Monitoring Hooded Plovers on the Adelaide coast and Fleurieu Peninsula:

A summary of breeding success for the 2021/2022 season

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June 2022

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Contents

Photo: Chicks at Aldinga North, October 2021 (Sue and Ash Read).

This project is supported by the Green Adelaide Board, and delivered by BirdLife Australia through funding from Green Adelaide and the Australian Government's National Landcare Program.

Executive Summary

During the 2021/22 season, there were 73 volunteers and 5 staff entering data into the MyBeachBird data portal, with a record number of 3,575 data entries (compared to 64 people, 3,468 records in 2020/21 season; 59 people, 2,489 records in 2019/20 season). Volunteers and Volunteer Regional Coordinators (VRCs) contributed a very impressive 7,898 hours over the season. Sixty-one sites were visited, with 31 breeding pairs confirmed on the Adelaide Metro and Fleurieu coast this season (31 pairs in 2020/21, 28 pairs in 2019/20, and 33 pairs in 2018/19). There were 93 breeding attempts (229 eggs), with 73 chicks and 19 fledglings. This is the highest number of chicks recorded across thirteen consecutive seasons and the second to highest number of breeding attempts and greatest number of eggs. A high percentage of the nests failed at egg stage (67.7%), slightly less than last season but still the third highest failure rate recorded across the length of the program. Many failures were suspected to have been taken by predators, particularly fox. Chick survival (26%) was slightly less than the previous season (26.9%), however is an improvement on the previous two seasons (24.6% in 2019/20 and 21.7% in 2018/19). Overall, however, there has been a decline in chick survival in recent seasons. Chick survival previously ranged between 30.2% and 41% between 2009/10 and 2017/18. The Hooded Plover fledgling per pair result was 0.61, which sits above the 0.4-0.5 range to maintain population viability over time, highlighting the success of the season. Significantly, 16 of the 19 fledglings were from the south coast of the Fleurieu Peninsula. Breeding success was poor along the western side of the Fleurieu Peninsula up to and including the Adelaide Metro coast with only 3 fledglings.

The Adelaide Metro and Fleurieu Peninsula Hooded Plover population spans across both the Green Adelaide and Hills and Fleurieu Landscape Board regions. There has been an increase from 10 (2020/21) to 12 pairs this season along Green Adelaide's coastline, representing 38.7% of the population. The remaining 19 pairs (61.3%) occur along the Hills and Fleurieu Landscape Board's coastline. The success of the program on the Fleurieu Peninsula has enabled an increase in population and movement of new breeding pairs into metro Adelaide beaches since 2016 such as Seacliff, Hallett Cove, West Beach and Henley Beach. These are sites where Hooded Plover breeding has never been recorded before. Prior to European settlement these sites likely provided suitable habitat for nesting.

The recovery of Hooded Plover populations into the metro areas of Adelaide can be seen as an active example of "re-wilding". Concerted effort to improve fledgling success over the last decade through collaborative approaches with local councils and communities to

improve understanding of co-existence with beach-nesting birds. Importantly the program has been able to operate at an appropriate scale across the Fleurieu and metropolitan area.

Of the 93 confirmed nests on the Adelaide Metro and Fleurieu Peninsula coast, 79 (85%) nests had some form of management (predominantly temporary fencing and signage). Ten managed nests produced fledglings, and the remaining two were from remote sites not requiring management. In addition to on-ground management, many events were undertaken on the Fleurieu Peninsula to raise awareness of the plight of the Hooded Plover, and to recruit new volunteers.

Fox predation is suspected of causing many of the nest failures. There was a concentration along Onkaparinga Beaches (Moana to Port Willunga) where 14 of the 21 failed nests (66.7%) were a result of suspected fox predation. Concerted effort from all stakeholders has occurred this season to address this difficult issue. Extensive fox den searches and destruction were undertaken in the Onkaparinga and West Beach areas.

Dog disturbance and impacts of on nesting activity is still of concern. Council compliance teams have contributed record numbers of compliance visits to Hooded Plover sites and all but one council has now incorporated a by-law requiring dogs-on-lead at Hooded Plover breeding sites (City of Onkaparinga is in the process of reviewing the dog by-law to incorporate similar by-laws). Council dog by-law signs were installed at 79.7% of managed nests, and at 80.9% of managed chick sites, requiring dogs to be on-lead near the breeding sites. 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. This was the first season that City of Charles Sturt's new by-law was in place (dogs must be on leash around Hooded Plover and Red-capped Plover breeding areas).

Individual Council and National Parks (Newland Head CP) reports are produced each year summarising breeding success, threats and recommendations. Sharing our Shores with Coastal Wildlife staff (BirdLife Australia, supported by Green Adelaide) and the Hooded Plover Volunteer Coordinator have start-of season meetings with all councils and Department of Environment and Water (DEW) National Parks rangers to discuss the actions and plan for the season ahead.

The Our Plover Coast program (Landscape Priority Fund and a separate Green Adelaide grant to City of Onkaparinga, matched by the council) has enabled foredune weed control

at 30 Hooded Plover breeding sites with nurseries (including coastal community nurseries) providing spinifex seedlings to be planted by coastal community groups and the Friends of the Hooded Plover. This aims to address a key national management action to develop methods for controlling colonisation by invasive plants and rehabilitating dunes. Fox control has also occurred through these grant initiatives.

This project is supported through the Green Adelaide Board's Sharing Our Shores with Coastal Wildlife project, and is jointly funded through Green Adelaide and the Australian Government's National Landcare Program. It is supported by BirdLife Australia's National Beach-nesting Birds team and resources.

Introduction

The pressures placed on the Australian coast by over 85% of the population living within 50 kilometres of the coast, a growing trend for a 'seachange', and coastal tourism representing $24.7 billion Australia wide in 2019, places significant and increasing pressure on shorebirds. Pre-covid, 18% of domestic tourists in South Australia visited Adelaide's beaches (compared to 7% visiting parks), and 54% visited Fleurieu Beaches.

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 nationally threatened Fairy Tern.

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. This listing occurred in 2015 after years of detailed data collection that was able to provide evidence for the species eligibility for meeting threatened criteria. Under the EPBC Act, a Conservation Advice has been prepared for the Eastern Hooded Plover. This conservation advice aims to provide national direction to implement priority actions and mitigate against key threats.

The Hooded Plovers are the most threatened of beach-nesting resident shorebirds because they are habitat specialists. They are limited to breeding exclusively on ocean beaches in South Australia, with the rare exception of some coastal saline lakes in parts of the South

East coast, Yorke Peninsula and on the Eyre Peninsula. The oystercatchers have a broader nesting habitat range which includes rocky outcrops, islands and more heavily vegetated dune areas, and red-capped plovers occupy a range of habitats including samphire saltmarsh, freshwater wetlands, low energy beaches, saltfields 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 to harsh temperatures, and predators such as ravens, gulls, foxes and cats. This is particularly true of disturbances caused by unleashed dogs, where adults spend long periods away from the nest. 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 in order 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 brooding. 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.

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.

The Beach-nesting Birds program on the Fleurieu Peninsula was initiated as a collaboration with 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 have been superseded by Landscapes Boards. The previous NRM region is now within the Hills and Fleurieu Landscape Board and the Green Adelaide Board. Green Adelaide continues to support the

program through funding and staff across the two regions. Some resourcing through the Australian Governments National Landcare Programme is also accessed via the Hills and Fleurieu Landscape Board.

BirdLife Australia's flagging research, which began in 2012 on the Fleurieu Peninsula, has also shown the connected nature of the population across the Adelaide Metro and Fleurieu Peninsula coastlines. Fledglings from beaches within the Hills and Fleurieu Landscape Board region have established breeding territories in Green Adelaide (e.g. Carrickalinga to Port Stanvac and Port Willunga, and Myponga Beach to Maslin Beach). In some cases, fledglings have not travelled far from home to start a family, such as "YL" the fledgling from Seacliff which established the most northerly breeding site at Henley Beach.

Within the Green Adelaide region there are very important sites for non-breeding flocking and feeding, such as Snapper Point, Aldinga, the Torrens Outlet at West Beach, Tennyson dunes and West Lakes Shores. Refuelling (i.e. feeding) between breeding seasons is also key to success. Last season there were up to 18 Hooded Plovers flocking at the Torrens Outlet at West Beach with many flagged birds appearing from sites as far as Myponga Beach.

Photo: Hooded Plover flock at West Beach (Tony Flaherty).

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 great success and is an excellent case study showing that wildlife and the community can co-exist.

The project also demonstrates the principles of Biodiversity Sensitive Urban Design (BSUD). This approach to urban biodiversity conservation seeks to achieve biodiversity benefits on site. Urban design with regards to coastal pathway siting, coastal developments approvals, weed control and careful choice of revegetation to maintain beach profiles, environmental flows for estuaries, public awareness and local government planning and dog by–laws all come together to provide better approaches for conservation of beach-nesting birds.

The main aim of the National Beach-nesting Birds (BNB) program project is to involve coastal communities and land managers in protection of breeding sites to see an overall improvement in breeding success. The project focuses on the Hooded Plover in Victoria and South 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.

On the 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, and;
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, dogs' breakfasts, 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 Fleurieu Peninsula;
ii. Participate in the Hooded Plover eastern mainland census (Biennial Count) every two years (e.g. November 2020, November 2022) 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, and;
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, and;
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 also 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.
- On the Adelaide Coast and Fleurieu Peninsula, Green Adelaide's Coast and Seas team coordinate and support the project and volunteers, and local council and some Department for Environment and Water (DEW) rangers assist with nest protection responses. In addition, the Sharing our Shores with Coastal Wildlife project officers, funded by Green Adelaide and hosted by BirdLife Australia, assist in delivering key actions. The Hooded Plover Volunteer Coordinator is a paid role (funded by the Green Adelaide Board and the Australian Government's National Landcare Program) to assist with delivery of key actions relating to volunteers, awareness raising and management.
- Volunteer Regional Coordinators and Volunteers undertake the very important roles of monitoring breeding birds and site threats, recording data on the portal, installing fences/signs, and talking with the public, etc.

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 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. The plans also outline key conservation priorities along the coast, provide suggested actions and identify key players to be involved.

The Coastal Action Plans are used to assist in priority setting of coastal management actions for the AMLR NRM Board (now Green Adelaide Board), councils and DEW. In

implementing the Coastal Action Plans, the Adelaide and Mount Lofty Ranges NRM Board (now Green Adelaide and Hills and Fleurieu Landscape Board) resources the local implementation of actions identified in the Coastal Action Plans including implementation of local initiatives to conserve Hooded Plovers, as well as resourcing towards BirdLife Australia coordination. Green Adelaide is currently reviewing MANCAP priority actions and achievements with local councils and partners. This will update extension of Hooded Plover territories and flocking sites in the metro Adelaide area.

The South Australian Recovery Plan for the Hooded Plover (Baker-Gabb and Weston 2006) still 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 identified as the Department for Environment and Water, councils, community and the Natural Resources Management Board. Many of these actions and priorities however, need updating due to the considerable advances in research and knowledge of South Australian Hooded Plover sites, threats and actions since 2006.

There is no National Recovery Plan for the species. The Federal Government compile Conservation Advice for the species, and the process of updating this began in 2019.

In view of the status of this species, the Hooded Plover has also been flagged as a focal species for the Southern Fleurieu Coastal Action Plan and for relevant coastal areas of the Metropolitan Adelaide and Northern Coastal Action Plan area.

The Our Plover Coast project (Landscape Priority Fund grant, 2 years) has enabled foredune weed control at 20 Hooded Plover breeding sites (follow-up to occur in 2022/23) across the Hills and Fleurieu Landscape Board coastline, with nurseries (predominantly the Yankalilla Community Nursery) providing 20,000 spinifex seedlings to be planted by community groups including the Friends of the Hooded Plover in winter 2022 and 2023. In addition to this, budget was put towards rabbit and fox control at particular sites, and all known fox dens were fumigated in District Council of Yankalilla coastal reserves, with follow-up in 2022/23. A separate grant agreement "Restoring coastal habitats for wildlife conservation – Our Plover Coast' was made available to City of Onkaparinga from Green Adelaide (matched by City of Onkaparinga) in 2021/22 which included coordination of fox den mapping and fumigation, 3 rounds of dune grass weed control, growing spinifex seedlings in the council nursery and printing signage for both the Onkaparinga sites as well as the Hills and Fleurieu Landscape Board sites. Signage has been installed across all

30 sites. So far, the Friends of the Hooded Plover have contributed 91 hours to planting spinifex seedlings at 6 sites along City of Onkaparinga's coast.

Photo: Area of sea-wheat grass to be controlled revegetated with Spinifex seedlings at Port Willunga, and a fenced nest (Kerri Bartley).

An overview of the 2021/2022 Breeding Season

As part of BirdLife Australia's Beach-nesting Birds Program, monitoring of breeding Hooded Plover pairs via 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 small sample of breeding pairs are monitored within each Landscape region due to logistical and resource constraints.

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 3,575 data records entered during the 2021/2022 season. Eleven data portal user accounts were responsible for 2,352 (66%) data portal entries. Some of these entries are reports passed on to these users and entered on their behalf, but otherwise the high number of entries by some users signals a greater need to share the load at some sites. The additional 34% of data is entered by a larger number of volunteers and staff (57 portal users) who each contribute to build a picture of the breeding success and threats at sites. Every observation counts, and each and every one of the Adelaide Metro and Fleurieu

volunteers should be very proud as they are a region with one of the highest quality data sets for Hooded Plovers.

Overall, 31% of all data entries for the Eastern Hooded Plover, and 66% 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 an employed volunteer coordinator (funded by the Green Adelaide Board and the Australian Government's National Landcare Program), BirdLife Australia staff based in Adelaide working on the Sharing our Shores with Coastal Wildlife Project, (funded by the Green Adelaide Board) and the network of support available from the Green Adelaide Coast and Seas team, and immense support from VRCs. Volunteers and VRCs contributed a very impressive 7,898 hours (coordinator component approximately 1458 hours) over the season, which includes the time spent on site monitoring the birds, installing 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 VRCs.

There were 61 sites that were visited by volunteers over the breeding season, 48 of these were regularly monitored. Of these 61 sites, 37 had pairs actively breeding on territory, but this represented only 31 breeding pairs, 6 of which used multiple sites within the season. Although Morgan's Beach North (private access only) had one breeding attempt, it is not included in the analysis because it had only one record for 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 eggs, and could potentially miss an entire fledging event if enough months are missed. Eight 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. Port Stanvac could be included this season as access was enabled for DEW and BirdLife staff and volunteers to monitor the breeding pair. This access was restricted previously during the decommissioning phase, however contract staff were trained to monitor and enter records. This declined during 2019/20 and 2020/21 as the works were finalised. There is evidence of people and their dogs accessing the site as the southern boundary fence is being regularly vandalised. Fox activity also appears high at the site. Tables 1-3 and 5 provide an overview of breeding sites monitored and figures 1 and 2 for maps showing 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.

In the 2021/22 season, there were a number of territory changes, and territories that were not used, even though they historically were used for breeding. New territories were established this season at: Port Willunga Chinaman Gully, used by YL (White) and Aldinga South used by JR (White). For the first time this resulted in three pairs breeding at once along Port Willunga and Aldinga – Silver Sands. The Inman River site, which was vacant in the 2020/21 season, had a new unbanded pair establish and nest twice. Sites that continue to be vacant include Morgans Beach (only nesting attempt was recorded in 2009/10); Lands End (last breeding attempt recorded was in the 2015/16 season but pairs have been observed intermittently each season since); Snapper Point (last breeding attempt was in the 2019/20 season and the pair, JT White and unbanded, have since moved to Port Willunga South); and Hallett Cove (MR White and unbanded last nested at Hallett Cove in 2019/20 and subsequently nested at West Beach that season and continue to with occasional visits to Hallett Cove. The pair were only observed there once during this season after a nest failure at West Beach). Last season there were two pairs that nested at the very small Myponga Beach: US (orange) and unbanded at the Myponga Beach Estuary site, and WM (white) and YK (white) at Myponga Beach East. However, only one pair nested there this season and that was WM (white) and unbanded at Myponga Beach Estuary. US (orange) and YK (white) have not been seen this season at Myponga Beach, however YK (white) was observed on at least one occasion at Aldinga South. Through the flagging program, we were also able to confirm multiple sites being used by the same pair:

- YL (White) as mentioned above used nested at both Henley Beach and Port Willunga - Chinaman Gully. YL (White) was the fledgling from Seacliff in February 2019.
- Moana Beach South, pair PM (White) third nesting attempt in this vehicle-free zone (4 attempts at Moana Beach), the first time since breeding occurred at that site in 2010/11;
- Once again, the unbanded pair at Aldinga took their very young chicks on the 1.5km trek to Aldinga North in both their first and third attempts.
- SR (Orange) nested at Sellicks Beach in the two prior seasons (2020/21 and 2019/20) and this season's first attempt was at Sellicks Beach, followed by the second attempt further north at Silver Sands.
- During 2020/21 PX (White) nested across both Hindmarsh and Oliver's Reef but had only scrape at Victor Central. This season, PX (White) had their first nesting attempt at Hindmarsh River Mouth followed by three more attempts at Victor Central. Their second attempt was extremely successful with all three chicks fledging. They did on one occasion have a scrape at Olivers Reef.

- Middleton Beach East pair YV (White) has nests at both this site and Goolwa last season, however this season only nested at Middleton Beach East and one scrape only observed at Goolwa.

PX and unbanded with their three fledglings including VC (White) and HV (White) at the Hindmarsh River Outlet, December 2021 (Richard Edwards)

Figure 1. Hooded Plover breeding sites within Green Adelaide (Henley Beach to Sellicks Beach) for the 2021/2022 season.

Figure 2. Hooded Plover breeding sites within the Hills and Fleurieu Landscape Board region (Myponga Beach to Goolwa) 2021/2022 season.

Table 1. Number of portal entries and threat assessments on the Fleurieu Peninsula during the 2021/22 breeding season. Portal entries are the number of entries entered via the online 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
North Haven Cooroyba Court - Taperoo Gedville Road*	1	0	0	0.00%
Semaphore Park (Mirani Ct - Recreation Pde)*	1	0	0	0.00%
Semaphore Sth (Recreation Pde - Bower Rd)*	1	0	0	0.00%
West Lakes Beach (Estcourt Rd - Mirani Ct)*	6	3	2	33.33%
Tennyson Dunes (Estcourt Rd Fort St)*	6	2	1	16.67%
Henley Beach	15	5	5	33.33%
West Beach	148	107	94	63.51%
Seacliff	210	138	89	42.38%
Marino Rocks	12	6	0	0.00%
Hallett Cove	11	11	11	100.00%
Port Stanvac	9	7	5	55.56%
Southport*	1	1	1	100.00%
Moana Beach	105	95	89	84.76%
Moana Beach South	44	37	32	72.73%
Ochre Cove, Maslins	233	201	135	57.94%
Maslin Beach	293	247	136	46.42%
Port Willunga	146	123	105	71.92%
Port Willunga - Chinaman Gully	81	64	41	50.62%
Port Willunga South	196	173	134	68.37%
Snapper Point	62	30	8	12.90%
Aldinga	145	129	83	57.24%
Aldinga Nth (Aldinga Beach Rd)	72	54	48	66.67%
Aldinga South	29	23	9	31.03%
Silver Sands	53	44	14	26.42%
Sellicks Beach	34	27	22	64.71%
Myponga Beach East	17	11	10	58.82%
Myponga Beach Estuary	40	27	23	57.50%
Carrickalinga North	94	91	84	89.36%
Carrickalinga Rotunda	59	35	23	38.98%
Carrickalinga South	13	4	1	7.69%
Carrickalinga Estuary*	4	2	1	25.00%
Normanville North	11	7	3	27.27%

Site/Territory	Portal entries	Number Threat assessments	Full threat assessments	% Full threat assessments completed
Normanville South	177	115	19	10.73%
Yankalilla river mouth	18	14	7	38.89%
Shelley Beach (lady bay)	30	30	29	96.67%
Morgans beach north - private access only*	1	0	0	0.00%
Morgans beach Fleurieu*	2	1	1	50.00%
Lands End*	2	2	2	100.00%
Tunkalilla West	24	23	23	95.83%
Tunkalilla Midway	22	22	21	95.45%
Tunkalilla East	22	22	22	100.00%
Tunkalilla 1st alcove far east	9	9	9	100.00%
Tunkalilla Tunk Head alcove*	3	3	3	100.00%
Ballaparudda/Callawonga	10/4	10/4	10/4	100.00%
Coolawang*	1	1	1	100.00%
Sheepies beach	17	16	14	82.35%
Parsons Beach	19	19	17	89.47%
Waitpinga Beach (west)	39	39	39	100.00%
Waitpinga Estuary	25	24	23	92.00%
Waitpinga Beach (east)	33	31	30	90.91%
Yilki	230	230	224	97.39%
Inman River Outlet	86	83	74	86.05%
Victor Central	171	155	137	80.12%
Hindmarsh River Mouth	77	59	51	66.23%
Olivers Reef	13	11	10	76.92%
Watsons Gap	98	97	97	98.98%
Bashams Beach	104	101	101	97.12%
Middleton Beach West	74	74	74	100.00%
Middleton Beach East	106	106	104	98.11%
Goolwa beach*	6	5	5	83.33%
Total	**3,575**	**3,010**	**2,360**	**66.01%**

In the 2021/22 breeding season there were 93 nesting attempts by 31 breeding pairs on the Adelaide Metro coast and Fleurieu Peninsula. This is the second highest number of nests and greatest number of eggs recorded since monitoring began in 2008/09 (see Table 2).

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 on the Fleurieu Peninsula over twelve breeding seasons.

Season	# pairs (# sites monitored)	# nests	# nests hatch	# nests fail egg stage	# eggs	# chicks obsv. (% of eggs)	# fledglings (% of chicks)	Fldlg/ 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

There were nineteen fledglings in the 2021/22 breeding season, matching the highest ever recorded fledgling success in 2015/16 for the region. However, noting that fledgling per pair success was much higher in 2015/16 (0.90) than this season (0.61) as there are now more breeding pairs being monitored. 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 exceeds this target (0.61). 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. Also, to ensure that all occupied breeding sites have potential to be 'source' sites. Figures 4 and 5 provide a geographic overview of those sites that fledged chicks which shows the majority of success (16 fledglings) occurred along the south coast. Table 3 provides a summary of nesting attempts for each pair monitored and Table 5 expands this into more detail about each individual nesting attempt.

The earliest recorded nests were mid-August, with Ochre Cove (which is usually the first) and Hindmarsh River outlet starting off the season on the 17th August. This is nearly 10 days later than Ochre Cove's nest on 8th August in the previous 2020/21 season. They were followed closely by the pairs at Aldinga and Watsons Gap on 19th August, and Seacliff on 20th August. The Ochre Cove and Hindmarsh River Outlet nests failed (suspect fox, and

rain/weather respectively). However, three chicks first appeared at Seacliff on 19th September and at Aldinga on 22nd September, all of which unfortunately failed. A total of 12 pairs nested in August this season (Ochre Cove, Hindmarsh, Aldinga, Watson's Gap, Seacliff, Moana, Bashams Beach, West Beach, Middleton Beach East, Normanville South, Maslin Beach and Port Willunga South), compared with 6 in the 2020/21 season, but the same number as in 2019/20 season. Four of the 12 nests hatched, including the seventh nest for the season at Bashams Beach (nest established on 22nd August) which went onto fledge the first chick for the season on 30th October. Bashams Beach also fledged the first chick in the previous season on the 11th November.

This season finished earlier than last season with 5 nests during January, and the final nest hatching on 2nd February at Aldinga. In the previous season, there were 5 nests during February and the last nest was in early March followed by chicks appearing on 11th March at Tunkalilla West. There were 14 chicks in January and 2 in February this season, compared with 5 chicks still present in March and 2 in April in the previous season. The last chick to fledge this season was at Yilki on 2nd February, whereas in the previous season the last two fledged on 11th April at Tunkalilla West. Nine chicks fledged in January (47.4%) the highest number for any month of the season. October, November and March had one chick fledge in each month (5.3% each month), 5 fledged in December (26.3%) and 2 in February (10.4%). In the previous season, December saw the highest number of chicks fledge (6 or 42.9%).

Five pairs (16.1%) had only one nesting attempt for the entire season; 6 pairs (19.4%) had 2 nesting attempts; 11 pairs (35.5%) had 3 nesting attempts; 4 pairs (12.9%) had 4 nesting attempts; 4 pairs (12.9%) had 5 nesting attempts; and 1 pair (3.2%) had 7 nesting attempts. The pairs that had 5 nesting attempts were: Moana Beach (including one attempt at Moana Beach South), Normanville South, Tunkalilla East and Middleton Beach East. The pair at Ochre Cove had 7 nesting attempts, the last of which hatched one chick which made it to 17 days. Similar to last season, pairs at Ochre Cove and Moana had high attempt numbers and high failure rates. Ochre Cove had 6 attempts and one fledgling in the previous season. Of note is Yilki which had 7 failed attempts last season, however this season had 4 nesting attempts, 2 of which fledged 3 chicks in total.

Of concern is the on-going lack of breeding success at Carrickalinga North, at which there has been no fledgling success since monitoring began. 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) and every year the nests have failed except during the 2015/16 and 2019/20 seasons where nests hatched, but chicks failed. PD (Orange) nested in 2016/17, 2017/2018 and 2018/19, and an unbanded pair have nested since. Last season the unbanded pair had only one failed nest, however this season the first of 3 attempts did produce 2 chicks which, although they did not last long, is encouraging that one nest did survive. Two attempts were made to install a nest camera at Carricklinga North this season but both times aerial predators (magpie and raven) were present and close by, so camera installation did not proceed.

For the second season in a row, no breeding was observed at Yankalilla River outlet, and as per last season, only one nesting attempt made at Shelley Beach. For the second season in a row Parsons Beach had scrapes only. Waitpinga Estuary had no breeding this season, whereas last season had an unbanded pair which nested once. Breeding at Morgans Beach North was reported by the owner of the property which surrounds this beach.

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 2021/22 breeding season.
* Aldinga Nth/Aldinga: same unbanded pair is assumed based on nesting dates not overlapping, sites being so close and unbanded pair from Aldinga taking chicks to Aldinga North.

Site	Pair ID	# Nests	# nests fail egg stage	# nests hatch	# nests fledge	# eggs	# chick obsv.	# fledglings
Henley Beach	YL Right (White) & unb	1	1	0	0	3	0	0
West Beach	MR Right (White) & unb	3	3	0	0	7	0	0
Seacliff	XS Right (White) & unb	3	0	3	0	9	7	0
Port Stanvac	AR Left (Orange) & ES Right (White)	1	0	1	0	0	3	0
Moana Beach/South	PM Right (White) & unb	5	5	0	0	11	0	0
Ochre Cove, Maslins	NA Right (Orange) & unb	7	6	1	0	16	1	0
Maslin Beach	RV Right (Orange) & unb	4	2	2	1	11	4	2
Port Willunga - Chinaman Gully	YL Right (White) & unb	1	1	0	0	2	0	0
Port Willunga	DP Left (Orange) & HV Right (Orange)	3	2	1	0	6	2	0
Port Willunga South	JT Right (White) & unb	3	2	1	1	9	3	1
Aldinga/Aldinga Nth (Aldinga Beach Rd)	unb & unb	3	1	2	0	7	5	0
Aldinga South	JR Left (White) & unb	1	1	0	0	1	0	0
Silver Sands/Sellicks Beach	SR Right (Orange) & unb	2	1	1	0	3	1	0
Myponga Beach Estuary	WM Left (white) & unb	2	0	2	0	6	6	0
Carrickalinga North	unb & unb	3	2	1	0	9	2	0
Carrickalinga Rotunda	unb & unb	3	3	0	0	7	0	0
Normanville South	NC Right (White) & unb	5	4	1	0	15	3	0
Shelley Beach (lady bay)	DT Right (White) & unb	1	1	0	0	1	0	0
Tunkalilla West	PT Left (White) & unb	3	2	1	1	7	2	1
Tunkalilla Midway	ME Right (Orange) & unb	3	2	1	1	7	3	3
Tunkalilla East	unb & unb	5	4	1	0	10	2	0

Site	Pair ID	# Nests	# nests fail egg stage	# nests hatch	# nests fledge	# eggs	# chick obsv.	# fledglings
Ballaparudda/ Callawonga	JZ Left (White) & unb	4	3	1	1	9	2	2
Sheepies Beach	KD Right (White) & NZ Right (Orange)	1	0	1	1	3	3	1
Parsons Beach (scrapes only)	unb & unb							
Waitpinga Beach (west)	unb & unb	2	2	0	0	5	0	0
Waitpinga Beach (east)	UA Right (White) & unb	2	2	0	0	6	0	0
Yilki	KV Right (Orange) & RR Right (Orange)	4	2	2	2	10	5	3
Inman River Outlet	unb & unb	2	2	0	0	4	0	0
Hindmarsh River Mouth/Victor Central/ Olivers Reef (1 scrape)	PX Right (White) & unb	4	2	2	1	12	5	3
Watsons Gap	BX Left (Orange) & unb	3	2	1	1	3	3	1
Bashams Beach	MS Left (White) & unb	3	1	2	1	8	6	1
Middleton Beach West	Metal only Right & unb	1	0	1	0	3	3	0
Middleton Beach East	YV Right (White) & unb	5	4	1	1	14	2	1
TOTAL 31 Pairs		**93**	**63**	**30**	**12**	**224**	**73**	**19**

Of the 93 confirmed nests that were monitored, 67.7% (63 nests) failed and 32.3% hatched (30 nests). 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 2021/22, of the nests that failed, 79.4% (50 nests) failed to unknown causes. However, for 39 (78%) of these nests that had unknown cause for failure, there were prints and evidence around the nest suggesting the following potential causes of failure: the highest being suspected fox depredation for 24 of the nests (48%) (see further detail below); with another 2 nests (4%) suspected either fox or dog at West Beach and Moana Beach, 5 nests (10%) were suspected to have been predated by ravens at Moana Beach, Carrickalinga North, Carrickalinga Rotunda, Waitpinga West and Yilki, and an additional 2 nests (2% respectively) with suspected avian predation including magpie and masked lapwing both at Normanville South. Each of the remaining

6 nests (2% respectively) each had a different suspected cause of failure: dog (Henley Beach), dog/human disturbance (Inman River Outlet), human disturbance (Shelley Beach), rain/weather (Hindmarsh River Mouth), windblown (Normanville South), and abandoned (Yilki). The remaining 11 nests (22%) with fate unknown, had no evidence around the nest.

This season there was a high number of nests suspected to have been depredated by foxes (24 nests), 4 more than the already high number of 20 nests last season. Table 4 outlines which sites and how many nests were suspected depredated by foxes. It shows a concentration along Onkaparinga Beaches (Moana to Port Willunga) where 14 of the 21 failed nests (66.7%) along this stretch of coast were as a result of suspected fox predation.

Table 4. 2021/22 season showing the sites, number of nests suspected depredated by foxes, and as a percentage of failed nests at that site shown in brackets.

Site	# nests failed suspect fox (% of failed nests at site)
West Beach	2 (66.7%)
Moana Beach South	1 (20%)
Ochre Cove	6 (100%)
Maslin Beach	2 (100%)
Port Willunga	2 (100%)
Port Willunga Chinaman Gully	1 (100%)
Port Willunga South	2 (100%)
Carrickalinga Rotunda	1 (33.3%)
Tunkalilla West	1 (50%)
Tunkalilla East	3 (75%)
Ballaparudda	1 (33.3%)
Watsons Gap	1 (50%)
Bashams Beach	1 (100%)

Photo: fox at the West Beach Hooded Plover site during daylight hours (Alan Young).

Of the nest failures where the cause could be confirmed (20.6%, 13 nests), the majority (61.5%, 8 nests) failed due to tidal inundation and storms. All of these occurred during the earlier months of the season (August-October, and one in November) with 2 each at Moana and Middleton Beach East, and one at Carrickalinga Rodunda, Tunkalilla West, Tunkalilla Midway and Watsons Gap. Two nests (15.4%) at Middleton Beach East were abandoned, and in both cases the pair were being harassed by a silver gull, and were observed being fed by a resident. Two nests (15.4%) were unviable and being incubated long beyond the usual 28 days of incubation (both more than 40 days), one at Aldinga Beach and the other at the Inman River outlet. In cases where birds have been incubating for over 28 days, BirdLife Australia analyses the data entered into the portal to ensure there is no chance the birds may have laid another nest. BirdLife Australia also undertakes testing to determine the age of the eggs, which is undertaken only by trained staff or Volunteer Regional Coordinators. If the eggs are deemed unviable, the eggs are removed. Removing eggs from Hooded Plover nests is not something that is undertaken lightly, as there is risk that viable eggs could be removed. BirdLife Australia has stringent protocols to avoid the possibility that this would happen. The welfare of the incubating adults is also considered, as the birds could continue sitting on unviable eggs for extended periods, during extreme weather conditions and high recreational beach use days. This can lead to deterioration of body condition, as well as reduce the chance that the birds will relay.

The remaining nest had eggs taken by silver gull and raven. This nest was in a unique situation at Victor Central on the beach amongst construction rubble, in front of a temporary construction site between the boat ramp and new Causeway. Access to the

beach was limited by the construction company, McConnell Dowell, who was building the new Causeway at Victor Harbor. A staff member observed silver gull fly off with an egg in its bill, and volunteers subsequently witnessed a raven cracking open an egg.

The sites, in summary, recommended for nest cameras next season (2021/22) include: Carrickalinga North (many nest failures over multiple seasons), Tunkalilla (concerns over high number of flagged adult birds disappearing in previous seasons), and Waitpinga (East and West, multiple unknowns however plenty of fox evidence on the beach).

Figure 4: Sites within Green Adelaide where chicks fledged during the 2021/2022 season.

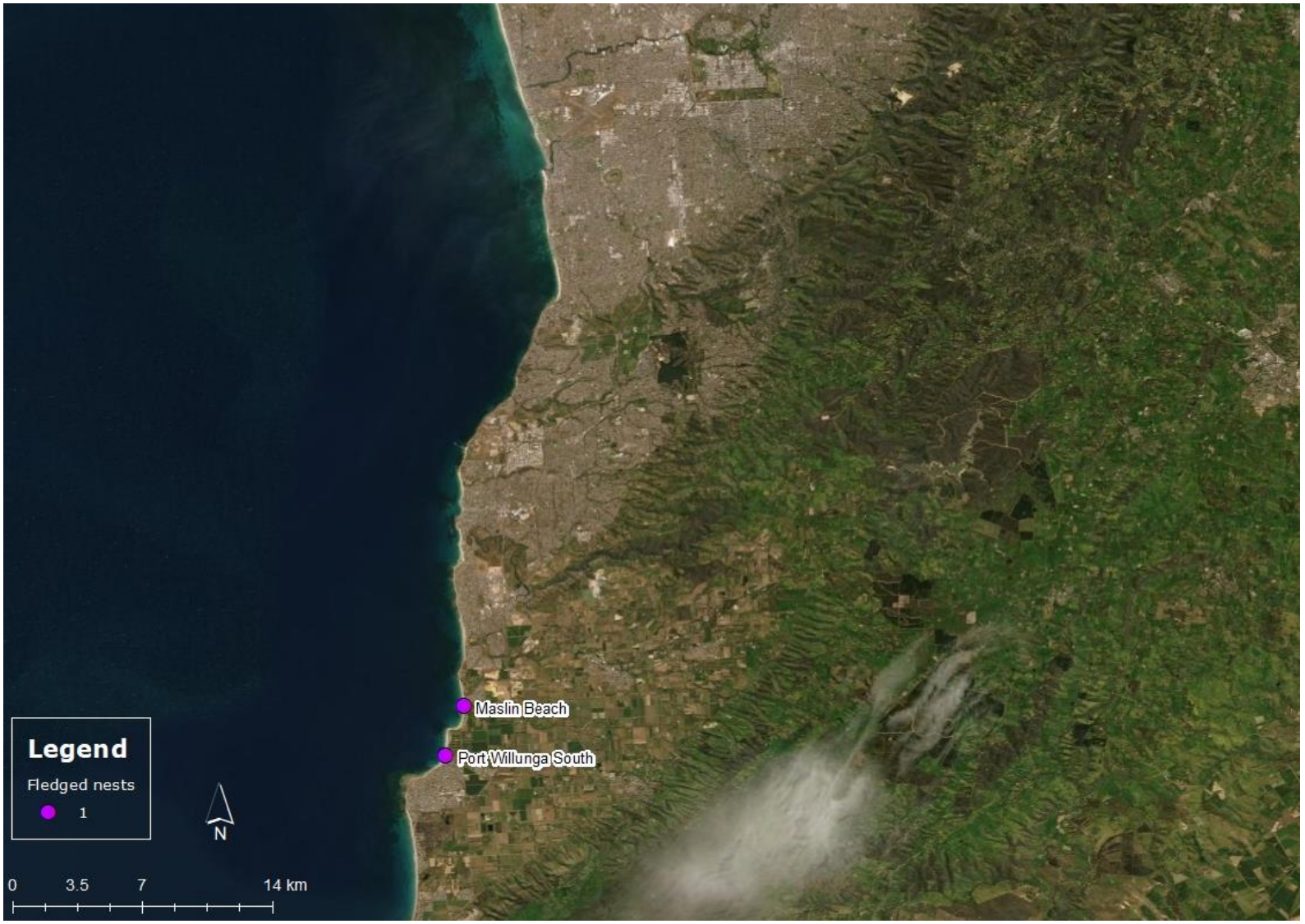

Figure 5: Sites within the Hills and Fleurieu Landscape region where chicks fledged during the 2021/2022 season.

Out of the total number of nests (93), 30 were confirmed as hatched (32.3%). Twelve of these hatched nests successfully fledged 19 chicks (i.e. 63.2% of hatched nests fledged). Of the 73 chicks observed, 19 (26%) fledged.

The 19 fledglings produced this season were from 11 pairs of Hooded Plovers, with two pairs producing 3 fledglings from individual nesting attempts (Tunkalilla Midway and Victor Central), and one pair producing 3 fledglings from 2 attempts (Yilki). The pairs that successfully fledged chicks were: Maslin Beach (2 fledglings), Port Willunga South (1 fledgling), Tunkalilla West (1 fledgling), Tunkalilla Midway (3 fledglings), Ballaparudda/Callawonga (2 fledglings), Sheepies Beach (1 fledgling), Yilki (3 fledglings), Victor Central (3 fledglings), Watsons Gap (1 fledgling), Bashams Beach (1 fledgling) and Middleton Beach East (1 fledgling). The chick from Port Willunga South technically fledged (reached 35 days), however it was not seen again after this despite the adult pair being present. It is important to note that this chick contributed to the overall fledging success for the region, however equally important to note it may not have contributed to the juvenile success/population for the season. Fledglings can also disperse from their territories on day 36.

Significantly, 16 of the 19 fledglings were from the south coast of the Fleurieu Peninsula. There was success at both the urban and remote sites along the south coast, with significant success particularly at sites near the very busy urban centres of Victor Harbor, Port Elliot and Middleton. Breeding success was limited on the western side of the Fleurieu Peninsula up to and including the Adelaide Metro coast with only 3 fledglings, none of which were from the Myponga Beach/Normanville stretch of coast. The western side of the Fleurieu Peninsula was much more successful last season with 8 of the 14 fledglings occurring along that stretch.

There was repeated success for some territories across the last two seasons including: Maslin Beach, Port Willunga South, Tunkalilla West, Ballaparudda/Callawonga, Watsons Gap, and Bashams Beach. Conversely, sites such as Yilki which experienced significant failure in the previous season, had excellent success this season. Yilki had 7 nest failures in 2020/21, however produced 3 fledglings from two attempts this season. Watsons Gap has not produced a fledgling for 8 consecutive seasons (since 2012/13), except for the chick "Percy" that fledged in care after a Pacific Gull attack last season. However, the pair at Watsons Gap finally fledged one chick in November 2021 after many years of continued suspected and confirmed (nest camera) fox predation. It was BX left (Orange), banded as

an adult in January 2013, that fledged this chick and is one of the oldest remaining flagged birds on the Fleurieu Peninsula. BX was limping in December and after a few weeks of observation was determined to be worsening so was caught and examined by a Zoos SA vet. There was nothing obvious causing the limp, so he was released and continued to limp for about a month before it started to improve.

JZ White (Ballaparudda/Callawonga), banded as a juvenile in February 2016 at Lands End, has had success again this season, with 5 fledglings in the 4 seasons in a row since he began breeding (first successful breeding attempt was at Yankalilla River Mouth in 2018/19). Tunkalilla East and Tunkalilla West have been the two most productive sites on the Fleurieu Peninsula since 2010/11 (13 and 15 fledglings respectively), even though the Tunkalilla East were not successful this season. The Seacliff pair have had success fledging chicks every season since 2017/18 (a total of 6 chicks), however unfortunately there was no success this season. The long-standing female XS (White), banded as an adult in September 2018, was found dead on the beach on 12/1/22 on the same day the 1-day old chick disappeared. The body was taken for necropsy at Adelaide Zoo however significant decomposition meant the cause of death could not be determined.

Overall, in 2021/22, an egg had an 8.3% chance of fledging (19 fledglings from 229 eggs), which is slightly higher than 6% in 2020/21, and 7.8% in 2019/20. A nest had a 12.9% chance of fledging a chick (12 nests out of 93), which is a very slight increase from 12.2% in 2020/21, however less than the 15.9% in 2019/20. Chick survival (26%) was slightly less than the previous season (26.9%), however is an improvement on the previous two seasons (24.6% in 2019/20 and 21.7% in 2018/19). Overall, however, there has been a decline in chick survival in recent seasons. Chick survival previously ranged between 30.2% and 41% between 2009/10 and 2017/18.

Of the 54 chicks that failed, the cause of failure is predominantly unknown (52 chicks, 96.3%), with 31 chicks (59.6%) having no suspected cause; 14 chicks (26.9%) suspected avian attack with 4 chicks suspected magpie (Seacliff, and 3 Bashams Beach), 2 chicks suspected silver gull (Aldinga North and Bashams Beach), 3 chicks suspected magpie or silver gull (Normanville South), 3 chicks suspected kestrel (Silver Sands, and 2 Watsons Gap), 1 chick suspected pacific gull (Middleton Beach East), and 1 chick suspected raven (Carrickalinga North); 3 chicks suspected dog or fox predation (5.8%) (siblings at Port Stanvac); 1 chick suspected dog attack (1.9%) at Seacliff; 1 chick suspected impact of storm/tide event (1.9%) at Maslin Beach; 1 chick suspected unknown predator (1.9%) at

Port Willunga; and 1 chick (1.9%) with a lame right leg which likely influenced the outcome of this 3-day old chick at Myponga Beach Estuary.

Cause of failure could be confirmed in 2 cases (3.7%) where chick bodies were located and taken to Zoos SA where necropsies were undertaken. The first was at Myponga Beach Estuary where the 3-day old sibling of the lame chick above was found, and the necropsy revealed the cause of death as cardiac rupture, likely a result of some sort of chest compression. There were no obvious injuries when the chick was found so it may have been something 'light' that caused the injury. The second was at Middleton Beach West where a 22-day old chick body was located with a puncture wound under its wing and the necropsy confirmed a predator attack (volunteers suspected silver gull attack).

Four of the failed chicks made it to the 4-week stage, very close to fledging age but unfortunately not making it all the way (two at Port Willunga, one at Myponga Beach Estuary and one at Sheepies Beach). The Port Willunga South chick technically fledged (reaching 35 days) however was unfortunately not seen beyond this point (even though the adults were present, and adult behaviour did not indicate presence of a fledgling) so it may not have joined the juvenile population, however fledglings can disperse from day 36.

Monitoring undertaken by volunteers was so consistent that in some cases chick disappearance could be confirmed within a few hours, such as at Aldinga North on the 7th February between 12pm and 3pm.

In addition to the two necropsies mentioned above, Zoos SA veterinary staff also performed necropsies on: flagged sub-adult HN (White) found limping at Maslin Beach, taken to Adelaide Avian and Exotics Vet where it unfortunately died despite attempts to help it in surgery, the necropsy revealing a fractured leg and blunt force trauma to pectoral muscles and the liver; adult XS (White) from Seacliff was unfortunately in a degraded condition and not able to identify any puncture wounds consistent with a predator bite etc, nor evaluate for possible underlying disease; and adult suspected SA (Orange) Metal Only Right from Middleton Beach West cause of death was not evident on gross pathology and tissue results are pending. Zoos SA veterinary staff also provided timely and expert advice, and assistance on site for the entangled unbanded adult at Waitpinga Beach (human hair appears to have caused the entanglement) and assessment of limping BX (Orange) at Watsons Gap.

These threats 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 prior to each season to discuss and plan actions based on the recommendations. All the information included in the reports is based on the data recorded by volunteers and staff in the portal.

Photo: Hooded Plover fledgling SV (White) doing a wing stretch at Maslin Beach with parent RV (Orange) (Sue and Ash Read).

Table 5. Detailed summary of nest progress for each site according to data entered in the MyBeachBird data portal and sent to BirdLife Australia for the 2021/22 breeding season.

Site	Pair	Nest attempt #	Date nest found	Eggs observed	Nest fail date	Nest fail cause	Date chicks first observed	# Chicks observed	Chick fail date(s)	chick failure cause(s)	# fledged	Date fledged
Henley Beach	YL Right (White) & unb	1	1/09/21	3	14/09/21	unknown (suspect dog)						
West Beach	MR Right (White) & unb	1	23/08/21	3	10/09/21	unknown (suspect dog/fox)						
West Beach	MR Right (White) & unb	2	21/09/21	1	29/09/21	unknown (suspect fox)						
West Beach	MR Right (White) & unb	3	13/10/21	3	22/10/21	unknown (suspect fox)						
Seacliff	XS Right (White) & unb	1	20/08/21	3			19/09/21	3	23/09/21, 27/09/21, 2/10/21	3 unknown (1 suspect dog attack)		
Seacliff	XS Right (White) & unb	2	18/10/21	3			15/11/21	3	16/11/21, 20/11/21, 24/11/21	3 unknown		
Seacliff	XS Right (White) & unb	3	7/12/21	3			11/01/22	1	12/01/22	unknown (suspect magpie)		
Port Stanvac	AR Left (Orange) & ES	1	unknown	0			30/11/21	3	7/12/21	3 unknown (3 suspect dog/fox)		

Site	Pair	Nest attempt #	Date nest found	Eggs observed	Nest fail date	Nest fail cause	Date chicks first observed	# Chicks observed	Chick fail date(s)	chick failure cause(s)	# fledged	Date fledged
	Right (White)											
Moana Beach/South	PM Right (White) & unb	1	21/08/21	2	30/08/21	tide						
Moana Beach/South	PM Right (White) & unb	2	10/09/21	2	15/09/21	tide						SD
Moana Beach/South	PM Right (White) & unb	3	1/10/21	3	8/10/21	unknown (suspect fox)						
Moana Beach/South	PM Right (White) & unb	4	19/10/21	3	24/10/21	unknown (suspect raven)						
Moana Beach/South	PM Right (White) & unb	5	2/11/21	1	9/11/21	unknown (suspect dog/fox)						
Ochre Cove, Maslins	NA Right (Orange) & unb	1	17/08/21	3	13/09/21	unknown (suspect fox)						
Ochre Cove, Maslins	NA Right (Orange) & unb	2	17/09/21	3	4/10/21	unknown (suspect fox)						
Ochre Cove, Maslins	NA Right (Orange) & unb	3	12/10/21	2	17/10/21	unknown (suspect fox)						
Ochre Cove, Maslins	NA Right (Orange) & unb	4	25/10/21	1	27/10/21	unknown (suspect fox)						

Site	Pair	Nest attempt #	Date nest found	Eggs observed	Nest fail date	Nest fail cause	Date chicks first observed	# Chicks observed	Chick fail date(s)	chick failure cause(s)	# fledged	Date fledged
Ochre Cove, Maslins	NA Right (Orange) & unb	5	10/11/21	3	19/11/21	unknown (suspect fox)						
Ochre Cove, Maslins	NA Right (Orange) & unb	6	1/12/21	2	3/12/21	unknown (suspect fox)						
Ochre Cove, Maslins	NA Right (Orange) & unb	7	16/12/21	2			16/01/22	1	2/02/22			
Maslin Beach	RV Right (Orange) & unb	1	30/08/21	3			4/10/21	1	5/10/21	unknown (suspect tide)		
Maslin Beach	RV Right (Orange) & unb	2	17/10/21	3	27/10/21	unknown (suspect fox)						
Maslin Beach	RV Right (Orange) & unb	3	6/11/21	2	10/11/21	unknown (suspect fox)						
Maslin Beach	RV Right (Orange) & unb	4	17/11/21	3			19/12/21	3	1/01/22	1 unknown	2	27/01/22
Port Willunga	DP Left (Orange) & HV Right (Orange)	1	6/09/21	2	18/09/21	unknown (suspect fox)						
Port Willunga	DP Left (Orange)	2	18/10/21	1	26/10/21	unknown (suspect fox)						

Site	Pair	Nest attempt #	Date nest found	Eggs observed	Nest fail date	Nest fail cause	Date chicks first observed	# Chicks observed	Chick fail date(s)	chick failure cause(s)	# fledged	Date fledged
	& HV Right (Orange)											
Port Willunga	DP Left (Orange) & HV Right (Orange)	3	5/11/21	3			9/12/21	2	13/12/21, 14/12/21	2 unknown (1 suspect predator)		
Port Willunga - Chinaman Gully	YL Right (White) & unb	2	29/11/21	2	26/12/21	unknown (suspect fox)						
Port Willunga South	JT Right (White) & unb	1	30/08/21	3	18/09/21	unknown (suspect fox)						
Port Willunga South	JT Right (White) & unb	2	14/10/21	3	25/10/21	unknown (suspect fox)						
Port Willunga South	JT Right (White) & unb	3	5/11/21	3			6/12/21	3	2/01/22, 3/01/22	2 unknown	1	10/01/22
Aldinga/Aldinga Nth (Aldinga Beach Rd)	unb & unb	1	19/08/21	3			22/09/21	3	26/09/21, 13/10/21, 13/10/21	3 unknown		
Aldinga/Aldinga Nth (Aldinga Beach Rd)	unb & unb	2	6/11/21	2	18/12/21	Unviable eggs/Overdue (removed with BirdLife Permission)						

Site	Pair	Nest attempt #	Date nest found	Eggs observed	Nest fail date	Nest fail cause	Date chicks first observed	# Chicks observed	Chick fail date(s)	chick failure cause(s)	# fledged	Date fledged
Aldinga/Aldinga Nth (Aldinga Beach Rd)	unb & unb	3	1/01/22	2			2/02/22	2	7/02/22, 8/02/22	2 unknown (1 suspect silver gull)		
Aldinga South	JR Left (White) & unb	1	7/11/21	1	10/11/21	unknown						
Silver Sands/Sellicks Beach	SR Right (Orange) & unb	1	16/09/21	2	16/10/21	unknown						
Silver Sands/Sellicks Beach	SR Right (Orange) & unb	2	9/11/21	1			5/12/21	1	20/12/21	unknown (suspect kestrel)		
Myponga Beach Estuary	WM Left (white) & unb	1	4/09/21	3			2/10/21	3	5/10/21, 5/10/21, 2/11/21	2 unknown (one young chick had lame leg which was likely contributing factor). 1 chick body was recovered, necropsy reported cardiac rupture, likely a result from chest compression/crush injury		

Site	Pair	Nest attempt #	Date nest found	Eggs observed	Nest fail date	Nest fail cause	Date chicks first observed	# Chicks observed	Chick fail date(s)	chick failure cause(s)	# fledged	Date fledged
Myponga Beach Estuary	WM Left (white) & unb	2	4/12/21	3			21/12/21	3	21/12/21	unknown		
Carrickalinga North	unb & unb	1	23/09/21	3			12/10/21	2	14/10/21, 16/10/21	2 unknown (1 suspect raven)		
Carrickalinga North	unb & unb	2	11/11/21	3	24/11/21	unknown (suspect raven)						
Carrickalinga North	unb & unb	3	25/12/21	3	2/01/22	unknown						
Carrickalinga Rotunda	unb & unb	1	7/09/21	1	7/09/21	unknown (suspect raven)						
Carrickalinga Rotunda	unb & unb	2	27/09/21	3	7/10/21	tide						
Carrickalinga Rotunda	unb & unb	3	14/11/21	3	25/11/21	unknown (suspect fox)						
Normanville South	NC Right (White) & unb	1	29/08/21	3	24/09/21	unknown (suspect presence of Masked Lapwings)						
Normanville South	NC Right (White) & unb	2	9/10/21	3	14/10/21	unknown (suspect windblown)						
Normanville South	NC Right (White) & unb	3	28/10/21	3	20/11/21	unknown						

Site	Pair	Nest attempt #	Date nest found	Eggs observed	Nest fail date	Nest fail cause	Date chicks first observed	# Chicks observed	Chick fail date(s)	chick failure cause(s)	# fledged	Date fledged
Normanville South	NC Right (White) & unb	4	3/12/21	3			31/12/21	3	4/01/22	3 unknown (3 suspect magpie/silver gull)		
Normanville South	NC Right (White) & unb	5	21/01/22	3	15/02/22	unknown (suspect magpie)						
Shelley Beach (lady bay)	DT Right (White) & unb	1	30/12/21	1	2/01/22	unknown (suspect person)						
Tunkalilla West	PT Left (White) & unb	1	16/09/21	1	23/09/21	tide						
Tunkalilla West	PT Left (White) & unb	2	2/10/21	3	9/11/21	unknown (suspect fox)						
Tunkalilla West	PT Left (White) & unb	3	6/12/21	3			1/01/22	2	12/01/22	2 unknown	1	2/02/22
Tunkalilla Midway	ME Right (Orange) & unb	1	16/09/21	2	23/09/21	tide						
Tunkalilla Midway	ME Right (Orange) & unb	2	19/10/21	2	25/10/21	unknown						
Tunkalilla Midway	ME Right (Orange) & unb	3	17/11/21	3			28/12/21	3			3	27/01/22

Site	Pair	Nest attempt #	Date nest found	Eggs observed	Nest fail date	Nest fail cause	Date chicks first observed	# Chicks observed	Chick fail date(s)	chick failure cause(s)	# fledged	Date fledged
Tunkalilla East	unb & unb	1	7/09/21	1	16/09/21	unknown (suspect fox)						
Tunkalilla East	unb & unb	2	2/10/21	2	8/10/21	unknown (suspect fox)						
Tunkalilla East	unb & unb	3	9/11/21	3			13/12/21	2	28/12/21	2 unknown		
Tunkalilla East	unb & unb	4	12/01/22	3	27/01/22	unknown (suspect fox)						
Tunkalilla East	unb & unb	5	27/01/22	1	2/02/22	unknown						
Ballaparudda/ Callawonga	JZ Left (White) & unb	1	15/09/21	3	24/09/21	unknown						
Ballaparudda/ Callawonga	JZ Left (White) & unb	2	7/10/21	3	20/10/21	unknown						
Ballaparudda/ Callawonga	JZ Left (White) & unb	3	20/10/21	1	2/11/21	unknown (suspect fox)						
Ballaparudda/ Callawonga	JZ Left (White) & unb	4	unknown	2			9/01/22	2			2	9/01/22
Sheepies beach	KD Right (white) & NZ (Orange)	1	8/12/21	3			27/12/21	3	11/01/22, 25/01/22	2 unknown	1	6/02/22
Parsons Beach	unb & unb	scrape only										

Site	Pair	Nest attempt #	Date nest found	Eggs observed	Nest fail date	Nest fail cause	Date chicks first observed	# Chicks observed	Chick fail date(s)	chick failure cause(s)	# fledged	Date fledged
Waitpinga Beach (west)	unb & unb	1	29/11/21	3	8/12/21	unknown (suspect raven)						
Waitpinga Beach (west)	unb & unb	2	20/12/21	2	27/12/21	unknown						
Waitpinga Beach (east)	UA Right (White) & unb	1	16/11/21	3	29/11/21	unknown						
Waitpinga Beach (east)	UA Right (White) & unb	2	13/12/21	3	7/01/22	unknown						
Yilki	KV Right (Orange) & RR Right (Orange)	1	7/09/21	3	29/09/21	unknown (suspect raven)						
Yilki	KV Right (Orange) & RR Right (Orange)	2	8/10/21	1	10/10/21	egg abandoned - unknown (suspect raven)						
Yilki	KV Right (Orange) & RR Right (Orange)	3	10/10/21	3			14/11/21	2			2	18/12/21
Yilki	KV Right (Orange) & RR	4	30/12/21	3			29/01/22	3	31/01/22, 7/02/22	2 unknown	1	5/03/22

Site	Pair	Nest attempt #	Date nest found	Eggs observed	Nest fail date	Nest fail cause	Date chicks first observed	# Chicks observed	Chick fail date(s)	chick failure cause(s)	# fledged	Date fledged
	Right (Orange)											
Inman River Outlet	unb & unb	1	30/11/21	2	11/01/22	eggs removed by volunteers with birdlife permission. Eggs over incubated (40 days)						
Inman River Outlet	unb & unb	2	24/01/22	2	28/01/22	unknown (suspect dog/human disturbance)						
Hindmarsh River Mouth/Victor Central	PX Right (White) & unb	1	17/08/21	3	29/08/21	unknown (suspect rain/weather)						
Hindmarsh River Mouth/Victor Central	PX Right (White) & unb	2	5/09/21	3	20/09/21	silver gull & raven						
Hindmarsh River Mouth/Victor Central	PX Right (White) & unb	3	28/09/21	3			29/10/21	3			3	3/12/21
Hindmarsh River	PX Right (White) & unb	4	23/12/21	3			28/01/22	2	28/01/22, 3/02/22	2 unknown		

Site	Pair	Nest attempt #	Date nest found	Eggs observed	Nest fail date	Nest fail cause	Date chicks first observed	# Chicks observed	Chick fail date(s)	chick failure cause(s)	# fledged	Date fledged
Mouth/Victor Central												
Watsons Gap	BX Left (Orange) & unb	1	19/08/21	3	1/09/21	unknown (suspect fox)						
Watsons Gap	BX Left (Orange) & unb	2	9/09/21	2	13/09/21	tide						
Watsons Gap	BX Left (Orange) & unb	3	23/09/21	3			24/10/21	3	10/11/21, 10/11/21	2 unknown (2 suspect kestrel)	1	28/11/21
Bashams Beach	MS Left (White) & unb	1	22/08/21	3			25/09/21	3	7/10/21, 10/10/21	2 unknown (1 suspect silver gull)	1	30/10/21
Bashams Beach	MS Left (White) & unb	2	16/11/21	2	14/12/21	unknown (suspect fox)						
Bashams Beach	MS Left (White) & unb	3	27/12/21	3			26/01/22	3	30/01/22, 31/01/22, 5/02/22	3 unknown (3 suspect magpie)		
Middleton Beach West	Metal only Right & unb	1	2/09/21	3			8/10/21	3	15/10/21, 29/10/21, 30/10/21	2 unknown. 1 chick body recovered, necropsy results state puncture wounds consistent with predator attack (volunteers		

Site	Pair	Nest attempt #	Date nest found	Eggs observed	Nest fail date	Nest fail cause	Date chicks first observed	# Chicks observed	Chick fail date(s)	chick failure cause(s)	# fledged	Date fledged
										suspected silver gull).		
Middleton Beach East	YV Right (White) & unb	1	28/08/21	3	13/09/21	abandoned - unknown (suspect presence of silver gulls)						
Middleton Beach East	YV Right (White) & unb	2	19/09/21	3	20/09/21	tide						
Middleton Beach East	YV Right (White) & unb	3	29/09/21	2	2/10/21	abandoned - unknown (suspect presence of silver gulls)						
Middleton Beach East	YV Right (White) & unb	4	20/10/21	3	9/11/21	tide						
Middleton Beach East	YV Right (White) & unb	5	24/11/21	3			27/12/21	2	9/01/22	1 unknown (1 suspect pacific gull)	1	30/01/22

Flagging

In total, 196, birds have been banded as part of BirdLife Australia's research program in South Australia since 2012. On the Fleurieu, 89 birds have been given engraved leg flags (Table 6). Green Adelaide has provided funding for greater investment in flagging of birds on the Adelaide Metro and Fleurieu, and in combination with the high reporting of resightings, we are able to gain great insight into the demographics of this population.

Reporting of flags is replied upon to build a 'history' for each flagged individual and learn about their movements, breeding partner/s and longevity. Due to loss of birds, partner swaps and new pairs taking up new territories, there were 6 pairs of unbanded birds on the Fleurieu Peninsula this season: Aldinga/Aldinga North, Carrickalinga North, Carrickalinga Rotunda, Tunkalilla East, Waitpinga West and the Inman River Outlet. This season the unbanded pair at Sheepies were flagged.

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 still too early to report on the longevity of the flagged Hooded Plovers, as birds can live for 10-20 years, and the banding data for the Fleurieu Peninsula is still relatively recent. However, it can be confirmed that juveniles/chicks that were flagged in 2012/2013 and 2013/2014 (10 birds) have not been resighted, and could possibly have dispersed to the Coorong or Kangaroo Island. However, a number of adults flagged during these two earlier seasons continue to survive and breed, for example: BX (Orange) at Watsons Gap, HV (Orange) and DP (Orange) at Port Willunga, NA (Orange) at Ochre Cove, and AR (Orange) at Port Stanvac.

A number of long-term breeding birds, banded in the earlier seasons, are no longer present. Suspected SA (Orange) Metal Only Right was found dead on 9/3/22 near Middleton Beach East creek outlet by a member of the public and passed onto a volunteer. It had no apparent signs of injury, except for its eyes being sunken/gone. It was taken to Zoos SA for a necropsy and the cause of death was not evident on gross pathology, however histopathology results showed severe fungal tracheitis almost occluding the entire trachea and invading the surrounding tissue. Zoos SA noted that this is usually caused by the *Aspergillus* species, and is quite a common infection in a range of bird species. A number of factors, both environmental and individual, are thought to lead to *Aspergillus* infection. It was banded as an adult at Bashams Beach in November 2013 where it nested in 2014/15, and each season at Middleton Beach since 2015/16 (Middleton Beach West since 2019/20 when YV (white) established a second breeding site at Middleton Beach East). US (Orange) banded as an adult at Myponga Beach in August 2015, was not seen breeding at Myponga Beach Estuary this season as it did last season where it fledged one chick. It was not sighted across the region at all, so perhaps it has passed away. WM (White), from Myponga Beach East, has moved in and its partner from last season, YK (White) did not nest this season and was confirmed on one occasion at Aldinga South.

SS (Orange), banded as an adult in September 2013 at Carrickalinga Estuary, was observed in 2020/21 but not breeding (last seen breeding at Carrickalinga South in 2018/19), and was not observed this season.

Banded more recently as an adult in September 2018, female XS (White) was found dead on the beach on 12/1/22 on the same day the 1-day old chick disappeared. The body was taken for necropsy at Adelaide Zoo however significant decomposition meant the cause of death could not be determined. XS (White) has been very successful at Seacliff beach with 6 fledglings over 5 consecutive seasons. Two fledglings from XS at Seacliff have established breeding sites in very busy urban settings including Henley Beach and Port Willunga Chinaman Gully (YL White), and Aldinga South (JR White).

Juvenile HN (White), flagged in February 2021 as a fledgling from Ochre Cove, made many movements early in the season and was observed, often in the company of other juveniles, at: West Lakes Beach, West Beach, Maslin Beach, Port Willunga and further afield at Hindmarsh River Mouth. Very sadly on 28th September it was found injured at Maslin Beach and taken into avian vet care at Adelaide Bird and Exotic Vets Centre where it soon passed away. It was taken to Zoos SA for a necropsy which determined that a blunt trauma had occurred and there were no external wounds to indicate predation or attack.

A juvenile from last season BN (White) flagged as a recent fledgling in April 2021 at Tunkalilla West, was observed 49 times across 10 sites on the south coast (between Parsons Beach and Middleton Beach East), spending a lot of time near the breeding pair at Yilki and regularly getting chased away. It was suspected it may have partnered with SA (Orange) Metal Band Only mid-December as the two were observed near a scrape, but no eggs were laid (and it was later observed in multiple other locations) so it will not be known if there was a partnership until next breeding season. Juvenile RJ (White) flagged as a recent fledgling at Port Willunga South in January 2021, was observed 3 times at the Yankalilla River Mouth this season across December, January and February.

Sub-adult BN (White) with salt and pepper plumage late September 2021, and nearly all black hood mid-December 2021, Hindmarsh River Outlet (Richard Edwards)

There were 7 fledglings banded this season including: 2 of the 3 siblings at Victor Central VC (White) and HV (White), Watsons Gap JR (White), Maslin Beach siblings SV (White) and VZ (White), Sheepies Beach TT (Orange), and Middleton Beach East CW (Orange). A later attempt was made to catch juveniles (presumably from Yilki) but they moved rapidly between Victor Central and Hindmarsh River outlet and as a result were not possible to catch.

Photo: Prue Anderson releasing fledgling SV (White) at Maslin Beach, February 2022 (Sue and Ash Read).

Fortunately, there was, no further loss of banded adult breeding birds at Tunkalilla this season. The disappearance of EW (Orange) from Tunkalilla West last season was the ninth Hooded Plover from Tunkalilla to go missing (possibly dead) from Tunkalilla. Over eight seasons of monitoring flagged birds at Tunkalilla, ST (Orange), KW (Orange), WE (Orange), UB (Orange), LA (Orange), DK (Orange), MT (Orange), YB (White) and EW (Orange) have either been found dead on the beach (LA Orange was found dead in 2016/17), or not sighted again. None of these birds have been sighted on Kangaroo Island, or anywhere else within South Australia. These are just the birds we are able to confirm, as we cannot know if an unbanded bird is the same one returning to a territory each

season. Where opportunities arise, it is recommended to install a nest camera as this high mortality rate of adults is found nowhere else on the coast. It would also be worthwhile banding the eastern unbanded pair to assist with this and to confirm the suspected fox predation for the 4 out of 5 nests that failed this season (although they were successful last season with one fledgling).

BirdLife Australia's current priorities for banding include at least one bird from unbanded breeding pairs (listed above). It is important to be able to identify individuals on this beach to detect any further changes and to seek to understand these. Fledglings are a priority again for banding next season where possible.

Photo: Sharing our Shores staff member Kerri Bartley releasing fledgling TT (White) at Sheepies Beach, February 2022 (Emma Stephens).

Table 6. A summary of leg flagged Hooded Plovers captured and banded on the Fleurieu Peninsula to June 2022. All birds were captured by licensed and permitted banders (Grainne Maguire, Terry Dennis, Meg Cullen, Kasun Ekanayake, and Emma Stephens). The bird's partner, parent or sibling at the time of banding is displayed.

Beach	Date	Age	Sex	Right 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)		

Beach	Date	Age	Sex	Right tarsus	Right tibia	Left tibia	Partner/parent/sibling Flag
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)		
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)		

Beach	Date	Age	Sex	Right tarsus	Right tibia	Left tibia	Partner/parent/sibling Flag
Myponga Beach	28/11/15	Juvenile		metal	UV (orange)		Parents: EY (orange) and 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) and 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)
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)

Beach	Date	Age	Sex	Right tarsus	Right tibia	Left tibia	Partner/parent/sibling Flag
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)		
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

Beach	Date	Age	Sex	Right tarsus	Right tibia	Left tibia	Partner/parent/sibling Flag
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)

Beach	Date	Age	Sex	Right tarsus	Right tibia	Left tibia	Partner/parent/sibling Flag
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

Photo: Snapper Point continues to be an important flocking and feeding site. This group includes YL (White) originally from Seacliff and KV (White) from Maslin Beach (Sue and Ash Read).

Breeding Site Management

Of the 93 confirmed nests on the Adelaide Metro and Fleurieu Peninsula, 79 (85%) nests had some form of management (Table 7). Along Green Adelaide's coast 36 out of the 37 (97.3%) nests were managed. Port Stanvac was the only site without management as public access is not permitted and works have ceased on site (although poor fencing on the southern boundary means the public and their dogs are now accessing these beaches and may need management next season if breeding occurs).

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 13 out of 56 (23.2%) sites along the Hills and Fleurieu Landscape Board coastline, all of which were remote sites, except for four in more urban areas: Carrickalinga Rotunda in early September a nest was suspected and a raven was observed predating on egg, when going to fence the Shelley Beach nest it had gone, Inman River outlet nest was predated and adults did not return, and Middleton Beach East nest was washed away the next day by the tide in a large storm event. There was management (temporary signs at access) installed at all 11 Tunkalilla nesting attempts, a great achievement by volunteers.

Two sites, Moana Beach and Port Willunga South, within the City of Onkaparinga, had permanent fencing. In the case of Moana Beach, the birds nested just behind the newly installed 'sanctuary zone' permanent fencing surrounding the Pedlar Creek Estuary installed by Council. The permanent fencing at Port Willunga South provided a safe area for the chicks to retreat to and used it as a short cut to the temporarily fenced-off creek.

Of the 30 nests that hatched, 24 (80%) had rope fencing with temporary signs at the access and/or signs at the nest site, 3 nests (10%) had just access signs (Tunkalilla West, Midway and East) and 3 nests (10%) had no management as one was at Port Stanvac, and the remaining two were very remote sites (Sheepies Beach and Ballaparudda/Callawonga).

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 beach-goers to keep an eye out during spring and summer months.

Of the 12 nests that successfully produced fledglings, two sites (16.7%) had no management due to being such remote sites (Sheepies Beach and

Ballaparudda/Callawonga), two nests (16.7%) had just temporary access signs (remote sites, Tunkalilla West and Midway), and the remaining 8 fledged nests (66.6%) had a minimum of signs at the nest and a rope fence.

At 10 sites, Seacliff, Aldinga/Aldinga North (for two sets of chicks), Silver Sands, Yilki, Hindmarsh River Mouth (two sets of chicks), Bashams Beach, Middleton Beach West and Middleton Beach East, volunteers were engaged to act as site guardians to assist with the protection of the chicks and educate beach users during peak times. Wardens were present at Aldinga/Aldinga North and Silver Sands to speak with beach-drivers to raise awareness about the nests and inform them of the location of the chicks.

Chick shelters were used at Seacliff, Maslin Beach, Port Willunga, Port Willunga South, Aldinga/Aldinga North, Silver Sands and Myponga Beach Estuary. 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. Chick banners were used at Seacliff, Ochre Cove, Maslin Beach, Port Willunga, Port Willunga South, Aldinga/Aldinga North, Silver Sands and Myponga Beach Estuary. 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.

Volunteers organised additional measures to provide nests and particularly chicks with protection buffers at Aldinga this season, in consultation with council, and continuing to ensure vehicles could travel through. Volunteers also installed wing fences and additional update signs at busy sites on the south coast.

Photo: a busy summer's day surrounding the chicks at Port Willunga South (Emma Stephens).

Photo: Australia Day 2022 at Aldinga Beach showing the location of the Hooded Plover nest (Darryl Cowan).

Of the 79 nests that had some form of management, 63 nests (79.7%) had council dog signs installed that require dogs to be on-lead near the breeding zones (dogs are prohibited at Normanville South). Of the 27 hatched nests (i.e. sites with chicks) that had some form of management, 24 (80.9%) also had the council dog signs installed (only Tunkalilla does not have any council dog signs). There are permanent dogs prohibited signs at Normanville South. Shelley Beach, Waitpinga and Parsons Beaches also have permanent dog prohibited signage however these sites did not have management in place this season.

This season City of Holdfast Bay installed large (approximately 4m long) banners asking dogs to be on lead as per the by-law. Following the introduction of City of Charles Sturt's new dog by-law, which came into effect November 2021, the council also produced large banners which were installed at West Beach, and then at West Lakes Shore for the Red-capped Plovers breeding at that site. Both great initiatives taken by these councils to ensure beach-goers are aware of the leashing requirements. Refer below under Management and Awareness Raising Activities for a summary of the compliance visits undertaken by councils this season, and efforts undertaken to raise awareness in the community about sharing the beach.

Photo: VRC Ligita Bligzna with the new, large dogs on leash banner at Seacliff (Emma Stephens).

Table 7. Summary of management across sites during the 2021/22 breeding season for each nesting attempt.

Site/Territory	date nest found	Hatched?	Fledged?	Management
Henley Beach	1/09/2021	N	Henley Beach	Sign Access Temporary, Sign Nest, Rope fence
West Beach	23/08/2021	N	West Beach	Sign Access Temporary, Sign Nest, Rope fence,
West Beach	21/09/2021	N	West Beach	Sign Access Temporary, Sign Nest, Rope fence, Breeding Update signs
West Beach	13/10/2021	N	West Beach	Sign Access Temporary, Sign Nest, Rope fence, Breeding Update signs, during November new council dog by-law signs installed
Seacliff	20/08/2021	Y	N	Sign Access Temporary, Sign Nest, Rope fence, Council Dog By-Law Signs, Large Council Dog By-Law Banners, Breeding Update Signs, Banners, Shelters, Wardens
Seacliff	18/10/2021	Y	N	Sign Access Temporary, Sign Nest, Rope fence, Council Dog By Law signs, Large Council Dog By Law banners, Breeding Update Signs, Banners, Shelters
Seacliff	7/12/2021	Y	N	Sign Access Temporary, Sign Nest, Banners, Rope fence, Council Dog By Law signs, Large Council Dog By Law banners, Shelters
Port Stanvac	unknown	Y	N	None
Moana Beach/South	21/08/2021	N		Sign Nest, Rope fence, Permanent fence, Council Dog Sign, Breeding Update Signs
Moana Beach/South	10/09/2021	N		Sign Nest, Rope fence, Permanent fence, Council Dog Sign, Breeding Update Signs
Moana Beach/South	1/10/2021	N		Sign Access Temporary, Sign Nest, Rope fence, Breeding update sign, Council Dog Sign
Moana Beach/South	19/10/2021	N		Sign Access Temporary, Sign Nest, Rope fence, Permanent fence, no parking sign, Council Dog Sign, Breeding Update Signs
Moana Beach/South	2/11/2021	N		Sign Access Temporary, Sign Nest, Rope fence, Permanent fence, Breeding update signs, Council Dog Sign
Ochre Cove, Maslins	17/08/2021	N		Sign Access Temporary, Sign Nest, Rope fence, Council Dog Sign, Breeding Update Signs
Ochre Cove, Maslins	17/09/2021	N		Sign Access Temporary, Sign Nest, Rope fence, Council Dog Sign, Breeding Update Signs

Site/Territory	date nest found	Hatched?	Fledged?	Management
Ochre Cove, Maslins	12/10/2021	N		Sign Access Temporary, Sign Nest, Rope fence, Council Dog Sign, Breeding Update Signs
Ochre Cove, Maslins	25/10/2021	N		Sign Access Temporary, Sign Nest, Rope fence, Council Dog Sign, Breeding Update Signs
Ochre Cove, Maslins	10/11/2021	N		Sign Access Temporary, Sign Nest, Rope fence, Council Dog Sign, Breeding Update Signs
Ochre Cove, Maslins	1/12/2021	N		Sign Access Temporary, Sign Nest, Rope fence, Council Dog Sign, Breeding Update Signs
Ochre Cove, Maslins	16/12/2021	Y	N	Sign Access Temporary, Sign Nest, Rope fence, Banners, Council Dog Sign, Breeding Update Signs
Maslin Beach	30/08/2021	Y	N	Sign Access Temporary, Sign Nest, Rope fence, Dogs on Lead signs, Banners, Shelters, Council Dog Sign, Breeding Update Signs
Maslin Beach	17/10/2021	N		Sign Nest, Rope fence, Council Dog Sign, Breeding Update Signs
Maslin Beach	6/11/2021	N		Sign Nest, Rope fence, Council Dog Sign, Breeding Update Signs
Maslin Beach	17/11/2021	Y	Y	Sign Access Temporary, Sign Nest, Rope fence, Banners, Shelters, Council Dog Sign, Breeding Update Signs
Port Willunga	6/09/2021	N		Sign Nest, Banners, Rope fence, Council Dog Sign, Breeding Update Signs
Port Willunga	18/10/2021	N		Sign Access Temporary, Sign Nest, Rope fence, Council Dog Sign, Breeding Update Signs
Port Willunga	5/11/2021	Y	N	Sign Access Temporary, Sign Nest, Rope fence, Banners, Shelters, Council Dog Sign, Breeding Update Signs
Port Willunga - Chinaman Gully	29/11/2021	N		Sign Access Temporary, Sign Nest, Rope fence, Council Dog Sign , Breeding Update Signs
Port Willunga South	30/08/2021	N		Sign Access Temporary, Sign Nest, Rope fence, Council Dog Sign, Breeding Update Signs
Port Willunga South	14/10/2021	N		Sign Access Temporary, Sign Nest, Rope fence, Council Dog Sign, Breeding Update Signs

Site/Territory	date nest found	Hatched?	Fledged?	Management
Port Willunga South	5/11/2021	Y	Y	Sign Access Temporary, Sign Nest, Rope fence, Permanent fence, Banners, Shelters, Council Dog Sign, Breeding Update Signs
Aldinga/Aldinga Nth (Aldinga Beach Rd)	19/08/2021	Y	N	Sign Access Temporary, Sign Nest, Rope fence, Dogs on leash Council signs, Banners, Shelters, Wardens, Council Dog Sign
Aldinga/Aldinga Nth (Aldinga Beach Rd)	6/11/2021	N		Sign Access Temporary, Sign Nest, Rope fence, Council Dog Sign / New 'No Stop' signs / Breeding chart
Aldinga/Aldinga Nth (Aldinga Beach Rd)	1/01/2022	Y	N	Sign Access Temporary, Sign Nest, Rope fence, Council Dog Sign /SLOW signs, Banners, Shelters, Wardens, marker bollards
Aldinga South	7/11/2021	N		Sign Access Temporary, Sign Nest, Rope fence, Council Dog Sign, No stopping sign
Silver Sands/Sellicks Beach	16/09/2021	N		Sign Access Temporary, Sign Nest, Rope fence, Council Dog Sign
Silver Sands/Sellicks Beach	9/11/2021	Y	N	Sign Access Temporary, Sign Nest, Rope fence, Council Dog Sign / No Parking signs, Banners, Shelters, Wardens
Myponga Beach Estuary	4/09/2021	Y	N	Sign Access Temporary, Sign Nest, Banners, Rope fence, Council installed signs 'Leash your dog', Shelters, Council Dog By-law sign
Myponga Beach Estuary	4/12/2021	Y	N	Sign Nest, Rope fence, Shelters, Sign Access Temporary, Council Dog By-law sign
Carrickalinga North	23/09/2021	Y	N	Sign Access Temporary, Sign Nest, Rope fence, Council Dog By-law sign
Carrickalinga North	11/11/2021	N		Sign Access Temporary, Sign Nest, Rope fence, Council Dog By-law sign
Carrickalinga North	25/12/2021	N		Sign Access Temporary, Sign Nest, Rope fence, Council Dog By-law sign
Carrickalinga Rotunda	7/09/2021	N		None
Carrickalinga Rotunda	27/09/2021	N		Sign Access Temporary, Sign Nest, Rope fence
Carrickalinga Rotunda	14/11/2021	N		Rope fence
Normanville South	29/08/2021	N		Sign Access Temporary, Sign Nest, Rope fence.
Normanville South	9/10/2021	N		Sign Access Temporary, Sign Nest, Rope fence.
Normanville South	28/10/2021	N		Sign Access Temporary, Sign Nest, Rope fence.
Normanville South	3/12/2021	Y	N	Sign Access Temporary, Sign Nest, Rope fence.
Normanville South	21/01/2022	N		Sign Access Temporary, Sign Nest, Rope fence.
Shelley Beach (lady bay)	30/12/2021	N		None

Site/Territory	date nest found	Hatched?	Fledged?	Management
Tunkalilla West	16/09/2021	N		Sign Access Temporary
Tunkalilla West	2/10/2021	N		Sign Access Temporary
Tunkalilla West	6/12/2021	Y	Y	Sign Access Temporary
Tunkalilla Midway	16/09/2021	N		Sign Access Temporary
Tunkalilla Midway	19/10/2021	N		Sign Access Temporary
Tunkalilla Midway	17/11/2021	Y	Y	Sign Access Temporary
Tunkalilla East	7/09/2021	N		Sign Access Temporary
Tunkalilla East	2/10/2021	N		Sign Access Temporary
Tunkalilla East	9/11/2021	Y	N	Sign Access Temporary
Tunkalilla East	12/01/2022	N		Sign Access Temporary
Tunkalilla East	27/01/2022	N		Sign Access Temporary
Ballaparudda/Callawonga	15/09/2021	N		None
Ballaparudda/Callawonga	7/10/2021	N		None
Ballaparudda/Callawonga	20/10/2021	N		None
Ballaparudda/Callawonga	unknown	Y	Y	None
Sheepies beach	8/12/2021	Y	Y	None
Waitpinga Beach (west)	29/11/2021	N		None
Waitpinga Beach (west)	20/12/2021	N		None
Waitpinga Beach (east)	16/11/2021	N		None
Waitpinga Beach (east)	13/12/2021	N		None
Yilki	7/09/2021	N		Sign Access Temporary, Sign Nest, Rope fence, dog bylaw signs
Yilki	8/10/2021	N		Sign Access Temporary, Sign Nest, Rope fence, dog bylaw signs
Yilki	10/10/2021	Y	Y	Sign Access Temporary, Sign Nest, Rope fence, dog bylaw signs
Yilki	30/12/2021	Y	Y	Sign Access Temporary, Sign Nest, Rope fence, dog bylaw signs, Wardens, Fence wing
Inman River Outlet	30/11/2021	N		Sign Access Temporary, Sign Nest, Rope fence, dog bylaw signs
Inman River Outlet	24/01/2022	N		None

Site/Territory	date nest found	Hatched?	Fledged?	Management
Hindmarsh River Mouth/Victor Central	17/08/2021	N		Sign Access Temporary, Sign Nest, Rope fence, Council By-law sign
Hindmarsh River Mouth/Victor Central	5/09/2021	N		Sign Access Temporary, Sign Nest, Rope fence, Construction Site No Entry Signs
Hindmarsh River Mouth/Victor Central	28/09/2021	Y	Y	Sign Access Temporary, Sign Nest, Rope fence, Council By-laws sign, Wardens, alert sign, information sign
Hindmarsh River Mouth/Victor Central	23/12/2021	Y	N	Sign Access Temporary, Sign Nest, Rope fence, Council By-law sign, Wardens, alert sign
Watsons Gap	19/08/2021	N		Sign Access Temporary, Sign Nest, Rope fence, Council Bylaw signs
Watsons Gap	9/09/2021	N		Sign Access Temporary, Sign Nest, Rope fence, Council Bylaw signs
Watsons Gap	23/09/2021	Y	Y	Sign Access Temporary, Sign Nest, Rope fence, Council Bylaw signs
Bashams Beach	22/08/2021	Y	Y	Sign Access Temporary, Rope fence, Council Bylaw signs, Wardens, Fence Wings
Bashams Beach	16/11/2021	N		Sign Access Temporary, Sign Nest, Rope fence, Council Bylaw signs
Bashams Beach	27/12/2021	Y	N	Sign Access Temporary, Sign Nest, Rope fence, Council Bylaw signs
Middleton Beach West	2/09/2021	Y	N	Sign Access Temporary, Sign Nest, Rope fence, Council Bylaw signs, Wardens
Middleton Beach East	28/08/2021	N		Sign Access Temporary, Sign Nest, Rope fence, Council Bylaw signs
Middleton Beach East	19/09/2021	N		None
Middleton Beach East	29/09/2021	N		Sign Access Temporary, Sign Nest, Rope fence, Council Bylaw signs
Middleton Beach East	20/10/2021	N		Sign Access Temporary, Sign Nest, Rope fence, Council Bylaw signs
Middleton Beach East	24/11/2021	Y	Y	Sign Access Temporary, Sign Nest, Rope fence, Council Bylaw signs, Wardens, Fence wings

Management and Awareness Raising activities during 2021/22

In the 2021/22 breeding season, the following activities were carried out:

Management

- Nest and chick wardening occurred at selected high threat sites.
- Temporary fencing and signage around nests and chicks.
- Temporary signs communicating nest failure or chick hatching success.
- BirdLife Australia and the Volunteer Coordinator met with each Council, and National Parks staff (Newland Head CP) to discuss the start of the season and go through the new 2020/21 Council Report Cards. Many of the actions below (management and awareness raising) resulted from recommendations in the reports discussed at the meetings. 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.
- As mentioned above, the "Our Plover Coast" and "Restoring coastal habitats for wildlife conservation - Our Plover Coast" funding has enabled foredune weed control at 30 sites, to be followed up with Spinifex planting (seedlings grown by Yankalilla Community Nursery and City of Onkaparinga nursery) by coastal community groups and the Friends of the Hooded Plover. Fox control as part of these grants is provided in further detail below.
- As mentioned above, VRCs and volunteers put in significant effort and time to warden a number of sites to assist particularly in the chick phase. An excellent effort by all, and significantly raises the profile and awareness of the birds at this very vulnerable stage.
- Dog management and compliance:
    - Council dog by-law signs were installed at multiple sites (see Breeding Site Management above).
    - It was the first season (as of November 2021) that City of Charles Sturt's new by-law requiring dogs to be on lead within 100 metres of a sign indicating Hooded Plover and/or Red-capped Plover breeding.
    - City of Onkaparinga are currently reviewing the dog by-law and looking to adopt specific by-laws requiring leashing of dogs within 100 metres of a sign indicating Hooded Plover breeding and dogs are prohibited within the fenced breeding area.

- Hooded Plover training sessions were provided by a combination of Sharing our Shores staff and VRCs to Council compliance staff at City of Holdfast Bay, City of Onkaparinga, and District Council of Yankalilla. Last season training was also provided to staff at City of Charles Sturt, City of Holdfast Bay, City of Onkaparinga and also Alexandrina Council and City of Victor Harbor.
- Each council's compliance team continued to undertake compliance visits to Hooded Plover breeding sites during this season. Where possible councils have provided records from the 2021/22 season:

  City of Charles Sturt beach compliance visits incorporated the Hooded Plover breeding sites at Henley Beach and West Beach (Torrens Outlet) and also the Red-capped Plover breeding site at West Lakes Shore. General beach patrol information is summarised here (every patrol included all three of the 'plover' sites):

  - Beach Education Officers (BEO) active from 17 October (regular patrols commencing 1 November) through 3 April
  - 101 Patrols
  - Approximately 225.3+ hours active beach patrol
  - 5,539 dogs observed
  - 1,049 contacts with public
  - 10 offences recorded
  - Non-compliance percentage of those seen: 11.85%
  - Specifically at West Beach there were 4 cautions/expiations issued and across all 3 sites there were at least 15 occasions when officers spoke to the public about the plovers and the new leash laws.
  - Council ran a hugely successful "Doggy Day" at Henley Square, part of which was to introduce the new by-law, further information below.

  City of Holdfast Bay compliance at the Hooded Plover breeding site at Seacliff:

  - 108 visits, approximately 127 hours, between 24/8/21 and 10/1/22, ranging between 7.30am and 8pm.
  - Approximately 100 interactions with dog walkers (an underestimate). Comments: dog walkers generally happy to be compliant when explained why; strategy was to intercept dog

walkers before they reached the zone; may not have seen signs if at water's edge.

- 3731 dogs. 94% (3507) dogs on lead, 6% (224) off lead.
- 9 non-compliance after warning.
- 7 officers involved, 4 of which were most regularly on site.
- Approximately 25% of the beach patrol time was spent monitoring the Hooded Plover breeding zone.

City of Onkaparinga compliance was predominantly across Moana, Maslin Beach, Port Willunga South, Aldinga Beach, Aldinga South, Silver Sands and Sellicks Beach. Each day since mid-October has had a ranger allocated specifically to foreshore related duties which cover the regulation of hooded plover areas. Council also funded a new foreshore-specific ranger role in 2021/22 who's role it was to work in with the Hooded Plover program.

District Council of Yankalilla compliance was across three Hooded Plover sites, Carrickalinga North, Normanville South and Myponga Beach:

- 61 visits as part of regular beach patrols: 23 visits to Carrickalinga North, 24 to Normanville South and 14 to Myponga Beach.
- Patrols were between 22/9/21 and 2/2/22, between the hours of approximately 9am and 3.30pm.
- 59 dogs: 85% (50) dogs on lead, 15% (9) dogs off lead.
- Officers spoke with 25 people. All were happy to comply, and opportunities to educate beyond the breeding zones too.
- 3 officers involved, however mostly 2. More than half the visits were with 2 officers present at once.
- There were multiple checks made on the weekend also by the inspectors, however this information was not recorded. This focused mostly on Carrickalinga and Normanville, with occasional visits to Myponga Beach also.

City of Victor Harbor compliance visits to the Hooded Plover breeding sites at Yilki, Victor Central (including the causeway site), and Hindmarsh River:

- 74 visits, approximately 18 hours, from 25/8/21 to 9/12/21, between the hours of approximately 9am and 4.30pm.
- 66 dogs: 91% (60) of dogs on lead, 9% (6) dogs off lead.

- Officers spoke with 13 people. No non-compliance after warning.
- No expiations.
- The majority of visits were undertaken by one officer.

Alexandrina Council compliance visits were mostly to Middleton which had 3 beach patrols per week which incorporated the two Hooded Plover sites. Approximately 84 hours contributed by 3 officers. The Bashams Beach and Watsons gap were less patrolled by the compliance team, however the parks and gardens team were regularly on site to those areas.

Newland Head Conservation Park (CP) compliance incorporated both Parsons and Waitpinga Beaches. Dogs are prohibited within the park. Three rangers, made 2-3 visits per week and more on more on weekends and school holidays. They also issued approximately 8 warnings and 1 expiation. Most were visitors who had dogs in the car who were not aware that dogs are prohibited.

- **Fox management**. Land managers (Council and National Parks) contributed to fox den searching and control over the 2021/22 season:
    - **City of Charles Sturt:** undertook den searches near West Beach and located approximately 12 dens, some more active than others, all within one kilometre of the outlet. The active ones were fumigated (some twice) and collapsed the others.
    - **City of Holdfast Bay**: sightings of foxes by volunteers and the public, and tracks observed. Significant fox den search effort was put in by the Coastal Conservation Officer and also volunteers. Compliance staff also installed motion sensor cameras near the drains to ascertain where the foxes may be travelling.
    - **City of Onkaparinga**: engaged a contractor to undertake fox den searching from Sellicks (Washpool) in the south, to Ochre Cove in the north. Dens were located and fumigated at Blanche Point Port Willunga (2 dens), Port Willunga Creek (1 den), Aldinga esplanade (3 dens), Aldinga Scrub (2 dens), and Washpool (4 dens). Early in the season volunteers also searched Ochre Cove and located one active den which was fumigated. Volunteers also assisted council with den searching at Port Willunga.
    - **District Council of Yankalilla**: as part of the Our Plover Coast project rabbit and fox control occurred in particular at Carrickalinga, Normanville

and Cape Jervis, and all known fox dens were fumigated in District Council of Yankalilla coastal reserves, with follow-up to occur in 2022/23.

  - **Alexandrina Council**: carried out searches for fox dens at Chiton following a report made by volunteers, they were non-active but council staff kept an eye on them.
  - **Newland Head Conservation Park**: for a second season in a row Rangers installed a Canid Pest Ejector at Waitpinga East along this time with a 4G remote monitoring camera. There was no footage of dogs or foxes was found throughout the season. Rangers are hoping to improve the detection and baiting system next season based on what was learnt this season.
  - BirdLife Australia has gained SA and Victorian Ethics approval to trial FoxWatch Ultrasonic Deterrent devices and undertake scent deterrent trials. When funding is sourced this will be trialled along the Fleurieu Peninsula.
  - Green Adelaide's Coast and Seas Team Leader Tony Flaherty has pursued the option of a "Conservation Dog" which can be trained in locating fox dens. This will significantly increase the likelihood of finding difficult-to-find dens and make the process much more efficient. Depending on available funding, this should occur at priority sites early in the 2022/23 season.

- Wendy White, in her role as Volunteer Coordinator, sent weekly email updates to relevant councils (that have more than one pair) and Newland Head CP Park Rangers with breeding updates, permission for fencing and highlighting any key issues. Councils/Parks included: City of Onkaparinga, DC Yankalilla, City of Victor Harbor, Alexandrina Council, and Newland Head CP. Sharing our Shores staff, Green Adelaide's Metro Coastal Conservation Officer and VRCs regularly communicate with City of Holdfast Bay and City of Charles Sturt regarding similar updates in those council areas.
- The Volunteer Regional Coordinators have done an exceptional job again this season with liaising with councils, and volunteers, to ensure management is undertaken in a timely and appropriate manner. Volunteer, and in a number of cases, Council, involvement with 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.
- Hooded Plover capture and flagging was undertaken (see Flagging section above). Entanglement rescue occurred at Waitpinga with assistance from Zoos SA veterinarian, and attended limping BX (Orange) at Watsons Gap.

- Zoos SA veterinary pathologist and wildlife veterinarians undertook necropsies for Hooded Plover bodies found: XS (White) from Seacliff, suspected SA (Orange) Metal Only Right from Middleton Beach West, a juvenile from Maslin Beach, and chicks from Middleton Beach West and Myponga Beach Estuary.
- BirdLife Australia staff and volunteers provided submissions to: City of Marion's coastal pathway at the Lower Field Outlet (Hallett Cove site – VRC John Cobb provided support by meeting with council and site visits to determine Hooded Plover presence and assess development), City of Onkaparinga's Dog By-law review and Sellicks Beach Motorcycle Race, feedback regarding sky diving beach-drop locations for DC Yankalilla, City of Victor Harbor and Alexandrina Council. The Sharing our Shores staff and volunteers are also part of the Community Reference Group for DEW's 'Securing the future of our coastline' for the Adelaide Metro coast.
- Wendy White was engaged as a 'spotter' for the dredging of the Torrens Outlet channel at West Beach.

Awareness raising activities:

- Start and End of Season VRC meetings. Welcomed new VRC Dudley Corbett coordinating the Aldinga to Sellicks stretch of coast.
- VRC succession planning meeting and communication with all volunteers to progress this.
- VRCs and volunteers assisted with many of the events for the season and provided ongoing mentoring of new volunteers after workshops. VRCs, in particular, provided multiple BNB Hub and Portal training sessions for new volunteers. 30 new volunteers were registered and received training this season through a variety of avenues.
- Two Hooded Plover Training Workshops were held at Normanville to recruit and train new volunteers. The first workshop focused on an introduction to the birds and the second a more detailed workshop on monitoring. A third Beach-nesting Birds Information Session was held at West Beach focusing on Hooded Plover and Red-capped Plovers. All workshops had field components.

Photo: Hooded Plover workshop, Normanville (Wendy White).

Photo: Beach-nesting Birds Information Session, West Beach (Emma Stephens)

- Five online Beach-nesting Bird training sessions from BirdLife Australia National Office including monitoring training and MyBeachBird Data portal training.
- National Hooded Plover Regional Coordinators meeting, online.
- BirdLife Australia 8th National Beach-nesting Birds Conference was held at Moonta in May 2022. Sharing our Shores staff provided a presentation on the Adelaide Metro and Fleurieu Peninsula Hooded Plover program, the council breeding season snapshot reports, and working with councils to make changes for Hooded Plovers. Also, a presentation on the Fairy Tern monitoring project on Bird Island and jointly ran a workshop with Claire Greenwell from WA on Tern ID and Fairy Tern monitoring tips. The Beach-nesting Birds team received a South Australian Shorebirds Foundation grant to sponsor the SA regional coordinators to attend the

conference. A number of volunteers from the Adelaide Metro/Fleurieu region also attended the conference.

- Hooded Plover End of Season celebration lunch and afternoon for volunteers and staff at Sellicks Beach Community Hall with 70 participants attending. Presentations were provided by Emma Stephens, Wendy White, John Cobb (and on behalf of Ligita Bligzna), Sue and Ash Read, and David and Sue Thorn. Additional presentations were provided by Corey Jackson on common foredune weeds (weed specimens also on display), Our Plover Coast project by Caroline Taylor, and a Red-capped Plover and Fairy Tern update by Kerri Bartley.

Photo: End of season celebration at Sellicks Beach Hall (Tony Flaherty).

- Regional volunteer catch-ups were arranged by Wendy White (South Coast and Normanville), Dudley Corbett, Sue and Ash Read (all Onkaparinga beaches), John Cobb and Ligita Bligzna (Metro volunteers, and 3 additional joint site visits at West Beach).
- Sharing our Shores staff provided Beach-nesting Birds presentations to:
    - Henley Beach Rotary Club,
    - Friends of Tennyson Dunes,
    - Semaphore Largs Dune care group and wider Le Fevre Peninsula at the Port Environment Centre, and
    - Green Adelaide's Youth and Adult Coastal Ambassador programs.

- Sharing our Shores staff and volunteers assisted at City of Charles Sturt's "Doggy Day". Information was shared about Hooded Plovers and Red-capped Plovers and promotion of the new dogs on lead by-law to 400 attendees.

Photo: Doggy Day at Henley Square (Emma Stephens).

- Wendy White as Volunteer Coordinator undertook:
    - A presentation to Yankalilla Scouts Group,
    - Hooded Plover displays at Victor Harbor and Goolwa Libraries,
    - Kids activities at Victor Harbor and Goolwa Libraries (presentation and colouring in calico bag activities),
    - Beach Information Sessions at Victor Harbor Yacht Club and Maslin Beach with volunteers, and
    - BNB Hub and Portal training sessions for groups at Aldinga, Normanville and Victor Harbor.

Photo: City of Victor Harbor Library Hooded Plover kids talk and activity with Wendy White (library staff).

- Wendy White, as VRC, had a Hoodie stall at Festival of Nature Expo at Normanville with assistance from volunteers.

Photo: Festival of Nature Expo at Normanville (Wendy White).

- VRCs Sue and Ash Read provided a presentation to the Friends of Aldinga Scrub CP and Friends of Onkaparinga River National Park.
- VRCs Sue and Ash Read and Dudley Corbett and volunteer Barry Mitchells met with City of Onkaparinga's acting Mayor Simon McMahon, Councillor Pete, and council staff to support the implementation of the proposed dog by-law changes and raise issues regarding other threats facing Hooded Plovers.

- VRC John Cobb and volunteers provided a beach-talk to Brighton Primary Students. The students subsequently undertook a variety of activities to engage the local community.
- Green Adelaide's Youth Coastal Ambassadors Year 9 student Charlotte Devine undertook two fantastic projects: design/production and installation of an interactive Hooded Plover display at the Henley Beach Marine Discovery Centre with accompanying fact sheet; and a Hooded Plover mural at the toilets at Ozone Reserve on the northern side of the Torrens Outlet (West Beach). This was done in conjunction with City of Charles Sturt through their Young Change Maker's grant and with Naomi Campbell, a professional artist who assisted with the design and painting process. There has been social media to raise the profile of both and Charlotte has contributed two articles to BirdLife Australia's Word About the Hood newsletter for each project. A timelapse video was also created for the painting of the mural: https://www.youtube.com/watch?v=Xx977gYsTBE

Photo: Charlotte Devine and Naomi Campbell working on the Hooded Plover mural at West Beach (Tony Flaherty).

Photo: completed Hooded Plover mural at West Beach (Charlotte Devine).

- The local Hooded Plover pull-up banner has been re-designed and will be available for events next season.
- Two new marquees branded with Green Adelaide, BirdLife Australia (including url for BNB program) and Friends of the Hooded Plover purchased with Green Adelaide funds and used at various events.
- New large tear-drop banners with an image of a Hooded Plover purchased with Green Adelaide funds and used at busy beaches such as Aldinga and Silver Sands, and for various events.
- The local Green Adelaide Hooded Plover brochure was printed and distributed widely including 3000 copies given out by volunteers to drivers at the vehicle ramps onto Moana and Aldinga Beaches.
- The Fleurieu Environment Centre at Normanville continued to feature their permanent Hooded Plover display and did an update in their e-newsletter.
- Wendy, as VRC, won a Yankalilla Community Op Shop grant to purchase more plastic posts for fencing nests ($1360).
- Weekly updates via Triple Z Community Radio Program are sponsored by Sue and Ash Read during the breeding season. Sue and Ash Read provide the weekly updates from across the Onkaparinga beaches (and Myponga Beach) to volunteer Dudley Corbett who is the radio presenter. Sue and Ash Read also undertake radio

interviews with Anne Cross on Tribe FM Community Radio a couple of times during the breeding season.

- This season, and last, David and Sue Thorn provided 6 Radio interviews for Happy FM Victor Harbor and Alex FM Goolwa with presenter, and Hoodie volunteer, Sally Townsley.
- John Cobb had 3 ABC radio contacts, 2 were live interviews (September and January) and one was an SMS message about Beach-nesting Birds which was included during a broadcast about breeding Ospreys (August).
- John Cobb and volunteer Lynda Yates provided an article about XS (White) to the local "5049" community newsletter.
- David and Sue Thorn contributed two articles to the Victor Times.
- David and Sue Thorn and Wendy White had an interview with the Southern Argus journalist for an article.
- Volunteer Karin Riederer contributes a quarterly update to the Maslin Beach Newsletter reporting on the activities of the resident pairs.
- Wendy as VRC, provided a newsletter article to the Heysen Trailwalkers magazine, Fleurieu Environment Centre e-news and Yankalilla News.
- Wendy wrote an article for the Friends of Parks newsletter about the Hooded Plover program and how to get involved.
- VRCs all contributed local articles to both editions of BirdLife Australia's Word About the Hood newsletter.
- The Sharing our Shores staff worked closely with Green Adelaide's Communications Advisor on for many facebook posts throughout the season, including an Instagram series and a blog on Hooded Plovers. There were shares with councils and the Hills and Fleurieu Landscape Board etc. Sharing our Shores staff also worked with Hills and Fleurieu Landscape Board Communications Advisor for Facebook posts relating to Plover Appreciation Day and BirdLife's survey on signage. Alexandrina Council did a post on Plover Appreciation Day, and City of Onkaparinga, City of Holdfast Bay (including a post on the loss of XS), and City of Charles Sturt (including through their "Pets of Charles Sturt" page) continued to post/share regularly again this season. City of Holdfast Bay's Mayor Amanda Wilson promoted Plover Appreciation Day and the pair at Seacliff in a Facebook video reiterating the message to keep dogs on lead:
  https://www.facebook.com/CityofHoldfastBay/videos/612635036411133/
- Green Adelaide featured John Cobb and his work with the Beach-nesting Birds program on the "Humans of Green Adelaide" post and blog.

- Sue and Ash Read provided regular updates to the Port Willunga Community Facebook when breeding was occurring.
- Volunteer Graham Thomas distributed brochures to Southern Districts Dog Obedience Club in the Onkaparinga Beaches region again this season.
- Volunteer Kim O'Connor distributed brochures to Moana caravan park.
- Each year Wendy White updates the local Myponga Beach to Lands End brochure that summarises each season's breeding success, which is made available to beach-goers and through the Normanville Natural Resource Centre.

Acknowledgements

A huge thank you to all of the amazing volunteers who participate in Hooded Plover monitoring. Every contribution adds to our knowledge of these threatened species and assists us in improving and adapting the recovery program. Adelaide Metro and Fleurieu Peninsula volunteers should be especially proud as you record lots of detail in your observations, enter these religiously and as a whole, have one of the highest quality data sets, and have kept this consistency for many years now. Well done!

Big thanks to the Volunteer Regional Coordinators: John Cobb and Ligita Bligzna (Fleurieu Adelaide Metro), Sue and Ash Read (Fleurieu North – Onkaparinga Beaches), Dudley Corbett (Aldinga to Sellicks Beach), Wendy White (Fleurieu Central – Myponga Beach to Lands End and South Coast), and David and Sue Thorn for their dedication in coordinating the Volunteers and nest site protection on Fleurieu South Coast. We thank Ligita for her amazing contribution to the Metro VRC role as she steps back from the role at the end of this season.

Wendy White, as usual has done a tremendous job of being the Fleurieu-wide volunteer coordinator, and the staff (Matt Endacott, Caroline Taylor, Kristy Watson, Corey Jackson, Tony Flaherty and the Communications Team) from Green Adelaide continued to provide invaluable support to volunteers and land managers. This season for the fourth year, the Green Adelaide Board (previously AMLR NRM Board) funded the Sharing our Shores with Coastal Wildlife positions held by Emma Stephens and Aleisa Lamanna and now Kerri Bartley at BirdLife Australia, adding a further layer of support to the program. 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. Thanks also to Peter Allen, Senior Coastal Planner, Coast and Marine Branch, Department for Environment and Water for his ongoing efforts to gain access to monitor Port Stanvac.

A special thanks to the Fleurieu Environment Centre (Normanville) Coordinator and the South Coast Environment Centre (before it closed) for their amazing displays and information noticeboards, and to volunteers for assisting with awareness raising events.

A big thanks also to Zoos SA veterinary staff: Dr Jerome Kalvas for attending the Waitpinga entanglement and assessing the limping BX (Orange) at Watsons Gap, Dr Jenny McLelland for on-going advice in all injured/entangled situations and assistance with necropsies, Dr Kathryn Johnson for advice regarding the Myponga Beach chick and the necropsy of HN (White) and the chick from Middleton Beach West, Dr David McLelland for necropsy of XS (White) and Suspected SA (Orange) Metal Only Right, and Dr Ian Smith for necropsy of the Myponga Beach chick. Thanks also to Dr Anne Fowler from Adelaide Bird & Exotics Vet Centre at Richmond for taking HN (White) into care and surgery. Thank you to Dr Jenny McLelland and Dr Kathryn Johnson for feedback on the Injured and Entangled Protocol.

This project is supported by the Green Adelaide Board, and delivered by BirdLife Australia through funding from the Australian Government's National Landcare Program.