12/23, 3/01/24, 15/01/24	Unknown		
Yilki	KV Right (Orange) & RR Right (Orange)	4	2/02/24	3	21/02/24	Unknown (suspect fox)						
Inman River Outlet	unb & unb	1	19/09/23	2	25/09/23	Unknown						
Inman River Outlet	unb & unb	2	24/10/23	2	30/10/23	Unknown						
Inman River Outlet	unb & unb	3	12/11/23	2	15/11/23	Tide						
Inman River Outlet	unb & unb	4	25/11/23	3	2/12/23	Unknown (suspect raven)						
Inman River Outlet	unb & unb	5	11/12/23	3	3/01/24	Unknown (suspect raven)						
Inman River Outlet	ZE Right (White) & unb	6	15/01/24	2			14/02/24	2	22/02/24, 10/03/24	Unknown		
Victor Central	PX Right (White) & unb	1	16/08/23	3			21/09/23	2		Unknown	1	26/10/23
Victor Central	PX Right (White) & unb	2	1/11/23	3	6/11/23	Unknown (suspect brown snake)						
Victor Central	PX Right (White) & unb	3	18/11/23	3	16/12/23	Unknown (suspect fox)						
Victor Central	PX Right (White) & unb	4	26/12/23	2	13/01/24	Unknown (suspect fox)						
Victor Central	PX Right (White) & unb	5	27/01/24	2			25/02/24	2	7/03/24	Unknown	1	30/03/24
Watsons Gap	unb & unb	1	10/08/23	3	6/09/23	Unknown (suspect fox)						

Site	Pair ID	Nesting attempt #	Date nest found	# Eggs obsv.	Nest fail date	Nest fail cause	Chicks first obsv.	# Chicks obsv.	Chick fail date(s)	Chick failure causes	# fledged	Date fledged
Watsons Gap	unb & unb	2	18/09/23	2	16/10/23	Tide						
Watsons Gap	unb & unb	3	27/10/23	2	30/10/23	Unknown (suspect fox)						
Watsons Gap	unb & unb	4	22/11/23	2	28/11/23	Unknown						
Watsons Gap	unb & unb	5	20/12/23	2			22/01/24	2	23/01/24, 23/01/24	Unknown		
Bashams Beach	MS Left (White) & unb	1	26/08/23	3	8/09/23	Tide						
Bashams Beach	MS Left (White) & unb	2	16/09/23	3	4/10/23	Abandoned						
Middleton Beach East	YV Right (White) & unb	1	19/08/23	3			20/09/23	3	22/09/23, 15/10/23, 22/10/23	Unknown		
Middleton Beach East	YV Right (White) & unb	2	4/11/23	3			8/12/23	3	14/12/23, 14/12/23, 21/12/23	Unknown		
Middleton Beach East	YV Right (White) & unb	3	5/01/24	3	31/01/24	Abandoned						
Tokuremoar West	TT Right (Orange) & SV Right (White)	1	23/09/23	2	12/10/23	Unknown (suspect raven)						
Tokuremoar West	TT Right (Orange) & SV Right (White)	2	22/10/23	3			24/11/23	3	2/12/23 (between 8-11am), 4/12/23, 14/12/23	Unknown		
Tokuremoar West	TT Right (Orange) & SV Right (White)	3	28/12/23	3	9/01/24	Raven						

Site	Pair ID	Nesting attempt #	Date nest found	# Eggs obsv.	Nest fail date	Nest fail cause	Chicks first obsv.	# Chicks obsv.	Chick fail date(s)	Chick failure causes	# fledged	Date fledged
Tokuremoar West	TT Right (Orange) & SV Right (White)	4	22/01/24	2			22/02/24	2	25/02/24, 6/03/24	Dog (x1), Unknown (x1)		

Overall, in 2023/24, an egg had a 5.3% chance of fledging (18 fledglings from 340 eggs), which is lower than the 6.0% chance of fledging recorded in 2022/23, and significantly lower than 8.3% recorded in 2021/22. A nest had a 10.6% chance of fledging a chick (13 nest out of 123), which is similar to 10% in 2022/23 and down from 12.9% in 2021/22, 12.2% in 2020/21 and significantly lower than the 15.9% in 2019/20. Chick survival (16.5%) was significantly lower than the previous two seasons (2022/23 – 28%, 2021/22 - 26%). Overall, there has been a decline in chick survival in recent seasons and chick survival this season is the lowest recorded. Note: these numbers are based on the assumed number of eggs and chicks based on the total number of nests where the percentage survival in Table 2 is based on the eggs and chicks that were observed. The same patterns are seen in both sets of data.

Of the 97 chicks observed, 18 fledged and 79 chicks failed. One of the failed chicks at Middleton Beach East made it to the 4-week stage this season, very close to fledging age but unfortunately not making it all the way. The cause of the failures is unknown for 72 chicks (91% of chicks observed), with 59 failed chicks having no suspected cause (82% of failed chicks with unknown cause); 3 chicks (4%) suspected fox predation, 2 chicks (3%) suspected kestrel, 1 chick (1%) suspected silver gull, 1 chick (1%) suspected hot weather or silver gull, 1 chick (1%) suspected hot weather and human disturbance, 2 chicks (3%) suspected human disturbance suspected, and 3 chicks (4%) suspected strong winds. In two cases the deceased chicks were found and sent to Adelaide Zoo for necropsy, 1 from Port Willunga – Chinaman Gully and 1 from Normanville Estuary. These necropsies and additional histopathology unfortunately could not determine the cause of death.

The cause of failure for the three chicks from Seacliff/Brighton is unknown, with one suspected silver gull. However, the reporting by volunteers, members of public, and staff working to support these threatened birds can illustrate the difficulties faced. On the 10th of February two people, a woman and child, were seen trying to capture a chick, seemingly wanting to take a photo. Members of the public intervened. On the 11th there were observations of many off-lead dogs. On the 12th, the family of Hooded Plovers left the area where the nest and been. They walked north to Edward St drain and then back south to Young St drain, approximately 2km. Making it safely to Young St drain, silver gulls were later seen harassing the family. The chicks failed the following day. The pressures on beach-nesting birds are numerous and the accumulated effects can be detrimental.

The cause of chick failures is known for 7 chicks (9% of chicks observed). Kestrels were the known cause of failure for 4 chicks (57% of failed chicks with known cause) and silver gull for 1 chick (14%). Dog attack was the known cause of failure for 2 chicks (29%). One of these chicks was a 27-day-old chick seen killed by an off-leash dog at Port Willunga. A 14-day-old chick was also seen being taken by an off-leash dog at Tokuremoar West. This chick was injured and cared for by Dr Fowler, a bird specialist vet, and the Wildlife Welfare Organisation Goolwa. Unfortunately, the chick's injuries were extensive, and it didn't survive.

Losses to the Population

This season, in addition to the loss of chicks there have been three adults, and one juvenile reported as deceased. It is likely that there have been additional losses to the population that have not been observed. The known losses of adult and juvenile Hooded Plovers are:

- HJ Right (White) - In October 2023, a volunteer found HJ dead and decomposing at Middleton Beach West. The cause of death is unknown. HJ was 2 years old, banded as a fledgling in December 2021.
- HC Right (White) - In January 2023, a member of the public reported finding HC deceased on Bashams Beach. A necropsy was performed by Zoos SA staff, but the cause of death could not be determined. HC was a male Hooded Plover and was around 3 years old, banded as a fledgling in March 2020.
- WV Left (White) - In May 2024, a volunteer found WV deceased at Parsons Beach. A necropsy was performed showing WV to have good body condition but with many puncture wounds (i.e. by a mammal such as a dog or fox). WV was a female Hooded Plover, banded as an adult in January 2024.
- Juvenile Hooded Plover - In February 2024, a beach walker found a deceased juvenile Hooded Plover on Sellicks Beach and reported it to a volunteer. The Hooded Plover was found lying in the sand between tyre tracks in front of the Aldinga Washpool. A necropsy was performed showing injuries were consistent with blunt force trauma that would be sufficient to have caused death. In this area there are frequent reports of vehicles speeding on the sandy beach and pebble bank. It is an area where Hooded Plovers breed and flock. On the day the juvenile was found deceased four other Hooded Plovers, including adults and other juveniles, were flocking at this site and this remained a regular flocking site throughout the rest of the monitoring season. It is incredibly disappointing to recovery efforts that, of the 18 birds that made it to fledging this season, at least 1 has already been lost from the population.

Deceased juvenile Hooded Plover found between tyre tracks on Sellicks Beach, February 2024 (Photos Dudley Corbett).

Flagging

In total, 278 birds have been banded as part of BirdLife Australia's research program in South Australia since 2012. On the Fleurieu and metro Adelaide coast, 115 birds have been banded and given unique engraved Orange or White leg flags (see Table 5).

Reporting of flags is relied upon to build a 'history' for each flagged individual and learn about their movements, breeding partner/s and longevity. Due to the loss of birds, partner swaps and new pairs taking up new territories, there were 13 pairs of unbanded birds on the Adelaide Metro and Fleurieu Peninsula coast this season: Bird Island, Minda Dunes, Moana Beach South, Snapper Point, Aldinga Nth, Carrickalinga North, Carrickalinga Rotunda, Tunkalilla West, Tunkalilla East, Ballaparudda/Callawonga, Parsons Beach, Waitpinga West, and Watsons Gap (see Table 2).

BirdLife Australia's current priorities for banding include at least one bird from unbanded breeding pairs. There were 12 Hooded Plovers banded in the Adelaide Metro and Fleurieu Peninsula region in the 2023/24 season. The Carrickalinga area was a focus for banding this season with all pairs nesting in this area previously unbanded. In October 2023, one adult (CS Right White) was banded at Carrickalinga Estuary. In January 2024 one adult (WU Right White) was banded at Carrickalinga North

and another adult (TD Left white) was banded at Carrickalinga Rotunda. Attempts were made in the 2022/23 season to band one of the Seacliff/Brighton birds, but the birds were off territory when banding took place. A Seacliff/Brighton bird was successfully banded (XM Right White) in January 2024. Additional banding efforts were spread across the region with adult birds being banded at 5 more sites (Tunkalilla West (YE Right White), Parsons Beach (WV Left White), Waitpinga Estuary (YM Left White and WZ Right White), Inman River Outlet (ZE Right White), and Snapper Point (XN Right White). There were also 2 juveniles banded (Aldinga Nth – UB Right White) and Port Willunga (Blanche Point – YR Right White). Several BirdLife Australia volunteers assisted, by talking to the public and redirecting them away from the area of beach where the BirdLife staff were working. These important precautions contributed to the successful banding across the sites.

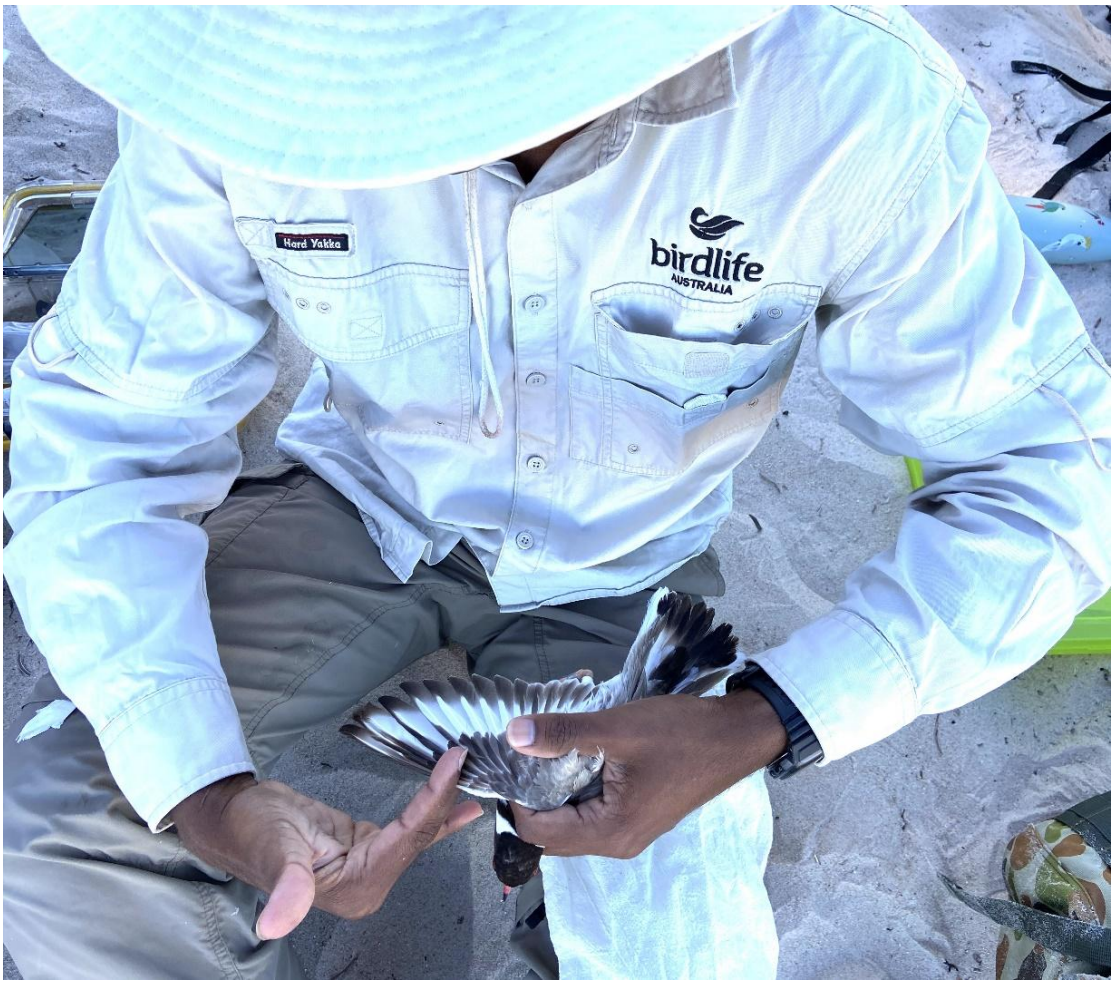
Any banding of birds in 2024/2025 will need to take into account risks associated with High Pathogenic Avian Influenza (HPAI) and any outbreaks that occur in Australia, potentially pausing non-critical banding activities until the risk has lowered.

Releasing YM Left (White) and WZ Right (White) at Waitpinga Estuary – 28th January 2024 (Photo: Julia Roetman)

Birds are targeted for banding for a range of reasons including where both adults of a breeding pair are unbanded, where we are uncertain whether a pair uses two spatially separated sites, juveniles due to being of known age, and fledglings to explore dispersal and survival rates post-dispersal. Not all birds need to be banded. We use this information to help answer ecological questions about the birds, such as:

- Is it the same pair coming back to a territory?
- Is one pair using 'multiple' territories?
- How far do the fledglings and juveniles disperse?
- How old are the birds when they breed?
- Is there a bias towards male/female survivorship?
- How long do the birds live?

While BirdLife Australia's Banding program has been going since 2012, it is too early to report on the longevity of the flagged Hooded Plovers, as birds can live on average 10-13 years, but can live for up to 21 years, so the banding data for the Fleurieu Peninsula is still relatively recent. However, it can be confirmed that some juveniles/chicks that were flagged in 2012/2013 and 2013/2014 (10 birds) have not been seen but could possibly have dispersed to the Coorong or Kangaroo Island. However, several adults flagged during these earlier seasons continue to survive and breed, for example: HV Right (Orange) at Port Willunga, NA Right (Orange) at Ochre Cove, AR Left (Orange) at Port Stanvac and KV Right (Orange) at Yilki.



Checking the moulting stage of XN Right (White) at Snapper Point – 29th January 2024 (Photo: Julia Roetman)

Flagging enables us to follow movements and behaviours of Hooded Plovers. Some interesting observations of flagged birds for the 2023/24 season:

- HV Right (Orange) and an unbanded partner nested at Port Willunga this season having 3 nest attempts and producing 4 fledglings. Last season HV and an unbanded adult had 2 nesting attempts, resulting in one fledgling. Earlier in the 2022/23 season HV partnered with DP Left (Orange) at Port Willunga and after 2 nesting attempts DP disappeared. HV and DP had been partners for 10 years. DP had been at Port Willunga for at least 12 years.
- JR Left (White) was banded at Seacliff in 2019. As detailed earlier in the report, JR has had a number of territory changes, and we are able to follow these changes because of the banding. JR changed territory during this season nesting at Snapper Point and then at Moana Beach South. JR previously nested at Maslin Beach/+North (2022/23) and Aldinga South (2021/22).
- TT Right (Orange) was flagged at Sheepies in early 2022 as a juvenile and HJ Right (White) was flagged at Watsons Gap in late 2021 as a juvenile. During the 2022/23 season, TT partnered with HJ and had 2 nesting attempts at Tokuremoar West. This season, TT partnered with SV Right (White) to produce 4 nests between September and January. In October 2023 TT's previous partner, HJ, was found deceased and decomposed at Middleton Beach West, cause unknown.
- HC Right (White) is a male Hooded Plover banded at Hindmarsh River Mouth as a fledgling in 2019/20. In December 2023, HC was observed with 2 chicks on the ocean beach of the south-eastern side of the Murray Mouth. In January 2023, HC was found deceased on Bashams beach.

Banding team at Seacliff – 29th January 2024 (Photo: Tony Flaherty)

XN Right (White) at Snapper Point (Photo: Sue & Ash Read)

Releasing YR Right (White) at Port Willunga – Balance Point, 29th January 2024 (Photo: Kerri Bartley)

Table 5. A summary of leg flagged Hooded Plovers captured and banded on the Fleurieu Peninsula to June 2024. All birds were captured by licensed and permitted banders. The bird's partner, parent or sibling at the time of banding is displayed. Note: * denotes Hooded Plovers that are known to be deceased and ** denotes Hooded Plovers that were found deceased during the 2023/24 season.

Beach	Date	Age	Sex	Right tarsus	Left tarsus	Right tibia	Left tibia	Partner/parent/sibling Flag
Myponga Beach	8/05/12	Adult	Female	metal		EY (Orange)		
Maslin Beach	8/05/12	Adult	Female	metal		MX (Orange)		
Watsons Gap	18/01/13	Adult	Female	metal		AU (Orange)*		Partner: BX (Orange)
Parsons Beach (far SW end)	18/01/13	Adult	Female	metal		CL (Orange)		Partner: EV (Orange)
Waitpinga Beach (E end)	18/01/13	Adult	Female	metal		KJ (Orange)		
Parsons Beach (far SW end)	18/01/13	Adult	Male	metal			EV (Orange)*	Partner: CL (Orange)
Tunkalilla Beach 3rd house East	19/01/13	Juvenile	Male	metal		DK (Orange)		Sibling: EM (Orange)
Tunkalilla Beach 3rd house East	19/01/13	Juvenile	Male	metal		EM (Orange)		Sibling: DK (Orange)
Watsons Gap estuary	20/01/13	Adult	Male	metal			BX (Orange)	Partner: AU (Orange)
Carrickalinga estuary	21/01/13	Adult	Male	metal		CK (Orange)		
Carrickalinga estuary	21/01/13	Adult		metal			LP (Orange)	
Snapper Point (Pt Willunga end)	22/01/13	Adult	Male	metal		HV (Orange)		
Carrickalinga North (N end)	22/01/13	Adult	Likely female	metal		NA (Orange)		Suspect partner: AR (Orange)
Carrickalinga North (N end)	22/01/13	Adult	Male	metal			AR (Orange)	Suspect partner: NA (Orange)
Carrickalinga (toilet block)	27/09/13	Subadult	Male	metal		DJ (Orange)		
Lady Bay Shelley Beach	27/09/13	Adult		metal		SB (Orange)		Partner: LD (Orange)
Carrickalinga Pitmans leap access	27/09/13	Adult	Male	metal		SS (Orange)		Partner: CK (Orange)
Lady Bay Shelley Beach	27/09/13	Adult		metal			LD (Orange)	Partner: SB (Orange)
Inman River outlet	13/11/13	Adult		metal		KV (Orange)		
Bashams Beach	13/11/13	Adult	Male	metal			SA (Orange)*	
Tunkalilla Western estuary	14/11/13	Adult	Male	metal		KW (Orange)		
Tunkalilla far West	14/11/13	Adult	Female	metal		LA (Orange)*		
Tunkalilla creek/3rd house East	14/11/13	Adult		metal		ST (Orange)		
Tunkalilla mid-west estuary	14/11/13	Adult	Male	metal			MT (Orange)	Partner: ME (Orange)
Callawonga Beach	10/02/14	Chick (25 days)		metal		KP (Orange)		

Beach	Date	Age	Sex	Right tarsus	Left tarsus	Right tibia	Left tibia	Partner/parent/sibling Flag
Waitpinga Beach East	10/02/14	Chick (30 days)		metal		PD (Orange)		Parent: KJ (Orange). Sibling: PR (Orange)
Waitpinga Beach East	10/02/14	Chick (30 days)		metal		PR (Orange)		Parent: KJ (Orange). Sibling: PD (Orange)
Waitpinga Beach West	25/02/14	Juvenile	Female	metal		TZ (Orange)		
Waitpinga Beach West	25/02/14	Juvenile	Male	metal		YN (Orange)		
Waitpinga Beach West	26/02/14	Juvenile	Male	metal		HX (Orange)		
Waitpinga Beach West	26/02/14	Juvenile	Female	metal		UE (Orange)		
Tunkalilla far West	28/04/14	Adult	Male	metal		UB (Orange)		Partner: LA (Orange)
Port Willunga North	29/08/14	Adult	Female	metal			DP (Orange)	Partner: LP (Orange)
Ochre cove, Maslins Beach	16/10/14	Chick	Male	metal		SR (Orange)		Parents: TJ (Orange) & NA (Orange)
Ochre cove, Maslins Beach	16/10/14	Adult	Male	metal		TJ (Orange)		Partner: NA (Orange)
Tunkalilla Beach mid-west estuary	17/10/14	Adult	Female	metal		ME (Orange)		Partner: MT (Orange)
Tunkalilla Beach Western estuary	17/10/14	Adult	Female	metal			WE (Orange)	Partner: KW (Orange)
Waitpinga East	21/01/15	Chick		metal		RR (Orange)		
Heysen East – Tunkalilla Beach	25/03/15	Chick	Female	metal		HT (Orange)		
Myponga Beach	21/08/15	Adult		metal			US (Orange)	Partner: EY (Orange)
Lands End	24/11/15	Juvenile		metal		EW (Orange)		Parent: JW (Orange)
Lands End	24/11/15	Adult		metal		JW (Orange)		
Normanville North/Carrickalinga Sands	28/11/15	Juvenile		metal		MV (Orange)		
Myponga Beach	28/11/15	Juvenile		metal		UV (Orange)		Parents: EY (Orange) & US (Orange)
Carrickalinga North/rotunda	23/02/16	Juvenile	Female	metal		RV (Orange)		Parent: LP (Orange)
Yilki	29/02/16	Juvenile	Female	metal		VH (White)		Parents: KV (Orange) & VH (Orange)
Lands End	29/02/16	Juvenile	Female	metal		ZW (White)		Parent: JW (Orange). Sibling: JZ (White)
Lands End	29/02/16	Juvenile	Male	metal			JZ (White)	Parent: JW (Orange). Sibling: ZW (White)

Beach	Date	Age	Sex	Right tarsus	Left tarsus	Right tibia	Left tibia	Partner/parent/sibling Flag
Yilki	29/02/16	Adult	Female	metal			VH (Orange)	
Waitpinga Beach East	23/03/16	Juvenile	Male	metal			YB (White)	Parent: KP (Orange)
Kent Reserve, Victor Harbor	6/03/17	Juvenile	Female	metal		DT (White)		Parent: RR (Orange)
Yilki	6/03/17	Juvenile	Male	metal		JY (White)		
Yilki	6/03/17	Juvenile		metal		YV (White)		Parents: VH (Orange) & KV (Orange)
Port Stanvac	12/02/18	Adult	Female	metal		ES (White)		Partner: AR (Orange)
Waitpinga East	13/03/18	Adult		metal		UA (White)		
Hindmarsh River Mouth	20/03/18	Adult	Male	metal		PX (White)		
Tunkalilla Beach	4/04/18	Juvenile	Male	metal		TK (White)		Parent: YB (White)
Seacliff	10/09/18	Adult	Female	metal		XS (White)		
Parsons Beach	4/01/2019	Fledgling	Male	metal		PR (White)		Parent: EV (Orange). Sibling: PT (White)
Parsons Beach	4/01/2019	Fledgling	Female	metal			PT (white)	Parent: EV (Orange). Sibling: PR (White)
Normanville South	11/02/2019	Adult		metal		NC (White)		
Seacliff	11/02/2019	Fledgling	Male	metal		YL (White)		Parent: XS (White)
Snapper Point	30/04/2019	Adult		metal		JT (White)		
Hallett Cove	3/09/2019	Adult	Female	metal		MR (White)		
Maslin Beach	5/12/2019	Fledgling	Female	metal		KZ (White)		Parent: NA (Orange)
Seacliff	10/12/2019	Fledgling	Female	metal		CV (White)		Parent: XS (White). Sibling: JR (White)
Seacliff	10/12/2019	Fledgling	Female	metal			JR (White)	Parent: XS (White). Sibling: CV (White)
Bashams Beach	17/02/2020	Adult	Female	metal		MA (White)		Partner: MS (White)
Bashams Beach	17/02/2020	Adult	Male	metal			MS (White)	Partner: MA (White)
Bashams Beach	17/02/2020	Fledgling	Female	metal		JM (White)		Parents: MS (White) & MA (White)
Hindmarsh River Mouth	11/03/2020	Fledgling	Male	metal		HC (White)**		Parent: PX (White)
Moana	20/10/2020	Adult	Female	metal		PM (White)		

Beach	Date	Age	Sex	Right tarsus	Left tarsus	Right tibia	Left tibia	Partner/parent/sibling Flag
Myponga Beach East	20/10/2020	Adult		metal		YK (White)		Partner: WM left (White)
Myponga Beach East	20/10/2020	Adult	Male	metal			WM (White)	Partner: YK right (White)
Maslin Beach	29/12/2020	Fledgling		metal		KV (White)		Parents: RV right (Orange) & unb.
Port Willunga South	19/1/2021	Fledgling	Male	metal		RJ (White)		Parents: JT right (White) & unb.
Ochre Cove	1/2/2021	Fledgling	Male	metal		HN (White)		Parents: NA right (Orange) & unb.
Myponga Beach Estuary	25/2/2021	Fledgling		metal		MN (White)		Parents: US left (Orange) & unb.
Tunkalilla West	16/4/2021	Fledgling	Female	metal		CM (White)		Parents: PT left (White) & unb. Sibling: BN left (White).
Tunkalilla West	16/4/2021	Fledgling	Female	metal			BN (White)	Parents: PT left (White) & unb. Sibling: CM right (White)
Victor Central	7/12/2021	Fledgling		metal		VC (White)		Parents: PX right (White) & unb. Sibling: HV left (White)
Victor Central	7/12/2021	Fledgling		metal			HV (White)	Parents: PX right (White) & unb. Sibling: VC right (White)
Sheepies Beach	14/12/2021	Adult		metal		KD (White)		
Watsons Gap	18/12/2021	Fledgling		metal		HJ (White)**		Parents: BX left (Orange) & unb.
Maslin Beach	3/2/2022	Fledgling		metal		SV (White)		Parents: RV right (Orange) & unb. Sibling: VZ right (White)
Maslin Beach	3/2/2022	Fledgling		metal		VZ (White)		Parents: RV right (Orange) & unb. Sibling: SV right (White).
Sheepies Beach	18/2/2022	Adult		metal		NZ (Orange)		Partner: KD right (White)
Sheepies Beach	18/2/2022	Fledgling		metal		TT (Orange)		Parents: KD right (White) & NZ right (Orange)
Middleton East	21/2/2022	Fledgling		metal		CW (Orange)		Parents: YV right (White) & unb.
Torrens River Mouth	8/12/2022	Adult		metal		RT (White)		
Port Willunga - Chinaman Gully	28/03/2023	Juvenile		metal		HT (White)		Parents: Presume HV right (Orange)
Port Willunga - Chinaman Gully	28/03/2023	Juvenile		metal			HW (White)	Parents: Presume HV right (Orange)

Beach	Date	Age	Sex	Right tarsus	Left tarsus	Right tibia	Left tibia	Partner/parent/sibling Flag
Torrens River Mouth	28/03/2023	Juvenile		metal		XL (White)		
Carrickalinga Estuary	23/10/2023	Adult			metal	CS (White)		
Carrickalinga North	27/01/2024	Adult		metal		WU (White)		
Carrickalinga Rotunda	27/01/2024	Adult			metal		TD (White)	
Tunkalilla West	28/01/2024	Adult		metal		YE (White)		
Parsons Beach	28/01/2024	Adult	Female		metal		WV (White)**	
Waitpinga Estuary	28/01/2024	Adult			metal		YM (White)	Partner: WZ Right (White)
Waitpinga Estuary	28/01/2024	Adult		metal		WZ (White)		Partner: YM Left (White)
Inman River Outlet	28/01/2024	Adult		metal		ZE (White)		
Snapper Point	29/01/2024	Adult		metal		XN (White)		
Aldinga Nth (Aldinga Beach Rd)	29/01/2024	Juvenile		metal		UB (White)		
Port Willunga - Blanche Point	29/01/2024	Juvenile		metal		YR (White)		Parents: HV right (Orange) & unb.
Seacliff/Brighton	29/01/2024	Adult		metal		XM (White)		

Breeding Site Management

Managing threats to breeding Hooded Plovers

Any evidence of threats to nests and chicks are recorded by staff and volunteers in the data portal. The threats recorded, are collated, and provided to the land managers via individual Council Reports, and a National Parks (Newland Head CP) Report. These reports are produced each season summarising breeding success and threats and recommending site-specific actions to reduce threats and increase awareness in the community. BirdLife Australia staff and the Volunteer Coordinator meet with the councils at the start of each season to discuss and plan actions based on the recommendations.

Protective efforts around breeding sites

Of the 123 confirmed nests on the Adelaide Metro and Fleurieu Peninsula, 94 (76.42%) nests had some form of management (Table 7). Along Green Adelaide's coast 43 out of the 45 nests (95.55%) were managed. One of the nests without management was reasonably isolated so management was not deemed necessary. The other nest without management was lost to a high tide on the same day the 1-egg nest was found and before management could be installed.

Along the Hills and Fleurieu Landscape Board coastline some sites are more remote than others, and at the time deemed not at high risk of human impacts, so active management on the beach was limited. No management occurred at 27 out of 78 (34.62%) nests in this region, with 25 of these deemed remote sites. One nest at Yankalilla River Mouth could not be located for fencing because it was within the sea wrack and then the nest failed before the next visit. Unfortunately, 1 nest at the Normanville Estuary nest only lasted two days and failed before management was installed.

Of the 41 nests that hatched, 33 (80.49%) had rope fencing with temporary signs at the access and/or signs at the nest site. There were 2 nests (4.89%) that just had nest signs (Bird Island and Shelley Beach (Lady Bay)) and 2 nests (4.89%) at the Torrens River mouth were within permanent fencing with temporary signs added to the nest site. There were 4 (9.76%) nests that hatched in more remote areas that did not have signage or fencing (1 nest Tunkalilla West, 2 nests Tunkalilla East and 1 nest Ballaparudda/Callawonga). Of the 12 nests that successfully produced fledglings, 1 nest (8.33%) had no signs or fencing (remote site, Tunkalilla East), 2 nests (16.67%) had signs at the nest and the remaining 9 fledged nests (75%) had a minimum of signs at the nest and a rope fence.

Nearly all sites also have permanent signage in place, so those remote sites which do not have temporary signage or fencing, still have permanent signs which can inform beachgoers to keep an eye out during spring and summer months. Additional permanent signs will be installed at sites next season, funded by Green Adelaide.

Again this season, volunteers acted as site guardians to assist the protection of nests and chicks and to educate beach users during peak periods of human activity. Site guardians 'wardens' were present at Maslin Beach, Port Willunga – Chinaman Gully, Port Willunga, Snapper Point, Aldinga North, Yilki, Inman River Outlet, Victor Central, Middleton Beach East and Tokuremoar West to assist with the protection of chicks and educate beach users during peak times. Wardens were present at Aldinga/Aldinga North to speak with beach users and drivers to raise awareness about the nests.

Many sites were attended by volunteers multiple times a day during days where there was high human visitation or when chicks or nests were particularly vulnerable. Aldinga North, Minda Dunes, Ochre Cove, Port Willunga, Port Willunga – Chinaman Gully, Snapper Point and Victor Central all had over 200 site visits. This season, over 1200 volunteer hours were dedicated at the Port Willunga breeding sites where five chicks made it through to fledging throughout the season.

Chick shelters were used at Torrens River Mouth, Minda Dunes, Seacliff/ Brighton, Moana Beach South, Port Willunga – Chinaman Gully, Port Willunga, Snapper Point, Aldinga North, Carrickalinga North and Middleton Beach East. Chick shelters provide extra refuge for the chicks to hide in when threatened, as there is minimal shelter on those beaches for chicks to hide from predators and recreational users.

In addition to the temporary signage, larger banners are used at some sites. BirdLife Australia chick banners are used in high recreational use areas to indicate a change from nest to chick presence and raise awareness of this very vulnerable stage. They are particularly useful on beaches where vehicles and horses have access as the large banner can be seen from a distance away. Some councils have also developed banners to indicate that there are by-laws requiring dogs to be on lead near Hooded Plover breeding sites. Chick banners and/or council by-law banners were used at Torrens River Mouth, Minda Dunes, Seacliff/Brighton, Port Stanvac, Moana Beach South, Ochre Cove, Maslin Beach, Port Willunga – Chinaman Gully, Port Willunga, Snapper Point, Aldinga Nth, Normanville Estuary, Inman River Outlet, and Tokuremoar West.

Volunteers organised additional measures to provide nests and particularly chicks with protection this season. At some sites volunteers wrote updates about nests and chicks on signage designed for community messaging. In some areas councils or volunteers used signage or fencing to guide foot traffic around a nesting site.

Table 6. Summary of management across sites during the 2023/24 breeding season for each nesting attempt.

Site	Nesting attempt #	Date nest found	Hatched	Fledged	Nest management type	Chick management type
Bird Island - Outer Harbor	1	11/09/2023	Y	Y	Sign Nest	Sign Nest
Torrens River Mouth	1	31/07/2023	Y	N	Sign Nest, Permanent fence, Council dog by-law sign	Sign Nest, Permanent fence, Shelters
Torrens River Mouth	2	19/09/2023	N		Sign Access Temporary, Permanent fence	
Torrens River Mouth	3	13/11/2023	N		Sign Nest, Rope fence	
Torrens River Mouth	4	22/12/2023	Y	N	Sign Nest, Permanent fence	Sign Access Temporary, Sign Nest, Banners, Permanent fence, Shelters
Minda Dunes	1	2/08/2023	Y	Y	Sign Access Temporary, Sign Nest, Rope fence, Permanent fence, Council dog by-law sign	Sign Access Temporary, Sign Nest, Banners, Rope fence, Permanent fence, Shelters, Council dog by-law sign
Minda Dunes	2	16/10/2023	Y	N	Sign Access Temporary, Sign Nest, Banners, Rope fence, Permanent fence, Council dog by-law sign	Sign Access Temporary, Sign Nest, Banners, Rope fence, Permanent fence, Shelters
Minda Dunes	3	2/12/2023	N		Sign Access Temporary, Sign Nest, Rope fence, Permanent fence, Council dog by-law sign	
Seacliff/Brighton	1	10/01/2024	Y	N	Sign Access Temporary, Sign Nest, Banners, Rope fence,	Sign Access Temporary, Sign Nest, Banners, Rope fence, Shelters, Council dog by-law sign
Port Stanvac	1	8/08/2023	Y	N	Sign Access Temporary, Sign Nest, Rope fence	Sign Access Temporary, Sign Nest, Banners, Rope fence
Port Stanvac	2	19/10/2023	Y	N	Sign Access Temporary, Sign Nest, Rope fence	Sign Access Temporary, Sign Nest, Banners, Rope fence
Port Stanvac	3	18/12/2023	Y	N	Sign Access Temporary, Sign Nest, Rope fence	Sign Access Temporary, Sign Nest, Banners, Rope fence
Moana Beach South	1	13/08/2023	N		None	
Moana Beach South	2	30/08/2023	N		Sign Access Temporary, Sign Nest, Rope fence	
Moana Beach South (JR White)	3	7/10/2023	Y		Sign Access Temporary, Sign Nest, Rope fence	Sign Nest, Banners, Rope fence, Shelters
Ochre Cove, Maslins	1	6/08/2023	N		Sign Access Temporary, Sign Nest, Rope fence	
Ochre Cove, Maslins	2	14/09/2023	N		Sign Access Temporary, Sign Nest, Rope fence	
Ochre Cove, Maslins	3	13/10/2023	Y	N	Sign Access Temporary, Sign Nest, Rope fence	Sign Access Temporary, Sign Nest, Rope fence
Ochre Cove, Maslins	4	7/12/2023	Y	N	Sign Nest, Rope fence	Sign Nest, Banners, Rope fence
Ochre Cove, Maslins	5	30/01/2024	Y	N	Sign Access Temporary, Sign Nest, Rope fence	Sign Access Temporary, Sign Nest, Banners, Rope fence
Maslin Beach**/+North**	1	23/08/2023	N		Sign Access Temporary, Sign Nest, Rope fence	
Maslin Beach**/+North**	2	13/09/2023	N		Sign Access Temporary, Sign Nest, Rope fence	
Maslin Beach/+North	3	27/09/2023	N		Sign Access Temporary, Sign Nest, Rope fence	

Site	Nesting attempt #	Date nest found	Hatched	Fledged	Nest management type	Chick management type
Maslin Beach/+North	4	18/10/2023	Y	N	Sign Nest, Rope fence	Sign Nest, Banners, Rope fence
Maslin Beach**/+North**	5	27/01/2024	Y	N	Sign Access Temporary, Sign Nest, Rope fence	Sign Nest, Banners, Rope fence, Permanent fence, Wardens
Port Willunga - Chinaman Gully	1	9/08/2023	N		Sign Nest, Banners, Rope fence	
Port Willunga - Chinaman Gully	2	27/08/2023	N		Sign Access Temporary, Sign Nest, Banners, Rope fence	
Port Willunga - Chinaman Gully	3	19/09/2023	N		None	
Port Willunga - Chinaman Gully	4	22/09/2023	Y	Y	Sign Access Temporary, Sign Nest, Rope fence	Sign Access Temporary, Sign Nest, Banners, Rope fence, Shelters, Wardens
Port Willunga - Chinaman Gully	5	24/12/2023	Y	N	Sign Access Temporary, Sign Nest, Banners, Rope fence	Sign Access Temporary, Sign Nest, Banners, Rope fence, Shelters, Wardens
Port Willunga	1	10/08/2023	Y	Y	Sign Nest, Rope fence	Sign Access Temporary, Sign Nest, Banners, Rope fence, Shelters, Wardens
Port Willunga	2	31/10/2023	N		Sign Access Temporary, Sign Nest, Rope fence	
Port Willunga	3	18/11/2023	Y	Y	Sign Access Temporary, Sign Nest, Rope fence	Sign Access Temporary, Sign Nest, Banners, Rope fence, Shelters, Wardens
Port Willunga South	1	20/08/2023	N		Sign Access Temporary, Sign Nest, Rope fence	
Port Willunga South	2	11/09/2023	N		Sign Access Temporary, Sign Nest, Rope fence	
Port Willunga South	3	5/10/2023	N		Sign Access Temporary, Sign Nest, Banners, Rope fence	
Port Willunga South	4	27/10/2023	N		Sign Access Temporary, Sign Nest, Rope fence	
Port Willunga South	5	19/11/2023	N		Sign Access Temporary, Sign Nest, Rope fence	
Port Willunga South	6	10/12/2023	N		Sign Access Temporary, Sign Nest, Rope fence	
Snapper Point (JR White)	1	1/09/2023	N		Sign Access Temporary, Sign Nest, Rope fence	
Snapper Point (unb)	2	28/12/2023	Y	Y	Sign Access Temporary, Sign Nest, Rope fence	Sign Access Temporary, Sign Nest, Banners, Rope fence, Shelters, Wardens
Aldinga Nth (Aldinga Beach Rd)	1	25/08/2023	Y	N	Sign Access Temporary, Sign Nest, Rope fence, Council dog by-law sign	Sign Access Temporary, Sign Nest, Banners, Rope fence, Shelters, Wardens
Aldinga Nth (Aldinga Beach Rd)	2	6/10/2023	Y	Y	Sign Access Temporary, Sign Nest, Rope fence, Council dog by-law sign	Sign Access Temporary, Sign Nest, Banners, Shelters, Wardens
Aldinga Nth (Aldinga Beach Rd)	3	22/12/2023	N		Sign Access Temporary, Sign Nest, Rope fence, Council dog by-law sign	
Aldinga Nth (Aldinga Beach Rd)	4	5/01/2024	Y	N	Sign Access Temporary, Sign Nest, Rope fence, Council dog by-law sign	Sign Access Temporary, Sign Nest, Banners, Rope fence, Shelters, Wardens

Site	Nesting attempt #	Date nest found	Hatched	Fledged	Nest management type	Chick management type
Myponga Beach Estuary	1	4/09/2023	Y		Sign Nest, Rope fence, Council dog by-law sign	Sign Nest, Rope fence, Council dog by-law sign
Carrickalinga North	1	5/09/2023	Y	Y	Sign Nest, Rope fence	Sign Nest, Rope fence, Shelters
Carrickalinga North	2	14/12/2023	N		Sign Access Temporary, Sign Nest, Rope fence, Council dog by-law sign	
Carrickalinga North	3	1/01/2024	N		Sign Nest, Rope fence, Council dog by-law sign	
Carrickalinga Rotunda	1	5/11/2023	N		Sign Nest, Rope fence, Council dog by-law sign	
Carrickalinga Rotunda	2	15/12/2023	N		Sign Nest, Rope fence, Council dog by-law sign	
Carrickalinga Rotunda	3	3/01/2024	N		Sign Nest, Rope fence, Council dog by-law sign	
Carrickalinga Estuary	1	3/10/2023	N		Sign Nest, Rope fence, Council dog by-law sign	
Carrickalinga Estuary	2	17/10/2023	N		Sign Nest, Rope fence, Council dog by-law sign	
Carrickalinga Estuary	3	12/12/2023	N		Sign Nest, Rope fence, Council dog by-law sign	
Normanville Estuary	1	21/08/2023	N		None	
Normanville Estuary	2	12/09/2023	Y	N	Sign Access Temporary, Sign Nest	Sign Access Temporary, Sign Nest
Normanville Estuary	3	24/10/2023	N		Sign Nest, Rope fence	
Normanville Estuary	4	6/11/2023	N		Sign Nest, Rope fence	
Normanville Estuary	5	20/11/2023	N		Sign Access Temporary, Sign Nest, Rope fence	
Normanville Estuary	6	13/01/2024	Y	N	Sign Access Temporary, Sign Nest, Rope fence, Council dog by-law sign	Sign Nest, Banners, Council dog by-law sign
Yankalilla river mouth	1	17/09/2023	N		None	
Yankalilla river mouth	2	29/01/2024	N		Sign Access Temporary, Sign Nest, Rope fence	
Shelley Beach (lady bay)	1	22/09/2023	N		Sign Nest, Rope fence	
Shelley Beach (lady bay)	2	27/10/2023	Y	Y	Sign Nest	Sign Nest
Tunkalilla West	1	9/10/2023	N		None	
Tunkalilla West	2	3/11/2023	N		None	
Tunkalilla West	3	22/12/2023	Y	N	None	
Tunkalilla Inner West	1	1/09/2023	N		None	
Tunkalilla Inner West	2	22/12/2023	N		None	
Tunkalilla Midway	1	1/09/2023	N		None	
Tunkalilla Midway	2	28/09/2023	N		None	
Tunkalilla Midway	3	11/10/2023	N		None	

Site	Nesting attempt #	Date nest found	Hatched	Fledged	Nest management type	Chick management type
Tunkalilla Midway	4	20/11/2023	N		None	
Tunkalilla Midway	5	29/12/2023	N		None	
Tunkalilla East	1	1/09/2023	N		None	
Tunkalilla East	2	28/09/2023	Y	Y	None	None
Tunkalilla East	3	22/12/2023	Y	N	None	None
Ballaparudda/Callawonga	1	13/10/2023	N		None	
Ballaparudda**/Callawonga**	2	not found	Y	N	None	None
Sheepies beach	1	1/09/2023	N		None	
Sheepies beach	2	23/09/2023	N		None	
Sheepies beach	3	30/09/2023	N		Sign Access Temporary	
Sheepies beach	4	30/10/2023	N		Sign Access Temporary	
Sheepies beach	5	7/12/2023	N		Sign Access Temporary	
Sheepies beach	6	23/12/2023	N		Sign Access Temporary	
Parsons Beach	1	30/11/2023	N		None	
Waitpinga Beach (west)	1	31/08/2023	N		None	
Waitpinga Beach (west)	2	25/11/2023	N		None	
Waitpinga Beach (west)	3	7/12/2023	N		None	
Waitpinga Beach (east)	1	18/10/2023	N		None	
Waitpinga Beach (east)	2	11/11/2023	N		None	
Waitpinga Beach (east)	3	2/12/2023	N		None	
Waitpinga Beach (east)	4	4/02/2024	N		None	
Yilki	1	28/08/2023	N		Sign Access Temporary, Sign Nest, Rope fence, Council dog by-law sign	
Yilki	2	29/10/2023	N		Sign Access Temporary, Sign Nest, Rope fence, Council dog by-law sign	
Yilki	3	22/11/2023	Y	N	Sign Access Temporary, Sign Nest, Rope fence, Council dog by-law sign	Sign Access Temporary, Sign Nest, Rope fence, Wardens, Council dog by-law sign
Yilki	4	2/02/2024	N		Sign Access Temporary, Sign Nest, Rope fence, Council dog by-law sign	
Inman River Outlet	1	19/09/2023	N		Sign Access Temporary, Sign Nest, Rope fence, Council dog by-law sign	

Site	Nesting attempt #	Date nest found	Hatched	Fledged	Nest management type	Chick management type
Inman River Outlet	2	24/10/2023	N		Sign Access Temporary, Sign Nest, Rope fence, Council dog by-law sign	
Inman River Outlet	3	12/11/2023	N		Sign Access Temporary, Sign Nest, Rope fence, Council dog by-law sign	
Inman River Outlet	4	25/11/2023	N		Sign Access Temporary, Sign Nest, Rope fence, Council dog by-law sign	
Inman River Outlet	5	11/12/2023	N		Sign Access Temporary, Sign Nest, Rope fence, Council dog by-law sign	
Inman River Outlet	6	15/01/2024	Y	N	Sign Access Temporary, Sign Nest, Rope fence, Council dog by-law sign	Sign Access Temporary, Sign Nest, Banners, Rope fence, Wardens, Council dog by-law sign
Victor Central	1	16/08/2023	Y	Y	Sign Access Temporary, Sign Nest, Rope fence, Council dog by-law sign	Sign Access Temporary, Sign Nest, Rope fence, Wardens, Council dog by-law sign
Victor Central	2	1/11/2023	N		Sign Access Temporary, Sign Nest, Rope fence, Council dog by-law sign	
Victor Central	3	18/11/2023	N		Sign Access Temporary, Sign Nest, Rope fence, Council dog by-law sign	
Victor Central	4	26/12/2023	N		Sign Access Temporary, Sign Nest, Rope fence, Council dog by-law sign	
Victor Central	5	27/01/2024	Y	Y	Sign Access Temporary, Sign Nest, Rope fence, Council dog by-law sign	Sign Access Temporary, Sign Nest, Rope fence, Wardens, Council dog by-law sign
Watsons Gap	1	10/08/2023	N		Sign Access Temporary, Sign Nest, Rope fence, Council dog by-law sign	
Watsons Gap	2	18/09/2023	N		Sign Access Temporary, Sign Nest, Rope fence, Council dog by-law sign	
Watsons Gap	3	27/10/2023	N		Sign Access Temporary, Sign Nest, Rope fence, Council dog by-law sign	
Watsons Gap	4	22/11/2023	N		Sign Access Temporary, Sign Nest, Rope fence, Council dog by-law sign	
Watsons Gap	5	20/12/2023	Y	N	Sign Access Temporary, Sign Nest, Rope fence, Council dog by-law sign	Sign Access Temporary, Sign Nest, Rope fence, Council dog by-law sign
Bashams Beach	1	26/08/2023	N		Sign Access Temporary, Sign Nest, Rope fence, Council dog by-law sign	
Bashams Beach	2	16/09/2023	N		Sign Access Temporary, Sign Nest, Rope fence, Council dog by-law sign	
Middleton Beach East	1	19/08/2023	Y	N	Sign Access Temporary, Sign Nest, Rope fence, Council dog by-law sign	Sign Access Temporary, Sign Nest, Rope fence, Wardens, Council dog by-law sign

Site	Nesting attempt #	Date nest found	Hatched	Fledged	Nest management type	Chick management type
Middleton Beach East	2	4/11/2023	Y	N	Sign Access Temporary, Sign Nest, Rope fence, Council dog by-law sign	Sign Access Temporary, Sign Nest, Rope fence, Shelters, Council dog by-law sign
Middleton Beach East	3	5/01/2024	N		Sign Access Temporary, Sign Nest, Rope fence, Council dog by-law sign	
Tokuremoar West	1	23/09/2023	N		Sign Access Temporary, Sign Nest, Rope fence, Council dog by-law sign	
Tokuremoar West	2	22/10/2023	Y	N	Sign Access Temporary, Sign Nest, Rope fence, Council dog by-law sign	Sign Access Temporary, Sign Nest, Rope fence, Wardens, Council dog by-law sign
Tokuremoar West	3	28/12/2023	N		Sign Access Temporary, Sign Nest, Rope fence, Council dog by-law sign	
Tokuremoar West	4	22/01/2024	Y	N	Sign Access Temporary, Sign Nest, Rope fence, Council dog by-law sign	Sign Access Temporary, Sign Nest, Banners, Rope fence, Wardens, Council dog by-law sign

Management and Awareness Raising Activities During 2023/24

In the 2023/24 breeding season, the following activities were carried out:

Entanglements and rescues

BirdLife Australia has a strict set of protocols for deciding the steps to take in the scenario of an injured, entangled, oiled or sick Hooded Plover adult or chick. These protocols have ethics approval and are an approved process for deciding on intervention. The protocols ensure all the key approvals are in place, that we have veterinarian care lined up for the bird if required and a well-devised plan for each step of any intervention. BirdLife Australia staff work with veterinary staff to follow these protocols. On ground rescue activities are also supported by BirdLife volunteers and many of the entanglements or injuries to Hooded Plovers are only detected because of the valuable observations made by the BirdLife Australia volunteers. Some examples from this season include:

- Near Aldinga Washpool, on the 6th of August, Hooded Plover flagged 'SR' Right (Orange), was observed with an entanglement of twine around the right lower leg. BirdLife staff and volunteers captured 'SR' on 7th August and Aldinga Veterinary Clinic removed the cord with no damage to leg and only mild abrasion to skin. SR was released safely back on Silver Sands beach within 40 minutes of capture. Soon after release, SR was observed foraging undeterred and limp free with its partner on the wet sand not far from the release site.

SR Right (Orange) with twine entangled around right foot at Aldinga Washpool, 6th August 2023 (Photo: Dudley Corbett)

- BirdLife staff received notification from Normanville volunteers that an unbanded Hooded Plover (NC Right White's partner) had seaweed entangled around its left leg. After monitoring to determine whether this natural fibre would disentangle or if intervention was required, the bird was captured on February 14th and the entanglement was successfully removed on site.

Adelaide Zoo staff removing entanglement from unbanded Hooded Plover Normanville 14th Feb 2024 (Photo: Kerri Bartley)

- An unbanded male Hooded Plover (partner to JR Left (White)) was observed hopping at Blanche Point by volunteers. After the initial observation several attempts were made to locate the bird again. The injured bird was found on 7th December inside the fenced nesting area at Moana South. It had twine wrapped tightly around the right foot. The bird was captured, and veterinary staff removed the twine. The hoodie was given pain relief and anti-inflammatory medication and released. It was observed over following weeks and showed improvement and recovery.

Adelaide Zoo Vet Staff removing twine from JRs partner at Moana South 7th Dec 2023 (Photo: Ash Read)

In addition to the entanglements observed, there were reports of injured birds:

- At Tokuremoar West an injured breeding Hooded Plover SV Right (White) was observed limping. The bird was monitored, and video footage was sent to veterinary staff and the national Beach-nesting Birds team for assessment on 29th November 2023. SV eventually recovered without intervention.
- In January a chick at Port Willunga (Blanche Point) was seen with an injured wing and photographs of the bird revealed missing flight feathers. Video footage of the 37-day old fledgling was sent to veterinary staff and the national Beach-nesting Birds team for assessment on 24th January 2024. The chick was monitored and recovered without intervention.

Injured chick at Port Willunga - January 2024 (Photo: Sue & Ash Read)

Port Willunga 37-day old fledgling with missing flight feathers on 24th Jan 2024 (Photo: Kerri Bartley)

Threat assessments

An important part of the Hooded Plover program are the threat assessments done by volunteers. Through these assessments crucial information about the threats to nests and chicks is recorded. Threat assessment data can be collected for each monitoring observation. Full threat assessments were completed for over 80% of visits to Ballaparudda/Callawonga, Bashams Beach, Hallett Cove, Hindmarsh River Mouth, Inman River Outlet, Middleton Beach East, Middleton Beach West, Parsons Beach, Port Stanvac, Tokuremoar West, Tunkalilla (East, Inner West, Midway & West), Waitpinga Beach (East, West & Estuary), and Yilki.

Liaising with Councils, National Parks and Wildlife and State Government about threat management

Sharing our Shores staff engaged in a wide range of activities throughout the season that related to improving Hooded Plover conservation in the region, with some examples being:

- BirdLife Australia met with each Council, and National Parks staff from Newland Head CP to discuss the start of the season and go through the new 2022/23 Council Report Cards. The excellent data (monitoring and threat) collection in the portal from volunteers and staff is reported through these council Report Cards and recommendations are made accordingly.

- BirdLife Australia staff provide training or information enabling council, state government and other stakeholders to more effectively support management of beach-nesting bird breeding sites or more safely conduct work around beach-nesting birds, for example:
  - Delivered training for Onkaparinga Rangers to support them with management efforts for Hooded Plovers and Red-capped Plovers.
  - Participated in the Hooded Plover Conservation Action Plan workshop in Anglesea Victoria.
  - Trained sand carting contractors in beach-nesting bird monitoring.
  - Delivered a presentation on Beach-nesting Birds ecology and threats and working with councils and land managers at the APA (Authorised Persons Association) State Conference.
  - Presented an introduction to the BNB program and an update of the 2023-2024 Hooded Plover breeding season to State Government organisations and representatives at the Coastal Officers Forum.
  - Liaised with Flinders Ports about the new nesting sites on Bird Island.
  - Provided advice to Marine Parks on a 'Places of interest' flyer for the Adelaide Dolphin Sanctuary.
  - Worked with Local Councils and the Department for Environment and Water to install revised permanent 'Home of the Hooded Plover' signs across the region.

- BirdLife Australia staff provide advice on public event management where events may impact beach-nesting birds, for example:
  - Attended the Australia Day briefing with City of Onkaparinga.

- BirdLife Australia staff, including staff from the national team in Victoria, organised a new initiative for the Adelaide Metro and Fleurieu regions. They held three 'End of Season Debrief' meetings in the different regions. There were sessions for the Southern Fleurieu, Onkaparinga, and Adelaide Metro. These sessions provided a forum for BirdLife staff, volunteers, council staff, Green Adelaide staff, and Landscapes Hills and Fleurieu staff to review the Hooded Plover breeding season. Breeding season outcomes were discussed along with resource needs, the role of volunteers, compliance on beaches and fox management. They were highly successful in improving collaborative discussions around identifying solutions between stakeholders and will be repeated in coming seasons.

- BirdLife Australia staff met with DEW, Green Adelaide and sand carting contractors throughout the season when sand carting or dredging activities had potential to impact Hooded Plover and Red-capped Plover breeding. Sand carting contractors were provided with training in beach-nesting bird monitoring. A BirdLife volunteer was trained as a spotter to observe the behaviour of beach-nesting birds and mitigate negative impacts during sand carting activities. Birdlife staff supervised at the Torrens River Mouth during the Torrens outlet realignment (November). BirdLife staff surveyed beaches for breeding activity, prior to sand replenishment operations (Torrens River Mouth – March and June, Semaphore - April). There was continued collaboration between BirdLife Australia, DEW, Green Adelaide and the contractors to reduce disturbance to breeding. BirdLife Australia continues to seek improved long-term solutions to management of erosion so that works during the season can be avoided.

- BirdLife Australia staff continue to provide advice through submissions during reviews of By-laws and other management regulations. Some examples of submissions provided and resulting changes include:
  - SA Dog and Cat Management Act 1995 Review (June 2024)
  - Onkaparinga Dog on-leash and prohibited areas review (April 2024)
  - Vehicles on beaches and breeding Hooded & Red Capped Plovers (Onkaparinga - March 2023)
  - Alexandrina By-laws review (June 2023)
  - City of Port Adelaide Enfield – Pups in Public Places – Dogs on Beaches community engagement (September 2023)
  - City of Victor Harbor 2023 By-laws review (June 2023). High Biodiversity areas at the Inman and Hindmarsh estuaries were included as Dog on Leash zones in the By-law.
  - Yankalilla By-law review (January 2023)
  - Legislated By-laws review: No. 5 Dogs (Yankalilla - July 2024)

- South Australia Dog and Cat Management Act 1995 Review (June 2024)
- PIRSA Beach-cast marine algae risk assessment (May 2023). Recommendations by Birdlife Australia were incorporated into the Permit Conditions for Commercial Fishers to undergo Shorebird Identification training and restrictions applied to protect breeding beach-nesting birds like Hooded Plovers.
- Statewide vehicles exclusion zones in high biodiversity areas on beaches (ongoing consultation). Birdlife Australia staff in conjunction with Birds SA committee members meet regularly with DEW staff to provide recommendations and discuss progress of high priority beaches to be included in the list of future protected areas. Some beaches have been recommended for either seasonal closures or full-time vehicle exclusion areas.

- In addition, Wendy White, in her paid role as Regional Support Officer, continues to send weekly email updates to relevant councils and Newland Head CP Park Rangers with breeding updates and any key issues to address at Hooded Plover breeding sites.

Dog management and compliance

- Of the 94 nests that had some form of management, 47 nests (50%) had council dog signs installed that require dogs to be on-lead near the breeding zones. With several new By-laws established and more By-law reviews taking place, it is expected that the use of council dog signs will increase.
- BirdLife Australia works with each council across coastal areas in South Australia on an annual basis to provide data on dog usage and compliance on beaches that are critical habitats for breeding shorebirds.
- BirdLife Australia continues to advocate for additional measures that mitigate the impacts of dogs on beach-nesting birds. For example, BirdLife Australia provided a submission for the SA Dog and Cat Management Act 1995 Review (June 2024) with measures to mitigate impacts and to provide consistency across the state.
- Councils invest in compliance monitoring and patrols and share this data with BirdLife Australia. This is presented in council reports that explore how major threats are trending in each council region, and the impact that patrol efforts may be having.
- Review of threat data collected by volunteers for each council area reveals that numbers of off leash dogs detected within the 100 metres of Hooded Plover breeding sites are still prohibitively high. Protecting the birds from off leash dog disturbance and attacks poses a continued challenge given the high numbers of dog walkers using sites and the large number still non-compliant with regulations. Stricter regulations will become a future necessity if successful coexistence (i.e. as a minimum, leashing dogs in the vicinity of actively breeding Hooded Plovers) cannot be achieved.

By-Laws Holdfast Bay (Photo: Julia Roetman)

Habitat restoration and management

- Site assessments are conducted by BirdLife staff and volunteers, Council staff and Green Adelaide staff to advise on habitat restoration and requirements.
- The work of the Our Plover Coast projects continues. Invasive weeds reduce the availability of nesting, roosting and foraging habitat by covering large areas of the beach and altering dune morphology and shape. Our Plover Coast projects are implemented along the Fleurieu Peninsula and Adelaide Metro coast and focus on grassy weed control and then revegetation with local coastal species, including rolling spinifex (*Spinifex hirsutus*). Dedicated volunteers from Coastal Community Nurseries work to grow local coastal species which are then planted by community groups (e.g. Friends of the Hooded Plover). The projects are supported by the Hills and Fleurieu Landscape Board, Green Adelaide, BirdLife Australia, Local Councils, and Department for Environment and Water. Some examples of the efforts made during the 2023/24 season include:
  - The City of Onkaparinga implemented sea-wheat grass control and follow up planting of 5000 spinifex at Southport Dunes, Port Willunga, Aldinga and Maslins.
  - With funding from Hills and Fleurieu Landscape Board, weed control was done, and over 7000 plants from the Fleurieu Coast Community Nursery were planted across the Hills and Fleurieu Landscape Board coastline.

- With funding from Green Adelaide, Val Wales Coastal Community nursery propagated over 2000 spinifex that was used for restoration works at West Beach and the Torrens River Outlet.
- With funding from Green Adelaide, Two Wells Community Nursery produced over 2000 spinifex and another 2000 spinifex were purchased for an ongoing project to replace sea wheat-grass on the foredune of North Haven dunes.
- A Grassroots Grant supported sea wheat grass treatment and the planting of 500 spinifex at Minda Dunes.
- Alberton Primary School produced and planted over 200 spinifex to stabilise the fore-dune at Largs Bay.

Spinifex hirsutus grown at the Fleurieu Coast Community Nursery ready for planting (Photo: Corey Jackson)

Fox management and aversion trials

FOXWatch™

Funded by Green Adelaide, Deakin University honours student, Finn Saurine, continued to research the effectiveness of a commercially available product called FOXWatch™. Trials were run on Fleurieu Peninsula, Adelaide metro and Yorke Peninsula beaches.

The FOXWatch™ device has a detection range of 12 metres and emits a sweeping ultrasonic sound at 20- 24kHz in 3 pulses. It was first trialled on mock nests and showed some promise. This season the

FOXWatch™ devices were installed by BirdLife staff at 4 sites and control devices were installed at a further 5 sites on the Fleurieu Peninsula and Adelaide metro beaches. This continues the data collection that was done last season at 12 FOXWatch™ sites and 8 control sites. Video and still motion sensor cameras were installed to record the response by foxes to the FOXWatch™ device and on the control sites.

The data collected showed that the response to the device was varied, with some foxes deterred by the sound, whilst some foxes showed little or no response to the device. Sound deterrents could be useful as part of integrated fox management but did not have a significant effect on breeding success on its own. The issue of managing foxes continues to be a major barrier to breeding success for Hooded Plovers. Results from the FOXWatch™ study have been published (Saurine et al. 2024, Acoustic deterrents for Red Fox *Vulpes vulpes* and threatened shorebird clutch survival on sandy beaches, Global Ecology and Conservation, 54).

The cameras provided additional information for the monitored breeding pairs this season by confirming nest outcomes and causes of nest failures on sites where the trial was implemented.

Table 7. 2023/24 season sites where FoxWatch trials were installed and the success or fate of the nest.

Site	Fate of nest	Cause of failure	Additional information
Ochre Cove, Maslins	Hatched	-	Fox on camera
Port Willunga - Chinaman Gully	Hatched	-	Fox on camera
Port Willunga	Hatched	-	-
Port Willunga South	Failed	Fox	-
Yankalilla river mouth	Failed	Unknown	Camera stolen
Tunkalilla West	Hatched	-	Fox on camera
Tunkalilla East	Hatched	-	-
Sheepies beach	Failed	Fox	-
Tokuremoar West	Failed	Raven	-

Conservation sniffer dog and den fumigation

Green Adelaide continued to fund fox den searches utilising sniffer dogs and den fumigation in partnership with local government, DEW and private land managers. During the 2023/24 season, conservation sniffer dogs undertook fox den searches around Hooded Plover breeding sites in the following areas:

River Torrens (Breakout Creek) and West Torrens Outlet, Kingston Park to Beach Road, Pt Stanvac, Pedlar Creek (Moana) to Ochre Point and Port Willunga, Maslins Beach, Aldinga Scrub (dune), Aldinga Beach, Aldinga Washpool, Normanville to Carrickalinga, Lands End, Newland Head, Watson Gap, Bashams Beach. There were also searches by humans at many at Myponga Beach. Searches were also conducted in other areas, not near Hooded Plover breeding sites.

Fox den fumigation is seeking to reduce predation risk, and target denning foxes near nesting territories, whose young may then learn beach foraging behaviours. The work is not intended as a fox control programme. The range of methods necessary to effectively control foxes, such as baiting, trapping and shooting, are not feasible in most urban situations. Within the urban area, fox den fumigation is one of the few methods available and suitable for localised fox problems and is consistent with approaches in the national Threat Abatement Plan for Predation by the European Red Fox (DEWHA 2008). There were 119 fox dens found during the 2023/24 season, 29 of these dens were found by the Conservation Dog. Figures 7 – 9 show areas where active fox dens were found. The Conservation Dog also found 92 areas of interest (i.e. old fox dens, active and inactive rabbit burrows). Fox dens and rabbit burrows were treated.

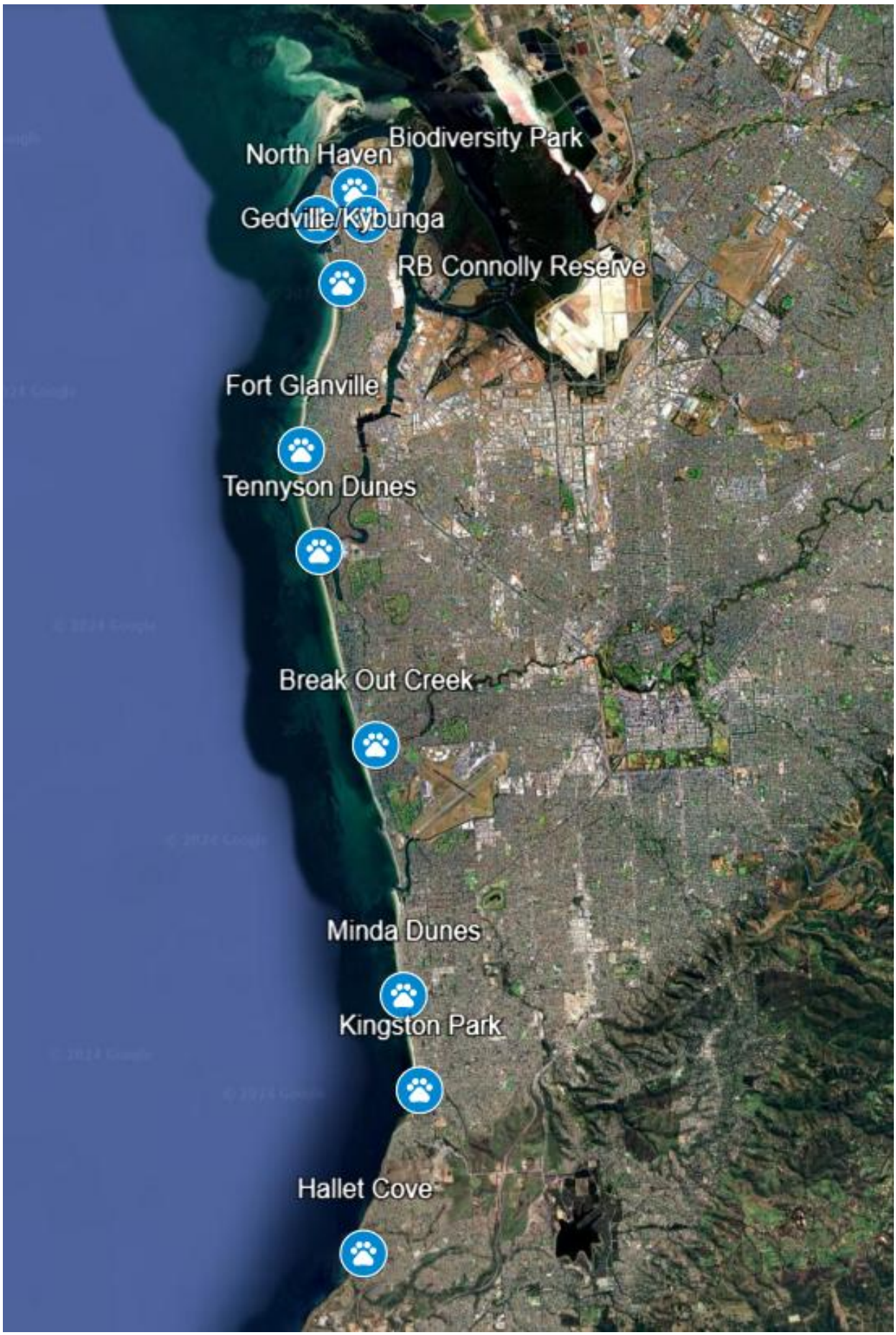


Figure 7. Areas where active fox dens were found, Biodiversity Park to Hallet Cove.

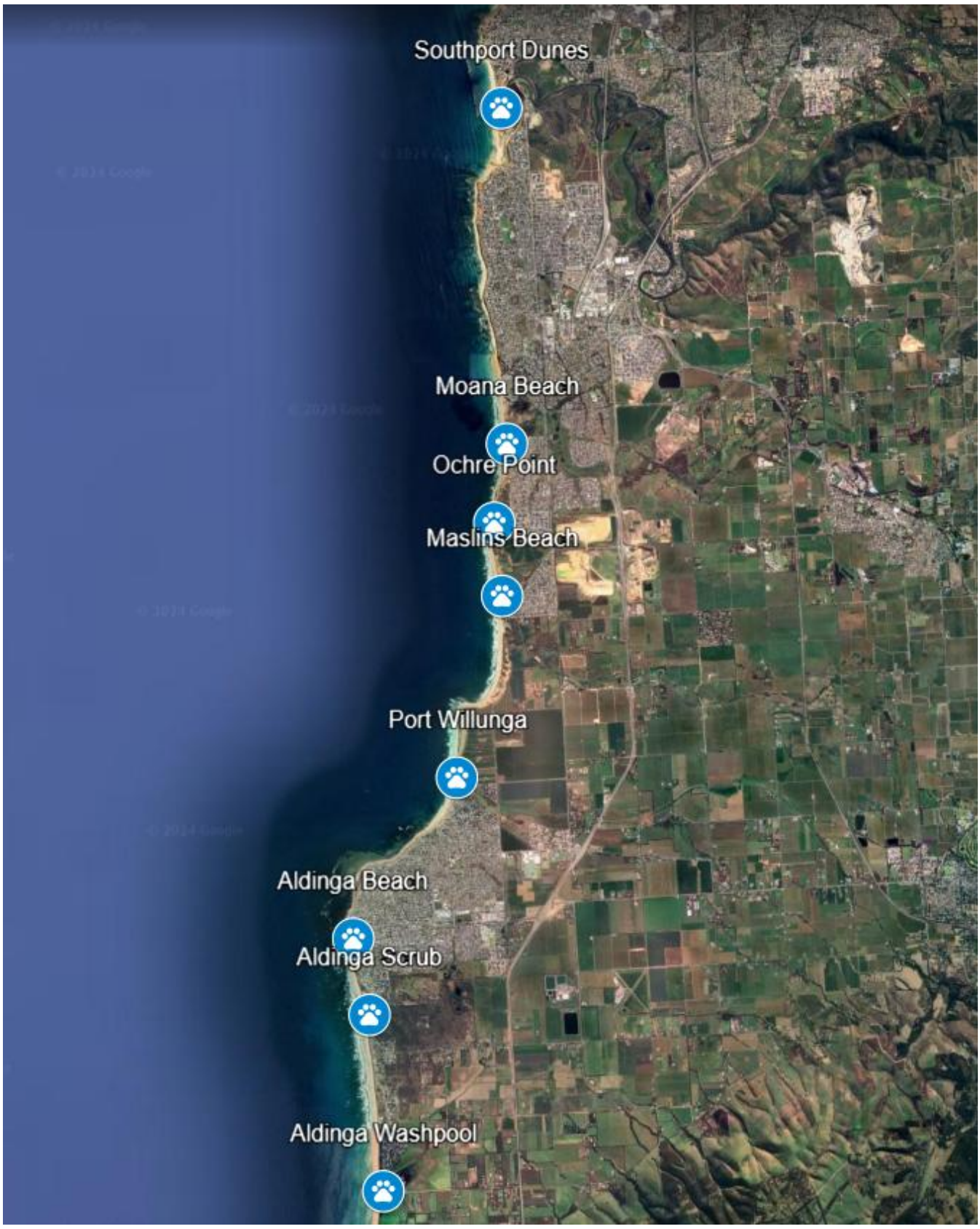


Figure 8. Areas where active fox dens were found, Hallet Cove to Aldinga Washpool.

Figure 9. Areas where active fox dens were found, Southern Fleurieu.

This season, obtaining Den-co Fume® has been a challenge due to transport and storage requirements. The costs for fumigation of dens have risen substantively now that phosphine generating tablets (e.g. Phostoxin) are not registered for fox control. Carbon monoxide treatment with Den-co Fume® costs between $40 to $60 dollars per cartridge per den, as opposed to the previous cost of phosphine tablets of a few cents per den.

Land managers (Council and National Parks) contributed to fox den searching and control over the 2023/24 season. Green Adelaide staff and contractors also undertook fox den searches.

Additional management efforts were made to protect 2 chicks from foxes at the Minda Dunes site. The chicks were 33 days old when a fox was observed stalking the birds. The fox was chased away twice and it retreated into the bushes and storm-drains. After much consideration and in consultation with the local land managers, a management intervention of 'free feeding' foxes was implemented. To lure the fox away from the chicks, hoping to give them the chance to reach fledging age, pieces of cooked chicken were placed in drains and the rear of the dunes. This lure was taken. Chicken was then placed in a monitored cage trap, but this was not successful. The chicks did make it to fledging and were the first fledglings of the season. BirdLife Australia do not broadly endorse free feeding foxes as a management intervention without further investigation into the risks and scenarios, and this decision was made with multiple experts (including fox experts) consulting on the potential impacts this may have.

Volunteer Regional Coordinators and Beach Leaders

Volunteer Regional Coordinators (VRCs) and Beach Leaders (BLs) continue crucial support of other volunteers, council staff and BirdLife staff through numerous monitoring, management, community outreach and training events. Just some of the important activities of VRCs and BLs include:

- Liaising with councils, and volunteers, to ensure management is undertaken in a timely and appropriate manner. Volunteer and council support with the installation and on-going management of fencing and signs throughout the season is immense and the program would not be what it is without it.
- Monitored MyBeachBirds Data Portal to ensure high quality data is recorded by volunteers in each region.
- Attended start and end of season meetings.
- Organised regional volunteer meetings.
- Provided multiple BNB Hub, MyBeachBirds Portal and beach training sessions for new volunteers. Over 60 new volunteers were registered during the 2023/24 season and many of these have become active volunteers. Active volunteers have received training and mentoring this season through a variety of avenues.
- Attended the Managing Challenging Stakeholder Interactions workshop, online.
- Assisted at pop-up information sessions at Minda Dunes, Yilki, Snapper Point, Seacliff/Brighton, and Aldinga North.
- Provided interviews, articles and social media posts across a range of platforms.
- Provided regular updates to volunteers in their region via texts and emails.
- Coordinated rosters to ensure adequate breeding pair monitoring and wardening.
- Some VRCs, along with BirdLife and Green Adelaide staff attended the Hooded Plover Conservation Action Planning workshop, Anglesea Victoria.

Awareness raising activities

- Sharing our Shores staff raised awareness about Beach-nesting Birds by:
  - Presenting at Green Adelaide's Adult Coastal Ambassador program.
  - Delivering Hooded Plover Training Workshops at Maslins Beach, Victor Harbor, and Henley Beach. The workshops aimed to recruit and train new volunteers focusing on an introduction to the birds and their threats, and how to participate in the program. All workshops had field components. Workshop coordination was supported by Wendy White.
  - Presenting to Chiton Rocks Surf Lifesaving Club committee about the Watsons Gap Hooded Plovers and impacts of activities in this area.
  - Presenting to year 11 students at Willunga Waldorf School.

- Delivering, along with Wendy White, Hooded Plover education sessions to Somerton Surf Lifesaving Club and Chiton Rocks Surf Lifesaving Clubs nippers.
- Sharing our Shores staff provided regular input into Birds SA and BirdLife Australia's Safe Beaches for All campaign working group and to government agencies.

Sharing our Shores staff presenting to the Coastal Ambassadors Program

- Sharing our Shores staff, VRCs and Volunteers participated in public engagement events including:
  - Our Plover Coast Spinifex planting event at Hindmarsh River planting rolling Spinifex and Carpobrotus with school children
  - Doggy Day on the Beach and Doggy Day on the Green, City of Charles Sturt
  - Educational resources displayed at CLLMM Institute Launch
  - Middleton Surf Festival
  - Victor Harbor Whale Festival
  - Pop up information events at Minda Dunes, Yilki, Snapper Point, Seacliff/Brighton, Carrickalinga North, Port Willunga and Aldinga North
  - Paint n Sip event, Yankalilla
  - Brighton Dunes Art Exhibition

Information stall at the Doggy Day on the Green, City of Charles Sturt (Photo: Julia Roetman)

- Other awareness raising activities include:
  - A Facebook page 'Hoodies Down South- Adelaide Southern Beaches', created by Linda Corbett for the Onkaparinga Volunteers, continues to provide updates about the Beach-nesting Birds in the area.
  - The Triple Z radio program Melting Pot, hosted by BirdLife volunteer Dudley Corbett, regularly gives an update on the Onkaparinga hoodies.
  - Several Adelaide Metro and Fleurieu Peninsula councils, Green Adelaide, and Landscapes Hills and Fleurieu regularly promote Hooded Plover awareness on social media.
  - The Fleurieu Environment Centre (FEC) continues to have a permanent Hooded Plover display and sent out updates throughout the season to the community about the breeding activity via their newsletter and Facebook page. The FEC also run kids' education sessions with support from Wendy White.
  - For the second season, Roslyn Shirlaw presented a course on Birdwatching: Beach-nesting Birds for the University of the Third Age (U3A) program, an international volunteer organisation that provides educational and leisure opportunities for people over 50. It includes classroom sessions and field trips. Sue and David Thorn, Wendy White and volunteer Keith Jones assisted with the course presentation.

Training opportunities for BirdLife Australia staff and volunteers

All BirdLife Beach-nesting Birds volunteers go through mandatory training to participate in the program. BirdLife staff have also provided a number of other training opportunities for volunteers. This season training opportunities included:

- Communication and de-escalating conflict workshop for Onkaparinga Volunteers and other key volunteers. The workshop was facilitated by a trainer from Preferred Training Networks and Green Adelaide staff.
- Communication and de-escalating conflict workshop for all volunteers. The workshop was facilitated by a trainer from Preferred Training Networks and Green Adelaide staff.
- Online Beach-nesting Bird training workshops including *Beach-nesting Bird Monitoring*, *MyBeachBird Data Portal* and *Birdata* training events.
- 2024 National Beach-nesting Birds conference – A group of BirdLife staff, VRCs, volunteers and Green Adelaide staff attended the 9th National Beach-nesting Birds Conference in Anglesea Victoria. The conference was held over 3 days and provided opportunities to learn about Beach-nesting Bird ecology and management from across Australia and New Zealand.

Communication and de-escalating conflict workshop - June 2024 (Photo: Julia Roetman)

BirdLife Australia staff, Kerri Bartley and Lisa Nicholson in Anglesea Victoria for BirdLife Australia's Beach-nesting Birds conference - May 2024 (Photo: Julia Roetman)

Education and promotional resources

- Additional DL flyers with information about Hooded Plovers for vehicles on beaches have been produced and distributed.
- Additional DL flyers with information about Hooded Plovers for dog owners have been produced and distributed.
- Back & Breeding signs that give space for volunteers to write breeding information updates have been redesigned and printed.
- Redesigned four Beach-nesting Birds stickers.
- Redesigned Friends of Hooded Plover logo and produced new hats and vests.
- Designed new Hooded Plover chicks on the beach banners with local photo.
- Refreshed Hooded Plover nesting and chicks on beach temporary signs.
- Printed snakes and ladders banners for presentations with children.
- Permanent 'Home of the Hooded Plover' signs have been installed at additional Hooded Plover breeding sites this season.

New 'Home of the Hooded Plover' signage - Normanville Estuary, 15th February 2024 (Photo: Kerri Bartley)

Beach-nesting Birds End of Season Celebration

To acknowledge the invaluable support provided by the dedicated volunteers and stakeholders, a celebration was held at Sellicks Beach Community Hall. A moving Welcome to Country was delivered by Naomi Hicks and Maureen Humes of the Kaurna community. Deputy Premier Susan Close addressed the audience. BirdLife's Grainne Maguire gave an update on the National Beach-nesting Birds program. Sharing our Shores with Coastal Wildlife Project Coordinators delivered summaries from the 2023/24 season with Julia Roetman giving an overview of the Hooded Plover and Red-capped Plover breeding season and Kerri Bartley summarising the Tern monitoring program. Tony Flaherty, Green Adelaide Coast and Seas, gave an overview of fox control and the Conservation Dog work. There were 65 volunteers and stakeholders in attendance at the event and sharing their experiences from the 2023/24 season.

Beach-nesting Birds End-of-Season Celebration, 18th May 2024, Sellicks Community Hall (Photo: Tony Flaherty)

Acknowledgements

An enormous thank you to all the amazing volunteers who participate in the Hooded Plover program. The time spent monitoring the birds, sharing information with the public, communicating with stakeholders, vetting data, supporting other volunteers and BirdLife staff is invaluable. The participation and dedication of the volunteers continues to support the recovery program and add to our knowledge of this threatened species. The Adelaide Metro and Fleurieu Peninsula volunteers continue to provide one of the highest quality data sets in the national program. Thank you!

Big thanks to the Volunteer Regional Coordinators and Beach Leaders: John Cobb with assistance from Stevie Austin (Fleurieu-Adelaide Metro), Kerri Duncan (Fleurieu- Onkaparinga Beaches), Kim O'Connor and Prue Anderson (Fleurieu North – Onkaparinga Beaches), Dudley Corbett (Aldinga to Sellicks Beach) and Wendy White (Fleurieu Central – Myponga Beach to Lands End and South Coast). Thank you also to David and Sue Thorn for their dedication in coordinating the volunteers and nest site protection on Fleurieu South Coast.

Thank you to the Green Adelaide Coasts and Seas team (Warrick Barnes, Matt Endacott, Tony Flaherty, Corey Jackson, Claire Lock, Chloe McSkimming, Danny Millbanks, Kristy Watson and the Communications Team) for providing invaluable support to the program, volunteers and land managers. This season, for the sixth year, the Green Adelaide Board (previously AMLR NRM Board) funded the Sharing our Shores with Coastal Wildlife positions held by Deborah Furbank/Julia Roetman and Kerri Bartley at BirdLife Australia, adding a further layer of support to the program.

Thank you to Landscapes Hills and Fleurieu staff (Caroline Taylor, Megan Harper and Ben Westmoreland) and Wendy White, Regional Support Officer, for ongoing program and volunteer support.

Thank you to the Beach-nesting Bird team at BirdLife Australia for providing ongoing in-kind support through its resources, expert advisory team and national framework and network for Hooded Plover conservation.

Special thanks to the councils and rangers involved in protecting nesting sites and supporting the project and its volunteers: City of Onkaparinga, District Council of Yankalilla, DEW (Newland Head Conservation Park - National Parks and Wildlife SA), City of Victor Harbor, Alexandrina Council, City of Marion, City of Holdfast Bay, and City of Charles Sturt.

Thank you to the staff at Port Stanvac for supporting access to monitor Hooded Plovers on the site and providing updates throughout the breeding season.

Thank you to the Fleurieu Environment Centre (Normanville) helping raise awareness of the ecology and conservation of beach-nesting birds.

Thank you to Jenny McLelland (Zoos SA), Morgan Smith and other Zoos SA staff for their wonderful support and coordination of the removal of entanglements and treating injured birds at very short notice. Thank you also for the important information provided by necropsies on deceased birds. Thank you also to Rena Robinson and the Wildlife Welfare team in Goolwa and Dr Anne Fowler (bird veterinarian specialist) for the care taken when a chick was attacked by a dog.

This report was made possible due to funding from Green Adelaide.

Thank you