Monitoring Hooded Plovers on the Fleurieu Peninsula:
Distribution, breeding success and management in the 2014/2015 season

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Government of South Australia
Adelaide and Mount Lofty Ranges
Natural Resources Management Board

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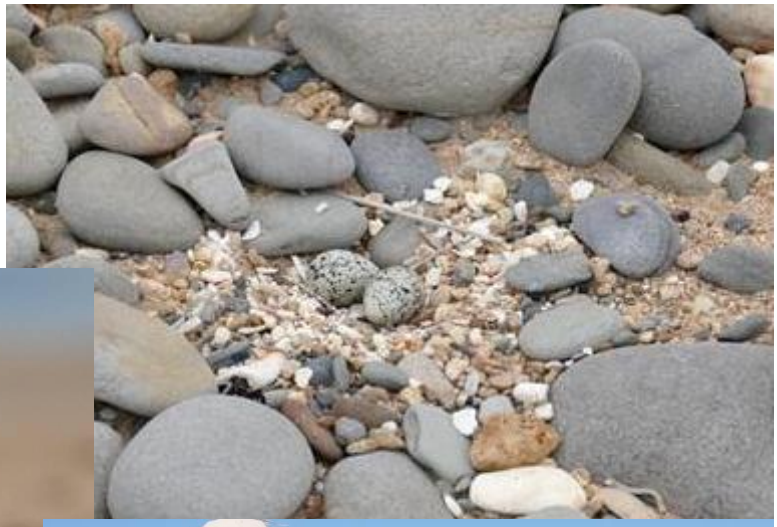


Top right: Hooded Plover nest at Tunkalilla Heysen East (photo Elizabeth Steele-Collins); Left: Hooded Plover Adult (NA) with two chicks at Ochre Cove (photo Sue and Ash Read); Bottom right: Volunteer Lance and Fleurieu Hooded Plover Coordinator Emma Stephens releasing a recently flagged Hooded Plover at Tunkalilla (photo Grainne Maguire).

Introduction

The pressures placed on the Australian coast by over 85% of the population living within 50kms of the coast, a growing trend for a 'seachange', and coastal tourism representing a 20 million dollar recreation investment, are undoubtedly taking their toll on the resident shorebirds who breed on our ocean beaches during the spring and summer. 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.

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 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 5 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 parent birds try to distract potential threats, leaving the chicks unattended and exposed to predators. In addition, vehicles on beaches compact the sand, killing 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 been funded over the years by the Australian Government, Landcare Australia, The State Government of Victoria, several NRM Boards throughout South Australia and various philanthropic trusts and donors including the Hugh D. T. Williamson Foundation.

The main aim of the beach-nesting birds' (BNB) 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.

On the Fleurieu Peninsula, the project aims to:

1. Maintain a distribution map and database of location of breeding pairs of Hooded Plovers;
2. Estimate population numbers of Hooded Plovers in an eastern mainland census every two years (e.g. November 2012, November 2014);
3. At the time of each biennial count, assess the threats to each pair in a snapshot assessment and any management in place to alleviate these threats;
4. Assess occurrence of threats at breeding sites from data collected during the biennial count and map sites according to threat status;
5. Monitor the breeding status of all known pairs on the Fleurieu Peninsula during the breeding months (August-March). Seek to maintain monitoring of these sites over at least 5 years for a comparison of site-based threat profiles and to quantify

improvements in breeding success related to management [next year a 5 year analysis will be carried out and reported by BirdLife Australia];

6. For sites where we have been collecting threat data, seek to assess changes in the occurrence and severity of threats over time and the impact of threats on breeding outcomes;
7. Carry out on-ground management of vulnerable breeding sites following management directions outlined in 'A practical guide to managing beach-nesting birds in Australia';
8. Investigate the effectiveness of nest site protection (does management work) and make modifications for subsequent seasons. Managements need to adapt to local site and beach user specifications;
9. Use nest cameras to detect and identify nest predators and to determine nest fates. This is done following strict protocols and to a limited degree to avoid any potential for training predators to associate cameras with nests;
10. Band a sample of Hooded Plovers on the Fleurieu Peninsula and maintain resighting database so as to track movements, dispersal and document survival rates and site fidelity. This will lead to better knowledge about 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;
11. Establish 'Friends of the Hooded Plover' regional groups on the Fleurieu Peninsula to encourage community ownership and long-term sustainability of the program, and;
12. Engage communities in Hooded Plover conservation via organised events or activities such as the biennial count; scope viewing; dogs' breakfasts; school visits; craft stalls.

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 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.
- On the Fleurieu peninsula, Natural Resources Adelaide and Mount Lofty Ranges Coast, Marine and Estuary managers and officers coordinate and support the project and volunteers, and local council and Department of Environment, Water and Natural Resources (DEWNR) staff assist with nest protection responses.
- 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.

A more detailed description of roles and the current incorporation of Regional Volunteer Coordinators (RVCs) is provided in Appendix 1 of this report.

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. 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, councils and DEWNR. In implementing the Coastal Action Plans, the Adelaide and Mount Lofty Ranges NRM Board resources the local implementation of actions identified in the Coastal Action Plans including implementation of local initiatives to conserve Hooded Plovers.

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 are the Department for Environment, Water and Natural Resources, councils, community and the Natural Resources Management Board. Many of these actions and priorities however, would now need updating due to the considerable advances in research and knowledge of South Australian Hooded Plover sites, threats and actions since 2006.

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.

A Biennial Count Year – 2014

Every two years, all suitable ocean beach habitat across the Eastern mainland of Australia (SA, Vic and southern NSW) is surveyed across a weekend in mid November to census the Hooded Plover population. This is the third count where fixed survey routes of known length have been utilised, giving us the capacity to make direct comparisons of density between counts.

The national count was coordinated by BirdLife Australia volunteer, Joris Driessen, with Emma Stephens (Adelaide and Mount Lofty Ranges) as the local coordinator for the Fleurieu Peninsula. Twenty-five volunteers participated in surveying 74.3 km of Fleurieu coastline by foot (Figure 1), counting all beach-nesting bird species; Hooded Plover, Red-capped Plover, Pied Oystercatcher and Sooty Oystercatcher.

Participants counted a total of 115 individuals of four beach-nesting bird species, with 42 of these being adult Hooded Plovers. Table 1 and Figure 2 provide a detailed overview of where beach-nesting shorebirds were located during the 2014 count. Distribution maps for 2012 and 2010 biennial counts are also included for visual comparison. As the count occurred during the Hooded Plover breeding season (November), seven nests were located and one pair were suspected of having a nest at the time. A report with the national results will be available from BirdLife Australia in September 2015.

Figure 1: Survey routes for the 2014 Biennial Count on the Fleurieu Peninsula.

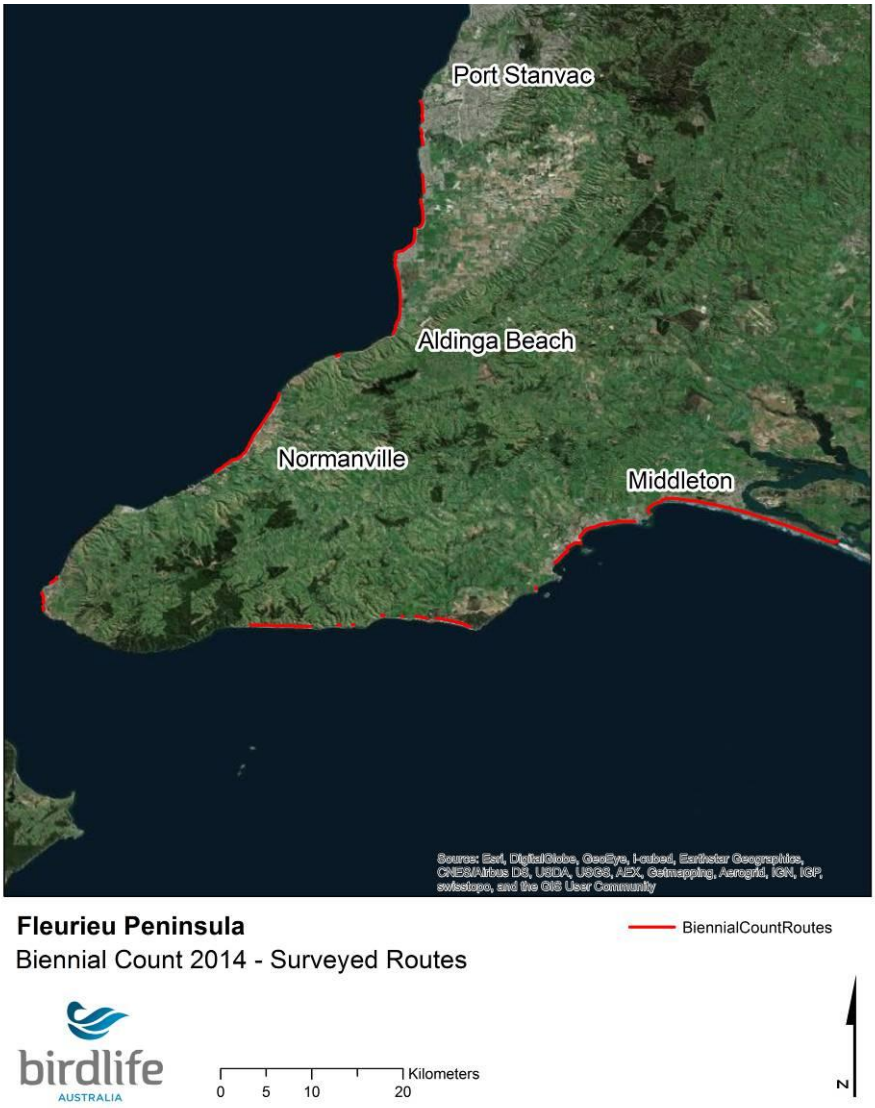


Table 1: Overview of biennial count results by route on the Fleurieu Peninsula

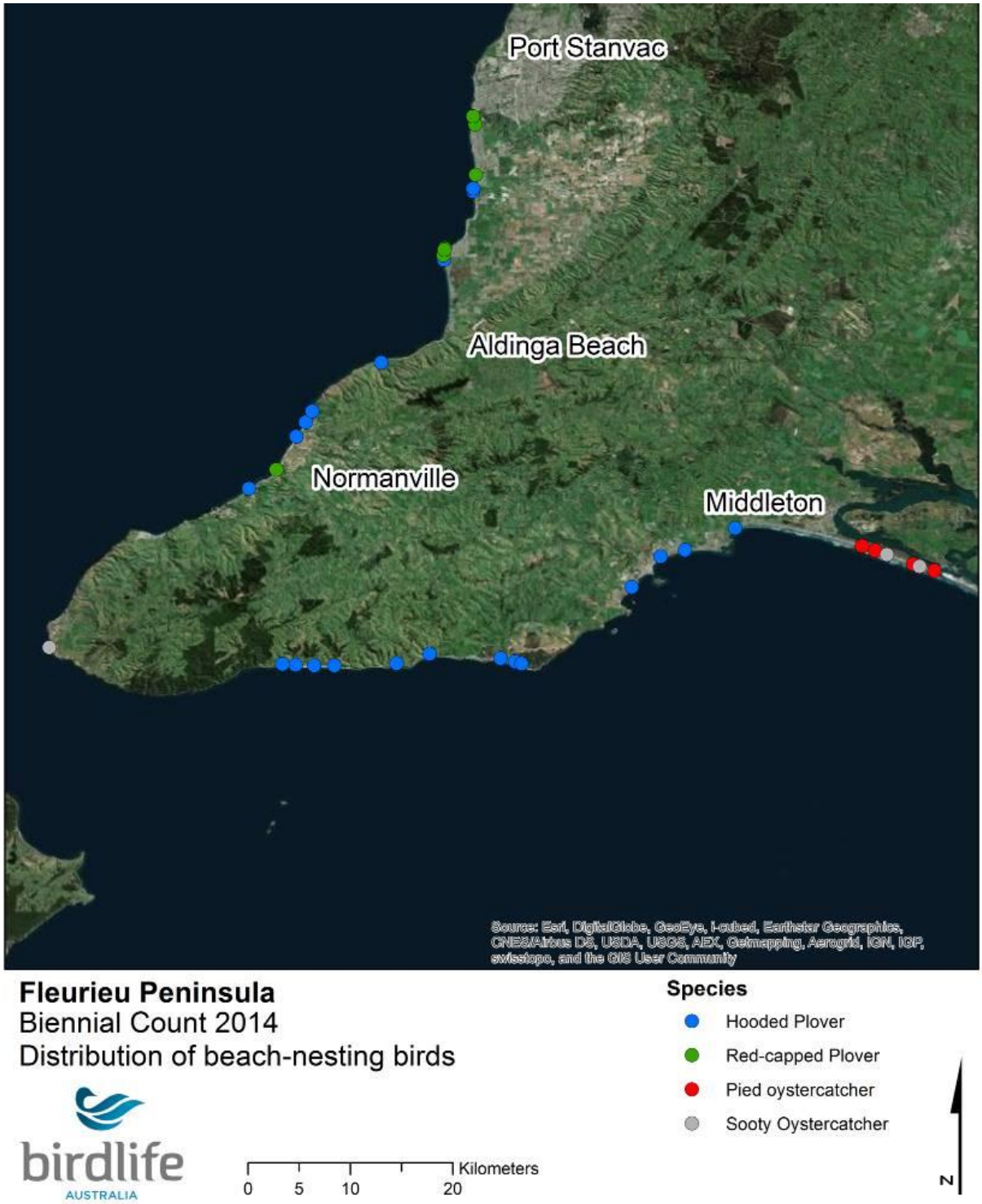
Route	Hooded Plover		Red-capped plover		Pied oystercatcher		Sooty oystercatcher	
	Adult	Juv.	Adult	Juv.	Adult	Juv.	Adult	Juv.
Aldinga	1		8	5				
Bashams Beach	2							
Boomer Beach (Watsons Gap)								
Callawonga Beach and Ballaparudda Beach	2							
Carrickalinga-Normanville 1	2							
Carrickalinga-Normanville 2	2							
Carrickalinga-Normanville 3	2							
Christies Beach 1								
Christies Beach 2								
Coolawang Beach	2							
Goolwa Beach								
Hindmarsh River	3							
Kings Beach								
Land's End	2						1	
Maslins Beach	2							
Middleton Beach								
Moana			4	1				
Monument - Lady Bay	2							
Morgans Beach (SA)								
Myponga Beach	2							
Normanville - Lady Bay			9					
O'Sullivan Beach								
Ochre Cove	2							
Parsons Beach								
Port Willunga								
Sellicks Beach								
Sheepies								
Silver Sands								

Route	Hooded Plover		Red-capped plover		Pied oystercatcher		Sooty oystercatcher	
	Adult	Juv.	Adult	Juv.	Adult	Juv.	Adult	Juv.
Sir Richard Peninsula to Goolwa Beach			4		20		8	
Snapper Pt			6	1				
South of Ferry Terminal								
Southport			6					
Tunkalilla	9							
Victor Harbor foreshore	2							
Waitpinga Beach	5							
Total	**42**	**0**	**37**	**7**	**20**	**0**	**9**	**0**

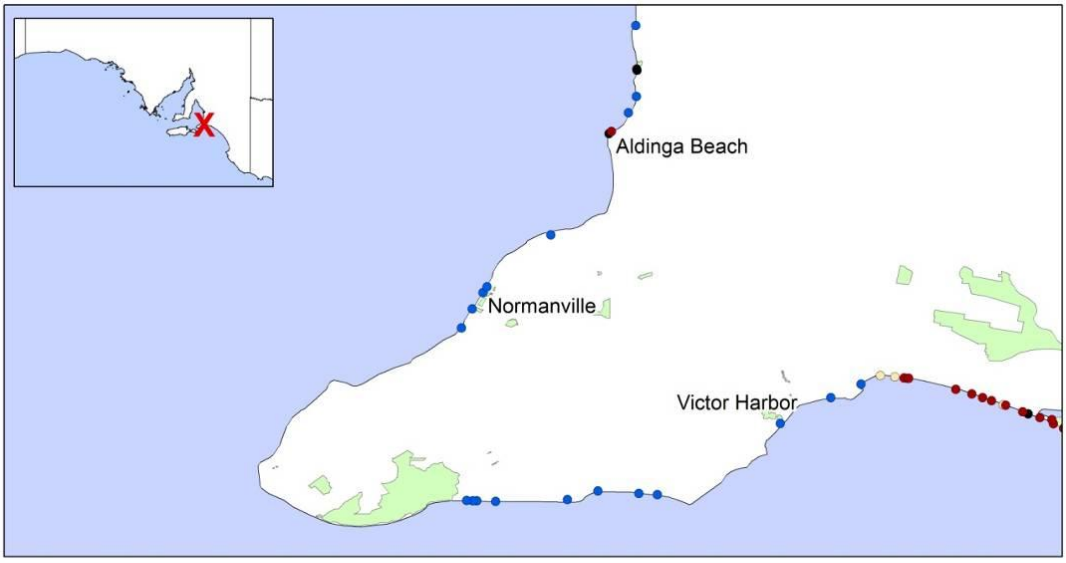
Sooty Oystercatcher pair with chick. Photo: Glenn Ehmke

Figure 2: The distribution of beach-nesting shorebird sightings on the Fleurieu Peninsula during a) the 2014 biennial count, b) the 2012 biennial count and c) the 2010 biennial count

a). Beach-nesting bird distribution for the 2014 biennial count



b). Beach-nesting bird distribution for the 2012 biennial count



Hooded Plover Biennial Count 2012 - Zone 18. Fleurieu Peninsula

Distribution of Beach nesting birds

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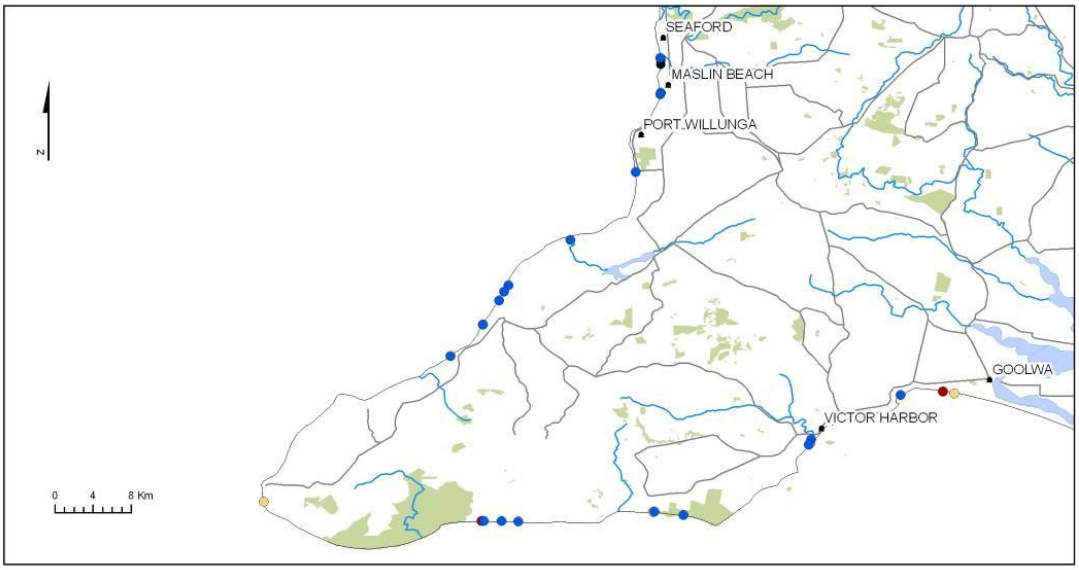
0 4 8 16 Kilometers

Sooty Oystercater
Red-Capped Plover
Pied Oystercater
Hooded Plover
Parks and Reserves

N

c). Beach-nesting bird distribution for the 2010 biennial count



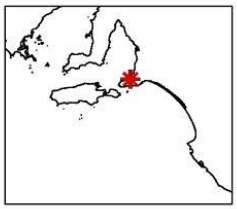
Hooded Plover Biennial Count 2010
Zone 18 - Fleurieu Peninsula South Australia

Distribution of Beach Nesting Birds

Birds Australia
CONSERVATION THROUGH KNOWLEDGE

Government of South Australia
Adelaide and Mount Lofty Ranges Natural Resources Management Board

Hooded Plover
Pied Oystercatcher
Red Capped Plover
Sooty Oystercatcher
Road
water
Water
Parks and reserves



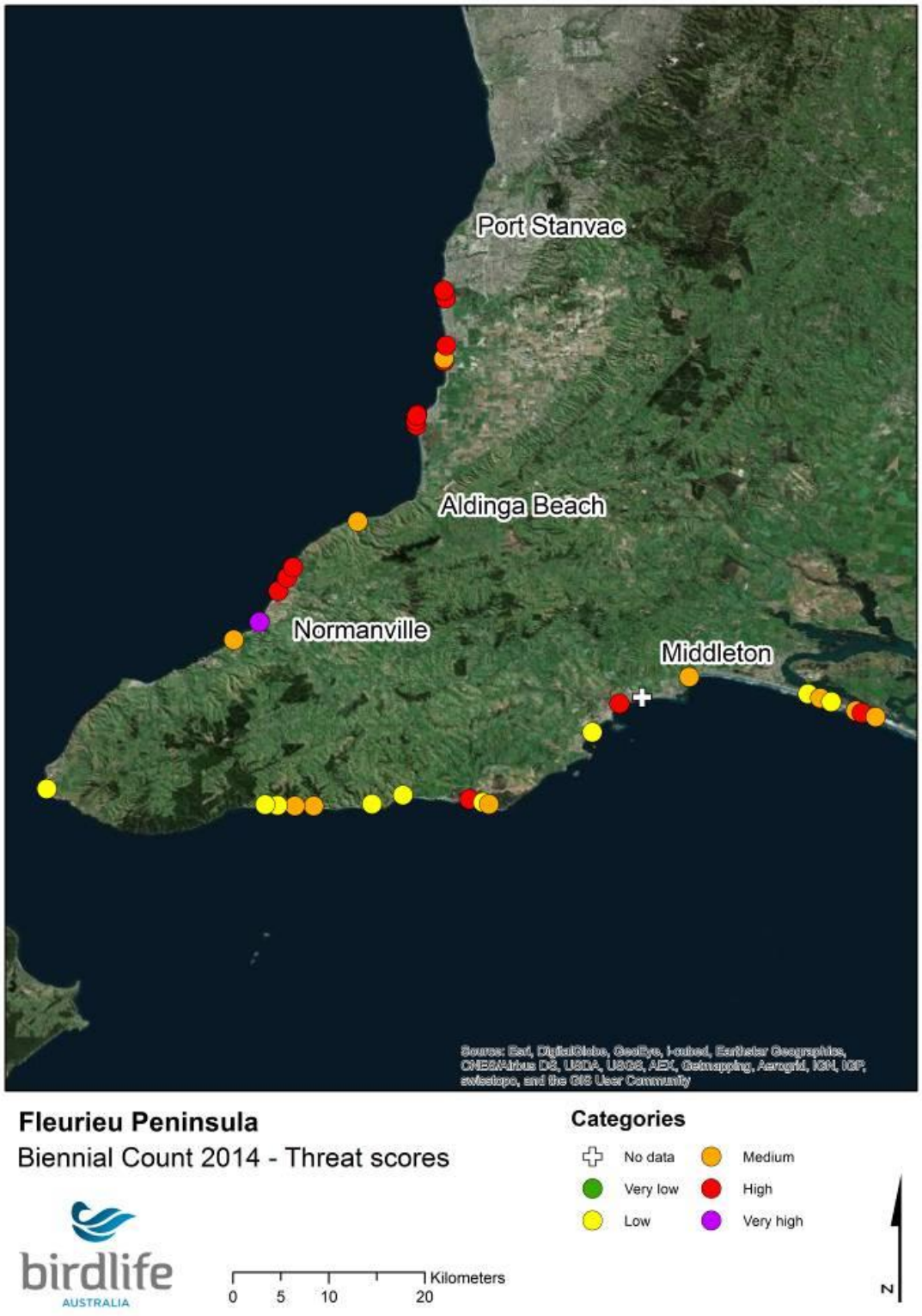
Beach-nesting bird sightings are not the only data collected during the biennial count. BirdLife Australia also asks participants to collect threat data for each bird sighting. This is so that we can achieve a snapshot assessment of the potential threats the birds encounter at each beach. This allows the Beach-nesting birds Project to get an overview of the array and frequency of threats on the Fleurieu Peninsula.

Using this snapshot overview of threat data, a crude threat index was formulated, where threats were weighted according to their relative impacts to breeding Hooded Plovers. Figure 3 below, shows the threat ratings from the 2014, 2012 and 2010 counts. Sites on the Fleurieu Peninsula vary in threat rating, with some sites being impacted by vehicles and off leash dogs, and others being more remote and less impacted by human threats. Normanville – Lady Bay, Southport and Moana had the highest threat rankings of any sites along the Fleurieu Peninsula. Normanville – Lady Bay was also the highest threat site for beach-nesting birds in the 2012 biennial count.

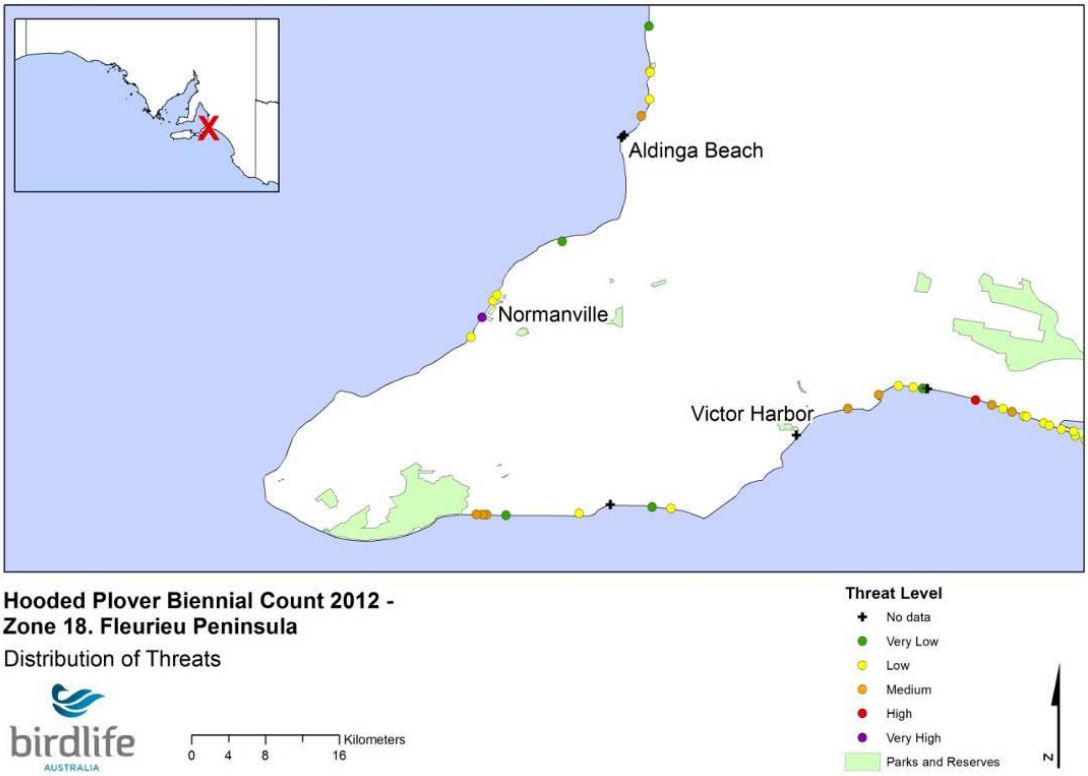
Adult male Red-capped Plover. Photo: Glenn Ehmke

Figure 3: The distribution of threats across the Fleurieu Peninsula at sites where beach-nesting shorebirds were located during a) the 2014 biennial count, b) the 2012 biennial count and c) the 2010 biennial count.

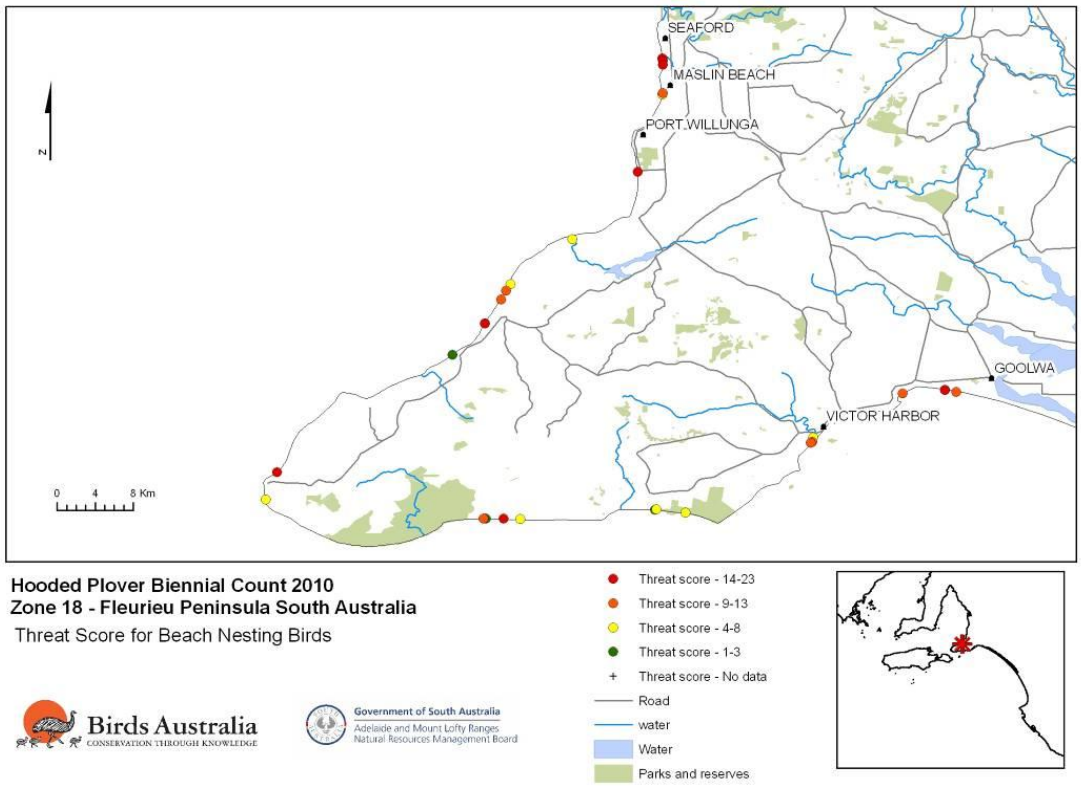
a). Distributions of threats during the 2014 biennial count



b). Distributions of threats during the 2012 biennial count



c). Distributions of threats during the 2010 biennial count



An overview of the 2014-2015 Breeding Season

Victoria

The Beach-nesting Birds (BNB) project has been running in Victoria since 2006, with breeding success and threats monitored over nine successive breeding seasons for up to 140 pairs (see summary in Table 2).

The past two seasons in Victoria have had fewer nests within August and September due to poor and erratic weather conditions in spring. The 2014/15 season started with nests being found along the coast in September. Success across the state was highly variable, with the western part of the state (between Warrnambool and Yambuk) producing the highest number of fledglings per pair on mainland Victoria (0.68 fledglings per pair) and the Mornington Peninsula having the lowest number of fledglings per pair (0.12 fledglings per pair). The Mornington Peninsula had its worst season back in 2013/14, with only one fledgling from 28 breeding pairs, but this year there was a slight increase to four fledglings from 34 pairs. Table 3 summarises fledgling production according to regions along the Victorian coast. Overall, breeding success along the Victorian coastline was 0.43 fledglings per pair, which is assessed as an average season.

Table 2. Number of pairs monitored, nests found and their fate. Data for the 2013/14 and 2014/15 seasons is incomplete at this stage as vetting of the data is a slow process and BirdLife Australia is currently attempting to sort through a backlog of data, due to losing staff at critical times from funding cuts. Estimates are included to provide an indication of the season. [Phillip Island data has not been included in this table as monitoring here is not coordinated by BirdLife Australia].

Season	Pairs monitored	Total nests	Nests fail egg	Nests Hatched	Nests fledged	# confirmed fledglings	# eggs laid	# chicks hatched
2006/07	90	147	86	61	24	35	353	145
2007/08	86	157	100	57	24	32	372	140
2008/09	79	119	74	45	23	30	290	102
2009/10	103	167	96	70	43	69	386	139
2010/11	114	208	140	67	29	38	469	175
2011/12	120	224	165	51	19	24	474	94
2012/13	128	211	143	66	29	49	484	114
2013/14	130					53		
2014/15	140					55		

Table 3. Number of confirmed fledglings produced by pairs in Victoria (based on data received; including additional pairs monitored by Phillip Island Nature Park) according to the different regions of the coast.

Region	**2006/07 106 pairs**	**2007/08 100 pairs**	**2008/09 96 pairs**	**2009/10 119 pairs**	**2010/11 123 pairs**	**2011/12 137 pairs**	**2012/13 148 pairs**	**2013/14 144 pairs**	**2014/15 156**
Far West Vic	2	6	11	31	5	1	14	32	25
Shipwreck coast	7	3	0	4	0	1	-	-	-
Otway coast	0	1	3	0	1	0	2	1	5
Surf coast	2	4	2	2	2	2	0	2	3
Bellarine	3	3	4	4	3	2	2	4	5
Mornington Peninsula	10	6	6	7	10	3	9	1	4
Phillip Island	8	4	6	9	7	12	4	8	12
Bass Coast	4	2	4	20	17	6	10	7	8
Venus Bay-Waratah Bay (South Gippsland)	1	0	0	2	0	7	8	6	5
Lakes area, EG	2	0	0	0	-	-	-	-	-
Croajingalong (Marlo-Mallacoota)	4	7	0	1	0	-	-	-	-
Total fledglings	43	36	36	80	45	34	53	61	67
# fledglings per pair monitored	0.41	0.36	0.38	0.67	0.37	0.25	0.36	0.42	0.43

Photo: Geoff Gates

South Australia

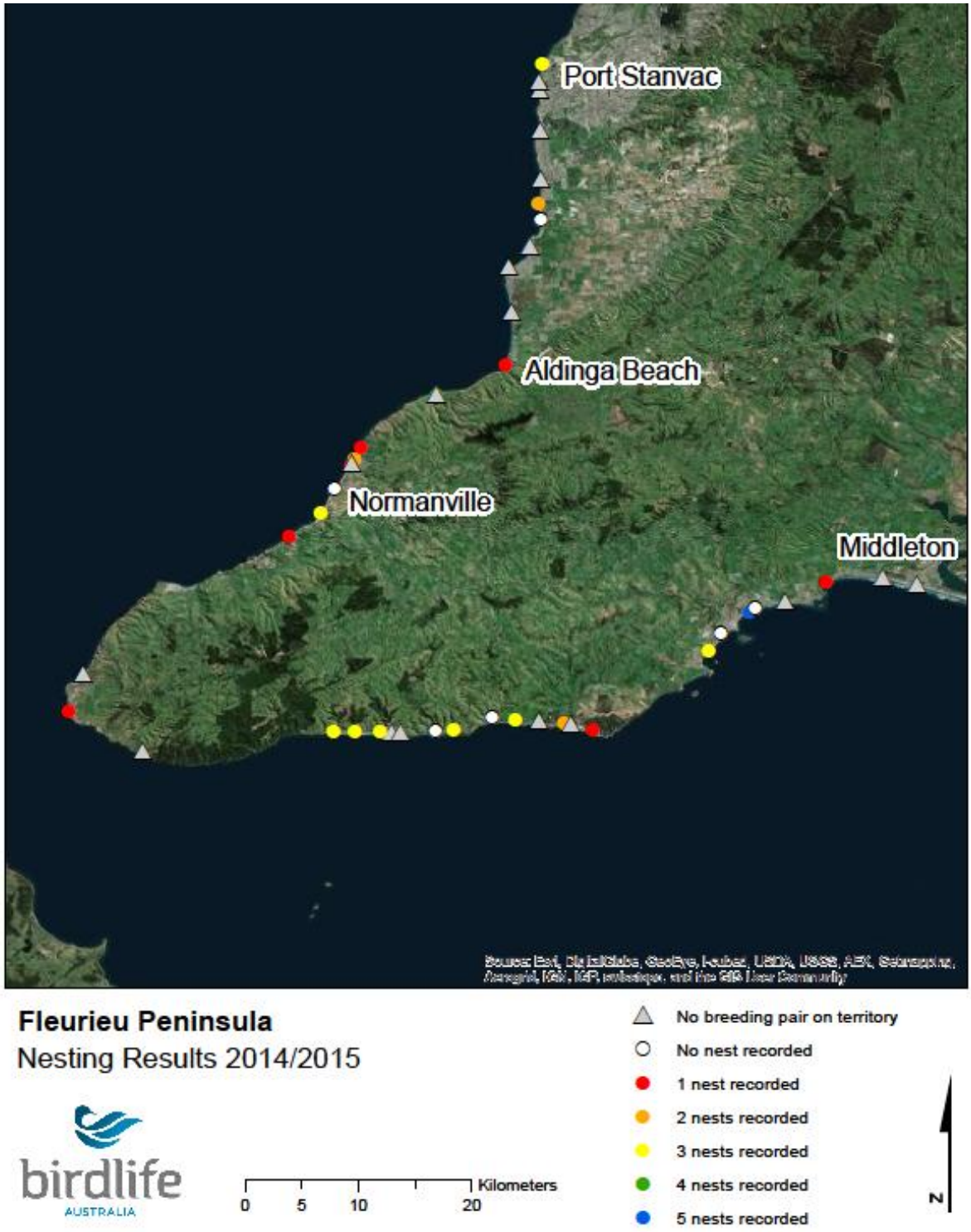
As a part of BirdLife Australia's Beach-nesting Birds Project, monitoring of breeding Hooded Plover pairs via the MyBeachBird portal occurred on the Fleurieu Peninsula, Yorke Peninsula, Kangaroo Island and South East South Australia.

On the Fleurieu Peninsula during the 2014/2015 season, a total of 1,157 data records season were entered into the online data portal; this is almost double last year's total of 626 entries for this region. An extra 31 sightings were added to our analyses from volunteer emails, phone calls, SMS messages, and comments from data portal entries where volunteers have visited a site over a couple of days but have only entered data for one date. This makes a grand total of 1,180 data points, which is a great effort from the volunteers. This exceeds data entries for elsewhere in South Australia in particular and highlights the value in having an employed coordinator through the Adelaide and Mount Lofty Ranges NRM Board. Overall, volunteers from the Fleurieu accounted for 24.7% of the data reports received from across Victoria and South Australia, which is to be commended.

Volunteer investment in monitoring alone is calculated at 647 hours. This is an underestimate as many data entries did not record duration of site visits, and these calculations do not include travel times to and from sites, and time invested in data entry post-visit. This is an increase from last years' total of 168 hours. This is likely due to an increase in reporting of start and finish times of surveys (77% this season, and 63% in the 2013/14 season), and also due to three new volunteers who contributed 319 hours to monitoring collectively (48% of overall volunteer effort on the Fleurieu Peninsula). Four volunteers were responsible for 728 (61%) of the data portal entries. This season, we also had more 'one-off' observations (15 in 2014/15, 9 in 2013/14), and these sightings often from members of the public reporting to local volunteers, were imperative to determining the fate of nests or chicks at some sites.

Data collected this season was for a total of 44 sites. Figure 4 provides an overview of sites monitored, the presence of birds and nesting activity at sites. Pairs were recorded at only 22 (50%) of those sites. Twenty-seven per cent of sites (n=12) had no sightings of Hooded Plovers during the breeding season. The remaining 10 (23%) had sightings of individual adult Hooded Plovers, juveniles or flocks, but no evidence of breeding activity.

Figure 4: Sites that were monitored during the 2014/15 breeding season on the Fleurieu Peninsula.



Hooded Plovers were not observed during the 2014/15 season at Christies Beach, Deep Creek CP Blowhole beach, Goolwa, Middleton beach, Moana beach, Morgans beach, Normanville North and South, O'Sullivans beach, Southport, Tunkalilla 1st alcove far east and Tunkalilla Tunk head alcove. Christies beach, Middleton beach, Moana beach, Normanville South and O'Sullivans beach did not have any sightings of Hooded Plovers in the previous breeding season either (2013/14). Normanville North had only one single adult bird sighted, which was outside of the breeding season. Similarly, Goolwa beach had only one bird recorded on territory, which was a juvenile sighted in March, when most hooded plovers are dispersing and making longer distance movements.

The sites where Hooded Plovers were observed but where these were either individuals, flocks or juveniles, and not breeding pairs were: Callawonga, Carrickalinga South, Goolwa beach, Inman river outlet, Olivers reef, Parsons beach, Port Willunga, Silver Sands, Snapper Point, Waitpinga estuary and Watsons Gap. At some sites this may partly be because there was incomplete monitoring for the breeding season (see Table 4), but at other sites, it is likely that these are unsuitable for nesting and only used as foraging sites for non-breeders or as dispersal routes to suitable sites.

A breakdown of the number of visits to each site, the presence or absence of Hooded Plovers and the volunteers who monitored sites can be found in Table 4. Overall, 29 sites were monitored across at least 5 months of the breeding season. Of the 22 sites with breeding pairs of Hooded Plovers on territory, there was on average 79% monitoring coverage during the breeding months (minimum of one monthly visit per site). It is evident that the following sites need increased monitoring across the full length of the season: Carrickalinga Estuary/Sands, Carrackalinga North, Lands End, Port Stanvac (although visitation is limited here due to being an industrial site) and Shelley beach (Lady Bay).

Photo: Glenn Ehmke

Table 4. Number of portal entries and coverage across the breeding season at sites on the Fleurieu Peninsula during the 2014/15 breeding season. Portal entries (days) are the number of independent days there were portal entries. Grey highlighted cells represent sites where no birds were sighted during the breeding season. Apricot highlighted cells represent sites where no breeding occurred, but instead there were sightings of single adults, juveniles or flocks. Blue highlighted cells represent sites where a pair were on territory regularly but no nests were detected. Visits where adult birds were present are given as a percentage of total visits. Coverage refers to the proportion of the breeding season monitored (out of the peak 7 months where breeding usually occurs, August-February; note at some sites breeding extended into March). * Due to the reduced number of territories at Tunkalilla this season, the territories have been renamed throughout this report. Territories Tunkalilla far west and western estuary, are referred to as *Tunkalilla west*. Tunkalilla creek/3rd house east, Heysen east and Shed Caravan are reported as *Tunkalilla east*, and Tunkalilla mid west estuary and first house east are referred to as *Tunkalilla midway.*

Site/Territory	Visitation period (breeding season)	Coverage during breeding season	Portal entries (days)	Visits HP adults present	Main monitor/s	Additional observers
Aldinga	Sept, Nov- Dec	43%	6	50% (3)	Faye Lush and Joyce West	Nathanial Wilson, Sue and Ashley Read
Ballaparudda	Aug - March	100%	13	77% (10)	Elizabeth Steele-Collins	David and Sue Thorn
Bashams beach	Sept - Feb	86%	107	89% (95)	Debbie Prestwood, Win Syson	Craig Whyte, Elizabeth Steele-Collins, Denzel Murfett, Janis Haynes, Lance Gray, Rob Brinsley
Callawonga	Aug - Nov, Jan - Feb	86%	9	11% (1)	Elizabeth Steele-Collins	David and Sue Thorn
Carrickalinga Estuary/Sands	Nov - Dec	29%	14	93% (13)	David Thorn	Mike Heard, Hilary Thompson, Andrew Jeffery, Richard Edwards
Carrickalinga North	Oct - Feb	71%	15	60% (9)	David Thorn, Wendy White	Hilary Thompson, Lauren Davis, Andrew Jeffery, Richard Edwards
Carrickalinga Rotunda	Aug - Feb	100%	34	82% (28)	Wendy White, David Thorn	Mike Heard, Hilary Thompson, Craig Whyte, Richard Edwards, Andrew Jeffery
Carrickalinga South	Dec - Feb	43%	7	57% (4)	David Thorn	Mike Heard
Christies Beach	Nov	14%	1	0% (0)	John Cobb	
Coolawang	Oct - Feb	71%	16	44% (7)	Rob Brinsley	Craig Whyte, Chris Halstead
Deep Creek CP Blowhole beach	Oct, Jan	29%	2	0% (0)	Corey Jackson, Craig Whyte	

Site/Territory	Visitation period (breeding season)	Coverage during breeding season	Portal entries (days)	Visits HP adults present	Main monitor/s	Additional observers
Goolwa	no visits Aug - Feb	0%	0	-		
Hindmarsh River mouth	Aug - Feb	100%	143	83% (119)	David Thorn, Debbie Prestwood, Andrew Jeffery, Richard Edwards	Craig Whyte, Sue Thorn, Elizabeth Steele-Collins, , Rob Brinsley, Michele and Gary Sawyer
Inman River Outlet	Aug - Feb	100%	16	25% (4)	Ross Brittain and Janette Diment	Richard Edwards, Andrew Jeffery, Craig Whyte, Di Willsmore, Elizabeth Steele-Collins, Lance Gray
Lands End	Nov - Feb	57%	11	91% (10)	Bill Page, David Thorn	Rob Brinsley, Elizabeth Steele-Collins, Corey Jackson
Maslins Beach	Aug, Nov - Feb	71%	16	88% (14)	Sue and Ashley Read	Angela Parker
Middleton	Sept, Jan	29%	2	0% (0)	Craig Whyte, Debbie Prestwood	
Moana Beach	Aug - Feb	100%	18	0% (0)	Angela Parker	Robert Hill, Emma Stephens
Morgans beach	Sept - Nov, Jan - Feb	71%	6	0% (0)	David Thorn	Bill Page, Corey Jackson, Craig Whyte
Myponga beach	Aug - Feb	100%	32	84% (27)	Michele and Gary Sawyer	Alysse Page, Craig Whyte, David Thorn, Hilary Thompson, Jim and Linda Stacey
Normanville North	Aug, Nov - Feb	71%	9	0% (0)	Wendy White	David Thorn, Pia Pilcher
Normanville South	Nov	14%	1	0% (0)	David Thorn	
Ochre Cove, Maslins beach	Aug - Feb	100%	58	95% (55)	Sue and Ashley Read	Angela Parker, Michele and Gary Sawyer, Grainne Maguire
Olivers Reef	Dec - Feb	43%	34	38% (13)	David Thorn, Richard Edwards	
O'Sullivans beach	Nov	14%	1	0% (0)	John Cobb	
Parsons beach	Aug - Feb	100%	28	61% (17)	Rob Brinsley, Dean Cutten	Sarah Pearson, Verle Wood, David Thorn, Craig Whyte
Port Stanvac	Oct - Jan	57%	15	100% (15)	Michele and Gary Sawyer	Kirsty Peters, Alistair Ray
Port Willunga	Aug - Jan	86%	14	57% (8)	Dylan Braund, Sue and Ashley Read	Emma Stephens
Sheepies Beach	Aug - Feb	100%	23	65% (15)	Rob Brinsley, Dean Cutten	Craig Whyte
Shelley Beach (lady bay)	Aug, Nov - Feb	71%	22	91% (20)	David Thorn	Lauren Davis, Andrew Jeffery, Richard Edwards, Emma Stephens, Terry Dennis

Site/Territory	Visitation period (breeding season)	Coverage during breeding season	Total visits (days)	Visits HP adults present	Main monitor/s	Additional observers
Silver sands	Dec - Jan	29%	3	67% (2)	Faye Lush and Joyce West	Dylan Braund
Snapper Point	Aug - Feb	100%	12	8% (1)	Angela Parker	Faye Lush, Joyce West, Sue and Ashley Read
Southport	Aug - Nov, Jan - Feb	86%	12	0% (0)	John Cobb	Angela Parker, Emma Stephens
Tunkalilla 1st alcove far east	Sept - Feb	86%	12	0% (0)	Elizabeth Steele-Collins	
Tunkalilla midway*	Sept - March	88%	25	96% (24)	Elizabeth Steele-Collins	David Thorn, Rob Brinsley, Thirza Thomas
Tunkalilla west*	Sept - Feb	86%	19	89% (17)	Elizabeth Steele-Collins	David and Sue Thorn, Lance Gray, Geoff Schmidt
Tunkalilla east*	Sept - Feb	86%	16	75% (12)	Elizabeth Steele-Collins	David and Sue Thorn, Rob Brinsley
Tunkalilla Tunk Head alcove	Sept, Nov	29%	2	0% (0)	Elizabeth Steele-Collins	
Waitpinga beach (east)	Sept - Feb	86%	31	97% (30)	Rob Brinsley	Elizabeth Steele-Collins, Dean Cutten, Craig Whyte, Corey Jackson, David and Sue Thorn
Waitpinga beach (west)	Sept - Feb	86%	29	79% (23)	Rob Brinsley	Elizabeth Steele-Collins, Dean Cutten, Craig Whyte
Waitpinga estuary	Sept, Jan - Feb	43%	10	30% (3)	Rob Brinsley	Elizabeth Steele-Collins
Watsons Gap	Sept - Feb	86%	16	31% (5)	Debbie Prestwood	Craig Whyte, Ann Turner, Elizabeth Steele-Collins
Yankalilla river mouth	Aug, Nov - Feb	71%	19	84% (16)	David Thorn	Emma Stephens
Yilki	Oct - March	75%	110	93% (102)	Ross Brittain, Janette Diment, Debbie and Bob Prestwood, Elizabeth Steele-Collins	David Thorn, Emma Stephens, Terry Dennis, Eric Taylor, Judy Roinich, Julie, Ian and Steve Milne, Lance Gray, Michele and Gary Sawyer, Richard Edwards, Rob Brinsley

Nesting success

In the 2014/15 breeding season there were 46 Hooded Plover nesting attempts by 20 breeding pairs on the Fleurieu Peninsula. This was the highest number of nests recorded in six seasons of intensive monitoring. This may be a result of increased volunteer effort this year, with more nests being detected. Two sites (Coolawang and Maslins Beach) had a pair regularly on territory but no nests were recorded.

This season, Aldinga, Bashams beach, Lands End, Ochre Cove (Maslins beach), Yankalilla river mouth and Yilki were used for nesting, whereas last season, these sites had no evidence of nesting. Of special interest, Aldinga had a breeding pair on territory for the first time since 2006 (there was also a nest in November 2011 at Silver Sands in the car-free zone).

The total numbers of eggs and fledglings, and the percentage of nests hatching have increased since last season (Table 5). The percentage of chicks fledging successfully (31.3%) was lowest of the six successive breeding seasons. The number of fledglings per breeding pair has stayed constant over the last two breeding seasons (0.50 fledglings per pair). The latter meets the benchmark for fledgling production that we set for evaluating success, and for maintaining population numbers over time (BirdLife unpubl.).

Table 5. Summary of nests, hatching or failing at egg stage, total number of eggs and chicks observed, and total chicks that fledged on the Fleurieu Peninsula over six breeding seasons.

Season	# nests	# nests hatch	# nests fail egg stage	# eggs	# chicks obsv. (% of eggs)	# fledglings (% of chicks)	Fldlg/ Pair
2009/2010 12 sites 12 breeding pairs	18	9 (50.0%)	9	49	19 (38.8%)	7 (36.8%)	0.58
2010/2011 23 sites 19 breeding pairs	36	14 (38.9%)	22	83	26 (31.3%)	9 (34.6%)	0.47
2011/2012 26 sites 14 breeding pairs	24	10 (41.7%)	14	60	22 (36.7%)	8 (36.4%)	0.57
2012/2013 38 sites 20 breeding pairs	34	11 (32.4%)	23	76	23 (30.3%)	9 (39.1%)	0.45
2013/2014 35 sites 18 breeding pairs	35	12 (34.3%)	23	84	23 (27.4%)	9 (39.1%)	0.50
2014/2015 44 sites 20 breeding pairs	46	17 (37.0%)	29	107	32 (29.9%)	10 (31.3%)	0.50

Figure 5 gives a geographic overview of successes and failures and Table 6 provides of nesting attempts for each monitored pair.

Figure 5: Nesting success and failure on the Fleurieu Peninsula during the 2014/15 season.

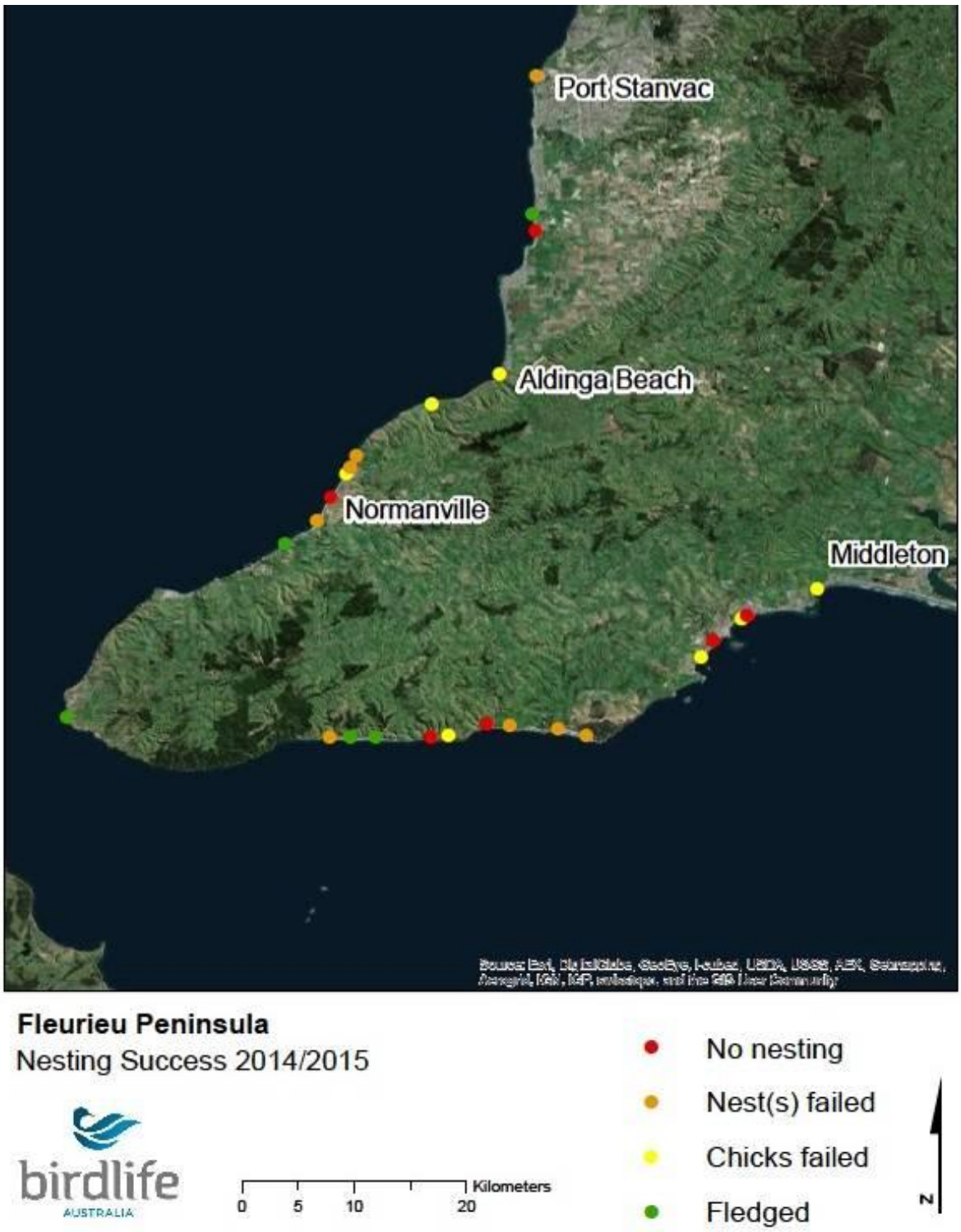


Table 6. Summary of nests, number of nests managed, hatching or failing at egg stage, total number of eggs and chicks observed and total chicks that fledged from that site in the 2014/15 breeding season. 'Managed at access' refers to sites which had temporary signs erected at access points as the only type of breeding site protection. Managed on beach refers to signs and fencing erected around the breeding site. Asterisk refers to atypical protection at industrial site.

Site	# Nests	On beach	On access	# nests fail egg stage	# nests hatch	# eggs	# chick obsv.	# nests fldgd	# fldgd
Aldinga	1	0	1	0	1	1	1	0	0
Ballaparudda	3	3	0	2	1	9	2	0	0
Bashams Beach	1	1	0	0	1	2	2	0	0
Carrickalinga Estuary/Sands	1	0	1	0	1	2	2	0	0
Carrickalinga North	1	1	0	1	0	3	0	0	0
Carrickalinga Rotunda	2	2	0	2	0	5	0	0	0
Coolawang	0	0	0	0	0	0	0	0	0
Hindmarsh River Mouth	5	4	0	3	2	11	2	0	0
Lands End	1	0	0	0	1	2	2	1	2
Maslins Beach	0	0	0	0	0	0	0	0	0
Myponga Beach	4	3	0	4	0	9	0	0	0
Ochre Cove, Maslins	2	2	0	0	2	6	6	1	1
Port Stanvac	3	1*	0	3	0	6	0	0	0
Sheepies beach	3	0	2	3	0	5	0	0	0
Shelley Beach (Lady Bay)	1	1	0	0	1	2	2	1	1
Tunkalilla east	3	2	1	1	2	8	5	2	4
Tunkalilla west	3	2	0	3	0	9	0	0	0
Tunkalilla midway	3	1	2	2	1	6	1	1	1
Waitpinga Beach (East)	1	0	2	0	1	3	1	1	1
Waitpinga Beach (West)	2	1	0	2	0	4	0	0	0
Yankalilla river mouth	3	2	1	3	0	7	0	0	0
Yilki	3	3	0	0	3	7	6	0	0
Total	**46**	**29**	**10**	**26**	**17**	**107**	**32**	**7**	**10**

Table 6 summarises the nesting activity of pairs according to entries in the MyBeachBird Data Portal and Table 7 expands this into more detail about each nesting attempt. The earliest recorded nest was in late August, at Ochre Cove, which was a successful nesting attempt, with one chick fledging. Breeding started to slow by the end of January/start of

February, with only three sites having chicks in March: Ballaparudda, Tunkalilla east and Yilki.

Forty per cent of pairs (8) had three nesting attempts during the season, 35% (7) had only one nesting attempt and 15% (3) had two nesting attempts. The pair at Myponga (EY and unbanded) had four attempts, whilst BX and AU at Hindmarsh river mouth had an impressive five nesting attempts throughout the season. Unfortunately, only two of the nests at Hindmarsh river hatched, with the longest surviving chick being seven days old.

Of the 46 nests monitored, 63% failed during the egg stage (a loss of 71 eggs), which is a slightly lower percentage than the previous season. The main causes of egg failure that were suspected and reported were: foxes (Ballaparudda, Carrickalinga Rotunda, 3 nests at Port Stanvac, Tunkalilla east and Yankalilla river mouth), tide (2 nests at Hindmarsh river mouth, Sheepies beach, Tunkalilla west, Tunkalilla midway), and avian predators (Hindmarsh river mouth, Sheepies beach, Tunkalilla west, Waitpinga west and Yankalilla river mouth). Raven depredation of the nest at Waitpinga west was witnessed by a volunteer and likely occurred as the Hooded Plover pair were not incubating. This could be due to fishermen standing too close to the fenced area for over an hour, which may have prevented the Hooded Plovers being on the nest. Other less common causes of nest failure were reported as: abandonment (one egg at Hindmarsh river mouth), lizard (Hindmarsh river mouth), feral cat (Myponga), crushing by human or kangaroo (Waitpinga west), unknown predator (Carrickalinga Rotunda) and vehicle (Yankalilla river mouth). For another five nests, there were no obvious clues as to the cause of nest failure.

There were eight pairs which successfully hatched chicks from all of their nesting attempts. Six of these pairs only had one nesting attempt; the pair at Ochre Cove (NA & TJ) had two nests hatch, one which fledged a single chick, and; the pair KV & unbanded at Yilki managed to have all three nesting attempts hatch. Unfortunately none of the six confirmed chicks survived; the longest surviving chick for this pair survived 26 days.

The causes of chick failure were predominately unknown, but there were suspected failures due to: dog (Yilki), fox, (Ballaparudda) and raven or magpie (Hindmarsh river mouth) and prolapsed cloaca (Yilki). The chick with the prolapsed cloaca was examined during an attempted banding session. A class bander, Terry Dennis described the chick

as underweight and malnourished for its age, and suspected a prolapsed cloaca. Elizabeth Steele-Collins, Volunteer Regional Coordinator for Southern Fleurieu, took photos of the chick to a local vet, where it was highly suspected the chick had a prolapsed cloaca. There was a direct observation of chick mortality by volunteers Ross Brittain, Janette Diment and Elizabeth Steele-Collins at Yilki, where a magpie depredated a 17-18 day old chick.

Thirty seven percent of nests hatched. Of these nests, 32 chicks were observed and 10 chicks were suspected according to the adult parents' behaviour. Only 10 chicks survived to fledge on the Fleurieu Peninsula for the 2014/15 breeding season. These 10 fledglings were from seven separate nesting attempts, from six individual pairs. One pair, DK and unbanded at Tunkalilla west produced four of the 10 fledglings in two separate nesting attempts. It must be noted that eight of the 10 fledglings produced this season were from four pairs occupying the southern coastline of Fleurieu Peninsula: Tunkalilla (midway and east), Waitpinga and Lands End. Similarly, in the previous 2013/14 season, all nine fledglings came from the southern coast of the Fleurieu, Tunkalilla, Waitpinga and Callawonga. In 2014/15, two fledglings came from the western coast of the Fleurieu Peninsula: Shelley beach (Lady bay) and Ochre Cove, Maslins beach.

The earliest confirmed fledgling came from the earliest nest reported on the Fleurieu Peninsula (August) at Ochre Cove, Maslins beach. This fledgling was flagged SR and was confirmed to fledge at the end of October. Tunkalilla midway and east had 4 confirmed fledglings in late December; Shelley beach (Lady bay) and Lands End fledged three by mid January, and Waitpinga beach (east) produced one fledgling in February (flagged RR). Tunkalilla east fledged a single chick HT in April (see Table 7).

Overall, an egg had a 9.3% chance of fledging a chick successfully (10 fledglings out of a total of 107 eggs). This was a 1.4% decrease from the previous season (in 2013/14 there was a 10.7% chance of an egg becoming a fledgling), and a 2.5% decrease from the season before (in 2012/13 there was 11.8% chance). A nest had a 15.2% chance of fledging at least one chick (7 fledged nests out of 46 total nests; 1.9% lower than the previous season). Chick survival was lower than the previous season (31.3%), with a 7.85% decrease, yet the rates of nests hatching was 2.8% higher than last season (37%).

Table 7. Detailed summary of nest progress for each site according to data entered in the MyBeachBird data portal and sent to BirdLife Australia for the 2014/15 breeding season.

Site/Territory	Date	Nest update	Attempt #	egg #	chick #	chick assumed #	band ID
Aldinga	15/12/2014	chick	1	1	1		DP, HV
Aldinga	17/12/2014	chick	1		1		DP, HV
Aldinga	18/12/2014	chick failed (unknown chick failure); pair spotted at Silver Sands!	1				DP, HV
Ballaparudda	9/10/2014	nest found	1	3			unb, unb
Ballaparudda	30/10/2014	nest failed (suspect tide, fox, stock)	1				unb, unb
Ballaparudda	30/10/2014	scrape found					unb, unb
Ballaparudda	9/11/2014	nest found	2	3			unb, unb
Ballaparudda	20/12/2014	nest failed	2				unb, unb
Ballaparudda	18/01/2015	scrape found					unb, unb
Ballaparudda	29/01/2015	scrape found					unb, unb
Ballaparudda	11/02/2015	nest found	3	3			unb, unb
Ballaparudda	5/03/2015	chicks sighted	3		2	3	unb, unb
Ballaparudda	15/03/2015	nest failed (fox)	3				unb, unb
Bashams Beach	29/09/2014	scrape found					
Bashams Beach	22/10/2014	scrape found					
Bashams Beach	31/10/2014	scrape found					
Bashams Beach	5/11/2014	nest found	1	2			SA, UE
Bashams Beach	4/12/2014	chicks sighted	1		2		SA, UE
Bashams Beach	16/12/2014	one chick failed (unknown)	1		1		SA, UE
Bashams Beach	24/12/2014	chick failed (unknown chick failure)	1				SA, UE
Bashams Beach	28/12/2014	scrape found					
Bashams Beach	30/12/2014	scrape found					
Callawonga	9/10/2014	first of 2 records of birds on territory					
Callawonga	15/03/2015	second record of birds on territory					
Carrickalinga Estuary/Sands	16/11/2014	suspect nest					CK & SS
Carrickalinga Estuary/Sands	20/11/2014	suspect nest					
Carrickalinga Estuary/Sands	1/12/2014	scrape found					CK & SS

Site/Territory	Date	Nest update	Attempt #	egg #	chick #	chick assumed #	band ID
Carrickalinga Estuary/Sands	19/01/2015	chicks sighted	1	2	2		CK & SS
Carrickalinga Estuary/Sands	30/01/2015	one chick failed (unknown)	1		1		CK & SS
Carrickalinga Estuary/Sands	15/02/2015	remaining chick failed (unknown chick failure)	1				CK & SS
Carrickalinga North	16/11/2014	nest found	1	3			unb & unb
Carrickalinga North	12/12/2014	nest failed (unknown egg failure)	1				unb & unb
Carrickalinga North	19/01/2015	scrape found					unb & unb
Carrickalinga North	23/01/2015	suspect nest					unb & unb
Carrickalinga North	30/01/2015	birds no longer on territory					unb & unb
Carrickalinga Rotunda	22/08/2014	scrape found					LP & unb
Carrickalinga Rotunda	30/08/2014	scrape found					LP & unb
Carrickalinga Rotunda	27/11/2014	nest found	1	3			LP & unb
Carrickalinga Rotunda	19/12/2014	nest failed (suspect fox)	1				LP & unb
Carrickalinga Rotunda	19/01/2015	nest found	2	1			LP & unb
Carrickalinga Rotunda	23/01/2015	second egg laid	2	2			LP & unb
Carrickalinga Rotunda	12/02/2015	nest failed (predator)	2				LP & unb
Carrickalinga South		no breeding birds on territory					
Christies Beach		no birds sighted					
Coolawang	5/10/2014	suspect nest					unb & unb
Deep Creek CP Blowhole beach		no birds sighted					
Goolwa beach		no pairs on territory					
Hindmarsh River Mouth	1/09/2014	nest found	1	1			AU & BX
Hindmarsh River Mouth	6/09/2014	second egg laid	1	2			AU & BX
Hindmarsh River Mouth	8/09/2014	nest failed (raven/magpie)	1				AU & BX
Hindmarsh River Mouth	17/09/2014	nest found	2	1			AU & BX
Hindmarsh River Mouth	19/09/2014	second egg laid	2	2			AU & BX
Hindmarsh River Mouth	8/10/2014	third egg sighted	2	3			AU & BX
Hindmarsh River Mouth	13/10/2014	tide washed out 2 eggs.	2	1			AU & BX
Hindmarsh River Mouth	15/10/2014	failed since last visit (final egg abandoned)	2	1			AU & BX

Site/Territory	Date	Nest update	Attempt #	egg #	chick #	chick assumed #	band ID
Hindmarsh River Mouth	26/10/2014	nest found	3	2			AU & BX
Hindmarsh River Mouth	29/10/2014	failed since last visit (tide)	3				AU & BX
Hindmarsh River Mouth	8/11/2014	nest found	4	1			AU & BX
Hindmarsh River Mouth	13/11/2014	second egg laid	4	2			AU & BX
Hindmarsh River Mouth	10/12/2014	chicks sighted	4		2		AU & BX
Hindmarsh River Mouth	13/12/2014	one chick failed (unknown)	4		1		AU & BX
Hindmarsh River Mouth	17/12/2014	failed since last visit (unknown chick failure)	4				AU & BX
Hindmarsh River Mouth	30/12/2014	nest found	5	1	0	2	AU & BX
Hindmarsh River Mouth	2/01/2015	second egg laid	5	2			AU & BX
Hindmarsh River Mouth	30/01/2015	strongly suspect that chicks hatched, but were eaten by raven/magpie before seen. Taken on due date	5				AU & BX
Hindmarsh River Mouth	12/02/2015	scrape found					AU & BX
Inman River Outlet		no nesting					
Lands End	1/12/2014	suspect nest		2			
Lands End	4/12/2014	chicks sighted	1		2		unb &unb
Lands End	24/12/2014	chicks not sighted					unb &unb
Lands End	6/01/2015	x2 fledged					unb &unb
Lands End	10/01/2015	birds not sighted					unb &unb
Maslins Beach		pair on territory, but not nesting					unb &unb
Middleton beach		no birds sighted					
Moana Beach		no birds sighted					
Morgans beach Fleurieu		no birds sighted					
Myponga Beach	5/09/2014	nest found	1	3			EY & unb
Myponga Beach	17/09/2014	nest failed (suspect lizard)	1				EY & unb
Myponga Beach	17/09/2014	scrape found					EY & unb
Myponga Beach	29/09/2014	scrape found					EY & unb
Myponga Beach	4/10/2014	nest found	2	1			EY & unb
Myponga Beach	10/10/2014	nest failed (unknown)					EY & unb
Myponga Beach	24/10/2014	nest found	3	2			EY & unb
Myponga Beach	2/11/2014	nest failed (suspect feral cat)					EY & unb
Myponga Beach	7/11/2014	scrape found					EY & unb

Site/Territory	Date	Nest update	Attempt #	egg #	chick #	chick assumed #	band ID
Myponga Beach	20/11/2014	suspect nest					EY & unb
Myponga Beach	1/12/2014	suspect nest					EY & unb
Myponga Beach	3/12/2014	nest found (camera installed)	4	3			EY & unb
Myponga Beach	15/12/2014	nest failed (unknown despite camera)	4				EY & unb
Normanville South		no birds sighted					
Normanville North		no breeding birds on territory					
Ochre Cove, Maslins	22/08/2014	nest found	1	2			NA & TJ
Ochre Cove, Maslins	28/08/2014	third egg sighted	1	3			NA & TJ
Ochre Cove, Maslins	18/09/2014	chicks hatched	1		3		NA & TJ
Ochre Cove, Maslins	19/09/2014	one chick failed (unknown)	1		2		NA & TJ
Ochre Cove, Maslins	26/09/2014	second chick failed (unknown)	1		1		NA & TJ
Ochre Cove, Maslins	16/10/2014	chick banded (SR), adult banded (TJ)	1				NA & TJ
Ochre Cove, Maslins	29/10/2014	x1 fledged	1				NA & TJ
Ochre Cove, Maslins	6/11/2014	nest found	2	3			NA & TJ
Ochre Cove, Maslins	12/12/2014	chicks sighted	2		3		NA & TJ
Ochre Cove, Maslins	12/12/2014	two chicks failed (unknown)	2				NA & TJ
Ochre Cove, Maslins	20/12/2014	chick failed (unknown)	2				NA & TJ
Olivers Reef		birds on territory, but no breeding recorded					AU & BX
OSullivans Beach		no birds sighted (only 1 visit)					
Parsons Beach		no breeding birds on territory					
Port Stanvac	9/10/2014	nest found	1	2			AR & unb
Port Stanvac	24/10/2014	nest failed (suspect fox)	1				AR & unb
Port Stanvac	11/11/2014	nest found	2	2			AR & unb
Port Stanvac	3/12/2014	nest failed (fox)	2				AR & unb
Port Stanvac	14/12/2014	nest found	3	1			AR & unb
Port Stanvac	21/12/2014	second egg sighted	3	2			AR & unb
Port Stanvac	4/01/2015	nest failed (suspect fox)	3				AR & unb
Port Willunga		no nesting - used as flocking site. DV was regular					
Sheepies beach	23/10/2014	nest found	1	3			unb & unb
Sheepies beach	10/11/2014	nest failed (suspect raven/magpie)	1				unb & unb
Sheepies beach	2/12/2014	nest found	2	3			unb & unb

Site/Territory	Date	Nest update	Attempt #	egg #	chick #	chick assumed #	band ID
Sheepies beach	11/12/2014	nest failed (suspect magpie or fox)	2				unb & unb
Sheepies beach	24/12/2014	nest found	3	2			unb & unb
Sheepies beach	30/12/2014	nest failed (tide)	3				unb & unb
Shelley Beach (lady bay)	16/11/2014	scrape found					SB & unb
Shelley Beach (lady bay)	24/11/2014	suspect nest					SB & unb
Shelley Beach (lady bay)	27/11/2014	nest found	1	2			SB & unb
Shelley Beach (lady bay)	21/12/2014	chicks sighted	1		2		SB & unb
Shelley Beach (lady bay)	9/01/2015	one chick failed (unknown)	1		1		SB & unb
Shelley Beach (lady bay)	21/01/2015	x1 fledged	1				SB & unb
Silver Sands		no pairs on territory					
Snapper Point		no pairs on territory					
Southport		no birds on territory					
Tunkalilla 1st alcove far east		no breeding pair on territory					
Tunkalilla west	18/09/2014	suspect nest					LA & UB
Tunkalilla west	18/09/2014	suspect nest					KW & unk
Tunkalilla west	22/09/2014	nest found. LA & UB taken over this territory and booted of KW, WE & unb	1	2			LA & UB
Tunkalilla west	2/10/2014	third egg sighted	1	3			LA & UB
Tunkalilla west	17/10/2014	failed since last visit (tide)	1				LA & UB
Tunkalilla west	17/10/2014	scrape found					LA & UB
Tunkalilla west	18/11/2014	nest found	2	3			LA & UB
Tunkalilla west	9/12/2014	nest failed (unknown)	2				LA & UB
Tunkalilla west	9/12/2014	WE & unb scrapes					WE & unb
Tunkalilla west	20/12/2014	LA & UB back on territory. Nest found	3	3			LA & UB
Tunkalilla west	18/01/2015	nest failed (suspect magpie)	3				
Tunkalilla east	18/09/2014	nest found	1	3			DK & unb
Tunkalilla east	18/11/2014	nest found	2	3			DK & unb
Tunkalilla east	29/11/2014	chicks sighted	2		3		DK & unb
Tunkalilla east	31/12/2014	x3 chicks fledged	2				DK & unb
Tunkalilla east	18/01/2015	scrape found					DK & unb
Tunkalilla east	24/01/2015	suspect nest					DK & unb
Tunkalilla east	8/02/2015	nest found	3	2			DK & unb

Site/Territory	Date	Nest update	Attempt #	egg #	chick #	chick assumed #	band ID
Tunkalilla east	25/02/2015	chicks sighted	3		2		DK & unb
Tunkalilla east	5/03/2015	one chick failed (suspect fox)					DK & unb
Tunkalilla east	25/03/2015	chick banded HT					
Tunkalilla east	22/04/2015	x 1 confirmed HT fledged					
Tunkalilla midway	22/09/2014	suspect nest					MT & unb
Tunkalilla midway	22/09/2014	nest found	1	2			MT & unb
Tunkalilla midway	17/10/2014	nest failed (tide)	1				MT & ME
Tunkalilla midway	18/11/2014	suspect nest	2	1			MT & ME
Tunkalilla midway	29/11/2014	suspect nest					MT & ME
Tunkalilla midway	9/12/2014	suspect chicks	2				MT & ME
Tunkalilla midway	20/12/2014	chick sighted	2		1		MT & ME
Tunkalilla midway	31/12/2014	x1 fledged	2				MT & ME
Tunkalilla midway	18/01/2015	nest found	3	3			MT & ME
Tunkalilla midway	24/01/2015	nest failed (tide)	3				MT & ME
Tunkalilla Tunk Head alcove		no breeding pair on territory					
Waitpinga Beach (east)	11/10/2014	scrape found					unb & unb
Waitpinga Beach (east)	15/10/2014	scrape found					unb & unb
Waitpinga Beach (east)	23/10/2014	scrape found					unb & unb
Waitpinga Beach (east)	28/10/2014	scrape found					unb & unb
Waitpinga Beach (east)	5/11/2014	scrape found					unb & unb
Waitpinga Beach (east)	20/11/2014	suspect nest					unb & unb
Waitpinga Beach (east)	10/12/2014	suspect nest					unb & unb
Waitpinga Beach (east)	11/12/2014	nest found	1	3			unb & unb
Waitpinga Beach (east)	3/01/2015	chicks hatched. One egg failed to hatch	1		1	2	unb & unb
Waitpinga Beach (east)	21/01/2015	chick banded (RR)	1				unb & unb
Waitpinga Beach (east)	11/02/2015	x 1 fledged	1				unb & unb
Waitpinga Beach (west)	11/10/2014	scrape found					EV & KP
Waitpinga Beach (west)	5/11/2014	nest found	1	1			EV & KP
Waitpinga Beach (west)	10/11/2014	nest failed (suspect crushing by person or kangaroo)	1				EV & KP
Waitpinga Beach (west)	17/12/2014	nest found	2	3			EV & KP

Site/Territory	Date	Nest update	Attempt #	egg #	chick #	chick assumed #	band ID
Waitpinga Beach (west)	3/01/2015	nest failed (fishermen kept hoodies off nest, which allowed ravens to depredate eggs)	2				EV & KP
Waitpinga Estuary		no breeding pair on territory					
Watsons Gap		no breeding pair on territory					
Yankalilla river mouth	27/11/2014	nest found	1	3			unb & unb
Yankalilla river mouth	8/12/2014	nest failed (suspect raven)	1				unb & unb
Yankalilla river mouth	21/12/2014	nest found	2	2			unb & unb
Yankalilla river mouth	1/01/2015	nest failed (vehicle)	2				unb & unb
Yankalilla river mouth	19/01/2015	nest found	3	1			unb & unb
Yankalilla river mouth	2/02/2015	nest failed (suspect fox)	3				unb & unb
Yilki	18/10/2014	suspect nest					KV & unb
Yilki	19/10/2014	nest found	1	2			KV & unb
Yilki	3/11/2014	chicks hatched	1		2		KV & unb
Yilki	12/11/2014	one chick failed (suspect dog)	1		1		KV & unb
Yilki	20/11/2014	chick failed (magpie seen taking chick)	1				KV & unb
Yilki	10/12/2014	nest found	2	3			KV & unb
Yilki	3/01/2015	2 chicks hatched. One egg still being incubated	2		2	3	KV & unb
Yilki	4/01/2015	chicks failed (suspect either magpie, pacific gull or fox)	2				KV & unb
Yilki	13/01/2015	pair sighted copulating					KV & unb
Yilki	19/01/2015	nest found	3	2			KV & unb
Yilki	16/02/2015	chicks hatched	3		2		KV & unb
Yilki	22/02/2015	one chick failed (unknown)	3		1		KV & unb
Yilki	13/03/2015	chick banded. Reported as underweight at time of banding	3				KV & unb
Yilki	14/03/2015	chick failed (prolapsed cloaca)	3				KV & unb

Flagging

In total, 401 birds have been banded as part of BirdLife Australia's research program in Victoria and South Australia since 2010. On the Fleurieu, there are 41 banded birds: 26 adults, 8 chicks, 7 flying juveniles (see Table 8).

We rely on reportings of these birds once they have been flagged in order to build up a 'history' for each flagged individual and learn about their movements, breeding partner/s and longevity. Figures 6 and 7 reveal the identification of pairs at sites monitored across the Fleurieu Peninsula in the 2014/15 season. There are seven completely unbanded pairs on the Fleurieu Peninsula, and seven pairs where only one member of the pair is identifiable. There are six pairs where both individuals are flagged.

Flagging has revealed some interesting changes in site occupation of which we would have been unaware without the individual identification of birds.

Last season, there was no nesting at Bashams beach or Hindmash river mouth, yet this season there was breeding at these sites. AU and BX were observed nesting at the Hindmarsh river mouth, whereas in the previous two years, they had been recorded nesting at Watsons Gap. This left Watsons Gap with no birds or breeding activity in the 2014/15 season. In the 2012/13 season, there was nesting at both Hindmarsh river mouth and Watsons Gap, and it is possible due to the dates of these nest attempts that it was the one pair using two sites, potentially AU and BX who were unbanded at the time. However we can only speculate. BirdLife Australia's banding program is allowing us to confirm these sorts of discoveries. We will need to continue to monitor this pair to see whether they continue to occupy two sites or now become the resident pair at Hindmarsh alone.

SA and UE were observed nesting at Bashams beach this season. While SA occupied Bashams beach during the 2013/14 season, it was never seen with another adult Hooded Plover. UE was a juvenile from the previous season (February 2014) and has become the breeding partner of SA this season at Bashams beach. It will be exciting to follow this new partnership over time.

Table 8. A summary of leg flagged Hooded Plovers captured and banded on the Fleurieu Peninsula to April 2015. All birds were captured by qualified and licensed banders (Grainne Maguire and Terry Dennis; trainee Emma Stephens). Partner at the time of banding is displayed.

Beach	Date	Age	Sex	Right tarsus	Right tibia	Left tibia	notes on breeding status	partner or parent
Maslins Beach	8/05/2012	Adult	Female	metal	MX		non-breeding	Partner unbanded
Myponga Beach	8/05/2012	Adult	Unk	metal	EY		non-breeding	Partner unbanded
Watsons Gap estuary	18/01/2013	Adult	Female	metal	AU		with recently fledged chick	partner unbanded (on 20/1/13 banded as BX)
Parsons Beach (far SW end)	18/01/2013	Adult	Female	metal	CL		not nesting	partner EV
Parsons Beach (far SW end)	18/01/2013	Adult		metal		EV	not nesting	partner CL
Waitpinga Beach (E end)	18/01/2013	Adult	Female	metal	KJ		not nesting (recent failure)	partner unbanded
Tunkalilla Beach 3rd house east	19/01/2013	Juvenile	Male	metal	DK		1 of 3 chicks that fledged from Tunkalilla far western end	sibling of EM
Tunkalilla Beach 3rd house east	19/01/2013	Juvenile	Male	metal	EM		1 of 3 chicks that fledged from Tunkalilla far western end	sibling of DK
Watsons Gap estuary	20/01/2013	Adult		metal		BX	with recently fledged chick (7 days ago)	partner AU
Carrickalinga estuary	21/01/2013	Adult	Male	metal	CK		with 2 other adults, aggression, no nesting	unknown, caught with LP
Carrickalinga estuary	21/01/2013	Adult		metal		LP	with 2 other adults, aggression, no nesting	unknown, caught with CK
Carrickalinga North (N end)	22/01/2013	Adult	Unk	metal	NA		not nesting	Suspect partner AR
Carrickalinga North (N end)	22/01/2013	Adult	Male	metal		AR	not nesting	Suspect partner NA
Snapper Point (Pt Willunga end)	22/01/2013	Adult	Male	metal	HV		Port Willunga pair, not nesting, recent failure	partner unbanded
Carrickalinga Pitmans leap access	27/09/2013	Adult	Male	metal	SS		not nesting, with 1 other bird	Partner CK
Carrickalinga (toilet block)	27/09/2013	Subadult	Male	metal	DJ		Alone	
Lady Bay Shelley Beach	27/09/2013	Adult	Unk	metal	SB		not nesting	Partner LD

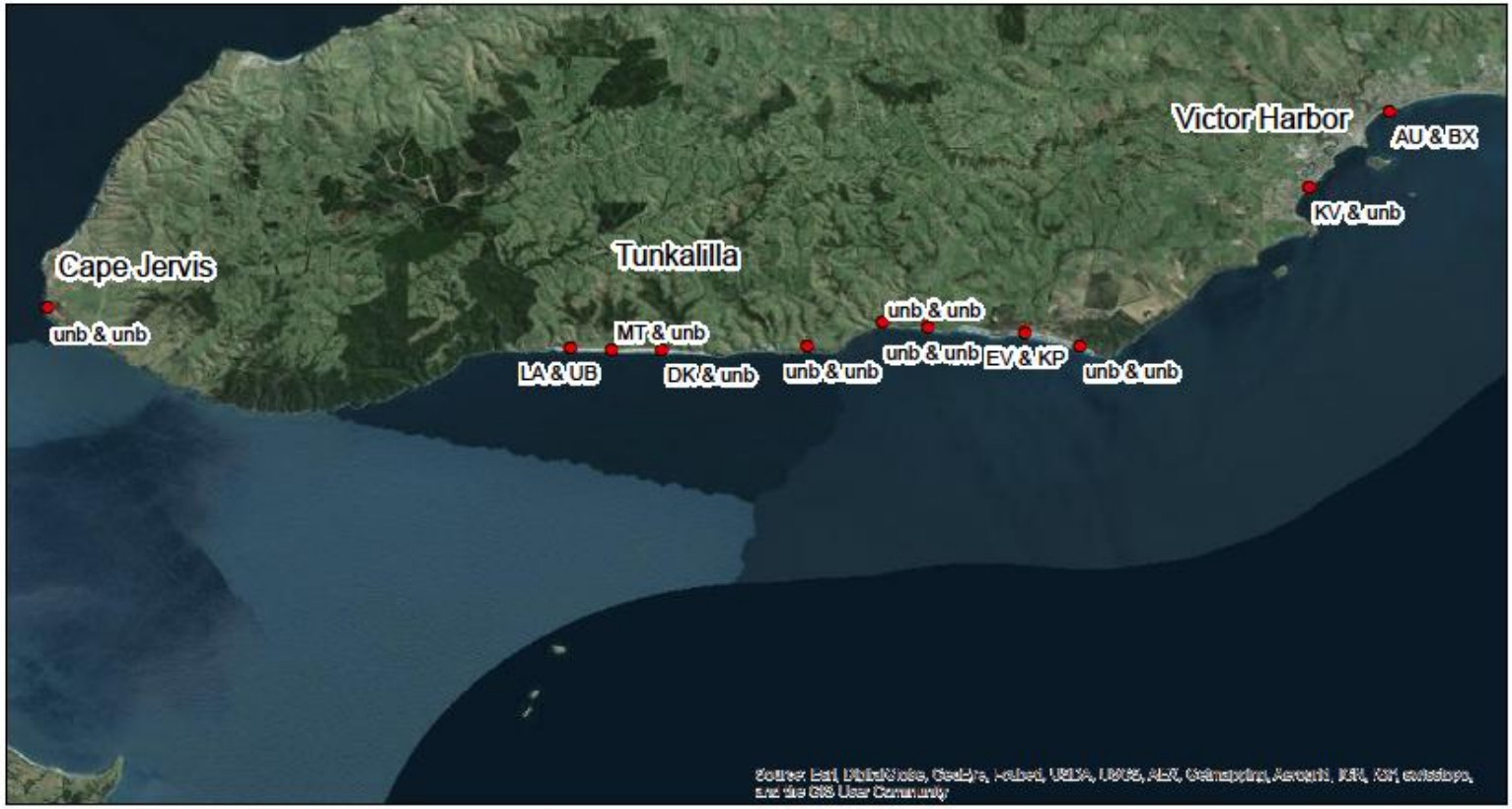
Beach	Date	Age	Sex	Right tarsus	Right tibia	Left tibia	notes on breeding status	partner or parent
Lady Bay Shelley Beach	27/09/2013	Adult	Unk	metal		LD	not nesting	Partner SB
Inman River outlet	13/11/2013	Adult		metal	KV		mating, no scrapes found	Partner unbanded
Bashams Beach	13/11/2013	Adult	Male	metal		SA	lone bird, no partner seen for months	
Tunkalilla far west	14/11/2013	Adult	Female	metal	LA		new nest, recently laid, 3 eggs	Partner unbanded
Tunkalilla western estuary	14/11/2013	Adult		metal	KW		fresh scrapes	Partner unbanded
Tunkalilla mid west estuary	14/11/2013	Adult		metal		MT	new nest, 2 eggs, due to hatch late Nov/early Dec	Partner unbanded
Tunkalilla creek/3rd house east	14/11/2013	Adult		metal	ST		lone bird, suspect nest	
Waitpinga Beach east	10/02/2014	Chick		metal	PD		30 days old	Parents KJ and unbanded
Waitpinga Beach east	10/02/2014	Chick		metal	PR		30 days old	Parents KJ and unbanded
Callawonga Beach	10/02/2014	Chick		metal	KP		25 days old	
Callawonga Beach	10/02/2014	Chick		metal			25 days old, much lighter than sibling KP so no flag given	
Waitpinga Beach west	25/02/2014	Juvenile	Male	metal	YN			
Waitpinga Beach west	25/02/2014	Juvenile	Female	metal	TZ			
Waitpinga Beach west	26/02/2014	Juvenile	Female	metal	UE			
Waitpinga Beach west	26/02/2014	Juvenile	Male	metal	HX			
Tunkalilla Creek/3rd house east	28/04/2014	Juvenile		metal	PR		RECAPTURE	Parents KJ and unbanded
Tunkalilla far west	28/04/2014	Adult	Male	metal	UB			Partner 'LA'
Waitpinga Beach east	30/04/2014	Adult	Female	metal	KJ			
Port Willunga North	29/08/2014	Adult		metal		DP		With LP at time of banding
Ochre cove, Maslins beach	16/10/2014	Chick	Male	metal	SR			Parents TJ and NA
Ochre cove, Maslins beach	16/10/2014	Adult	Male	metal	TJ		Chicks	Partner NA

Beach	Date	Age	Sex	Right tarsus	Right tibia	Left tibia	notes on breeding status	partner or parent
Tunkalilla Beach western estuary	17/10/2014	Adult	Female	metal		WE	Scrape no eggs	Partner KW
Tunkalilla Beach mid west estuary	17/10/2014	Adult	Female	metal	ME		On territory	Partner MT
Waitpinga beach	21/01/2015	Chick		metal	RR			
Heyson East - Tunkalilla Beach	25/03/2015	Chick		metal	HT			
Yilki - Encounter Bay	13/05/2015	Chick		metal				

Newly flagged Hooded Plover "ME". Photo: Grainne Maguire

Figure 6. Hooded Plover monitoring sites on the western side of the Fleurieu Peninsula over the 2014/15 breeding season, showing the leg flag identities for each pair found at that particular site for this season.

Figure 7. Hooded Plover monitoring sites on the southern and eastern side of the Fleurieu Peninsula over the 2014/15 breeding season, showing the leg flag identities for each pair found at that particular site for this season.



HV is another breeding bird which changed territories this year. Originally from Port Willunga (season 2012/13 and 2013/14), this season it moved to Aldinga, where it had a nesting attempt with DP. HV moved frequently within the season, being sighted at several locations along that stretch of coast from Port Willunga to Aldinga, see Table 9 for detailed movements.

Table 9: Key movements of HV over the 2014/15 breeding season

Timeframe	Sighting	Notes
Aug	Snapper Point	
Aug	Port Willunga	with banded partner, DP
Oct	Port Willunga	
Nov	Aldinga	
15th Dec	Aldinga	with chick
17th Dec	Aldinga	with chick
18th Dec	Silver Sands	no chick
19th Dec	Port Willunga	
Jan	Port Willunga	

KV is also another Hooded Plover which changed breeding territories this season. During the 2013/14 season, KV and unbanded partner had five nesting attempts at Inman river mouth, all of which failed. This season, KV and potentially the same unbanded partner moved to Yilki, where all three nesting attempts successfully hatched chicks.

Banding has also helped unravel the changes occurring at Tunkalilla over the past few seasons. In the 2012/13 season at Tunkalilla, there were five breeding pairs. In the 2013/14 season, it was down to four pairs. This season, there were only three active breeding pairs on the Tunkalilla beach. This is cause for concern, as pairs have been disappearing from the site over the last two years. KW, a nesting bird from previous seasons, was spotted early on in the breeding season, with potential partner, WE. Not long after this sighting, KW went missing and WE was found with an unbanded bird. Unfortunately WE and unbanded were not able to maintain a breeding territory, due to neighbouring pairs (LA & UB and MT & ME) being highly territorial throughout the season. This may indicate that the habitat value of this site is changing over time.

Due to the reduced number of Tunkalilla territories this season, the pairs appear to have extended their breeding territories, so the data has been analysed according to this. Two territories Tunkalilla *far west* and *western estuary*, are referred to as *Tunkalilla west* throughout this report. Likewise, Tunkalilla *creek/3rd house east*, *Heysen east* and *Shed*

Caravan are reported as *Tunkalilla east*, and Tunkalilla *mid west estuary* and *first house east* are referred to as *Tunkalilla midway.*

Breeding Site Management

Of the 46 nests on the Fleurieu Peninsula, 17 of these successfully hatched. Of these 17 nests, only one site (Lands End) did not have some form of management. Four sites had signs at the access points (Aldgina, Carrickalinga estuary/sands, Waitpinga east and one nest at Tunkalilla east). All other successful nest sites had active management (site protection in the form of signs and fencing) on the beach (Table 10).

Some sites were more remote than others, and at the time deemed not at high risk of human impacts, so active management on the beach was limited. At Yilki, the nesting pair (KV and unbanded) had chicks at the time of schoolies week, which brings an influx of people to the local area, using the beach. BirdLife Australia and Volunteer Regional Coordinator Elizabeth Steele-Collins created specific signage aimed at the schoolie beach users (Figure 8). Having this signage and also having volunteers out chatting to beach users saw the chick survive schoolies week. These chicks unfortunately perished; the first suspected due to heavy off leash dog presence, and the second was directly observed being taken by a magpie.

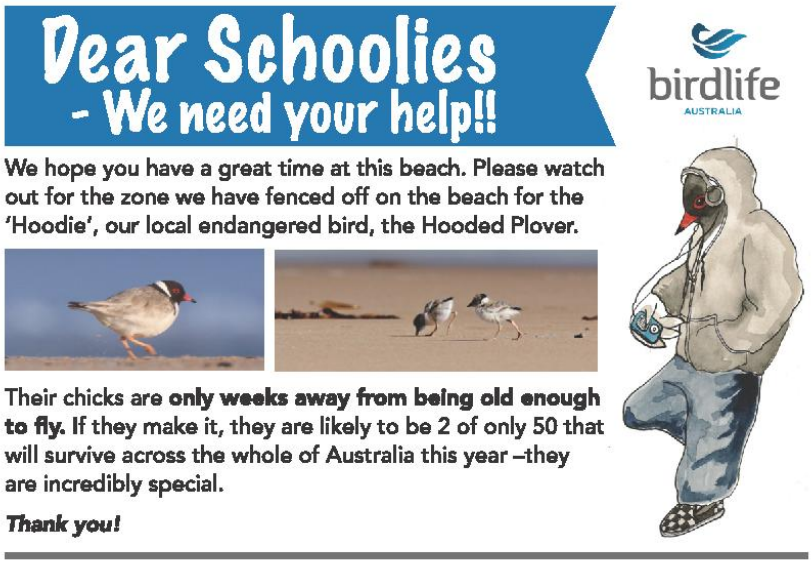


Figure 8: signage created by VRC Elizabeth Steele-Collins and BirdLife Australia to target sites that have large numbers of visitors during schoolies weeks.

Table 10. Summary of management across sites during the 2014/15 breeding season. An asterisk denotes nests that were never located and here an assumption of the number of eggs was made (based on the number of chicks sighted or if no chicks sighted, eggs were assumed to be clutches of 3 which is the most common clutch size). ^ chicks not sighted, but strongly suspect hatched on due date.

site/territory	date found	# eggs	date chick sighted	chicks obsv	# fledge	nest habitat	cause of failure	management
Aldinga*	unknown	3	15/12/14	1		unknown	unknown	sign access
Ballaparudda	9/10/14	3				beach	suspect tide, fox or stock	permanent fence
Ballaparudda	9/11/14	3				beach	suspect sheep or fox	permanent fence
Ballaparudda	11/02/15	3	5/03/15	2		beach	fox	sign nest, permanent fence
Bashams Beach	5/11/14	2	4/12/14	2		dune	unknown	sign nest, rope fence
Carrickalinga Estuary/Sands*	unknown	2	19/01/15	2		unknown	unknown	
Carrickalinga North	16/11/14	3				beach	unknown	sign access, sign nest, rope fence
Carrickalinga Rotunda	27/11/14	3				beach	suspect fox	sign access, sign nest, rope fence
Carrickalinga Rotunda	19/01/15	2				Foredune/face	predator	sign access, sign nest, rope fence
Hindmarsh River Mouth	1/09/14	2				Beach	raven/magpie	sign nest
Hindmarsh River Mouth	17/09/14	3				Beach	Tide washed out 2 eggs, third egg abandoned	sign nest, rope fence
Hindmarsh River Mouth	26/10/14	2				foredune/face	tide	none
Hindmarsh River Mouth	8/11/14	2				foredune/face	unknown	sign access, sign nest, rope fence
Hindmarsh River Mouth	30/12/14	2	30/01/15^	0		dune	raven/magpie on hatch date	sign access, sign nest, rope fence
Lands End*	1/12/14	3	4/12/14	2	2	upper beach		none

site/territory	date found	# eggs	date chick sighted	chicks obsv	# fledge	nest habitat	cause of failure	management
Myponga Beach	5/09/14	3				estuary/spit	suspect lizard	sign access, sign nest, rope fence
Myponga Beach	4/10/14	1				estuary/spit	unknown	signs nest (nest outside roped area)
Myponga Beach	24/10/14	2				beach	suspect feral cat sighted in area	sign access, sign nest, rope fence
Myponga Beach	3/12/14	3					unknown	sign access, sign nest, rope fence, remote camera
Ochre Cove, Maslins	22/08/14	3	18/09/14	3	1 (SR)	beach		sign access, sign nest, rope fence
Ochre Cove, Maslins	6/11/14	3	12/12/14	3		beach	unknown	sign access, sign nest, rope fence
Port Stanvac	9/10/14	2				industrial	suspect fox	witches hat/orange cone
Port Stanvac	11/11/14	2				beach	fox confirmed	none
Port Stanvac	14/12/14	2				beach	suspect fox	none
Sheepies beach	23/10/14	3				foredune/face	suspect raven/magpie	none
Sheepies beach	2/12/14	3				dune	suspect magpie or fox	sign access
Sheepies beach	24/12/14	2				beach	tide	sign access
Shelley Beach (lady bay)	27/11/14	2	21/12/14	2	1	beach		sign access, sign nest, rope fence
Tunkalilla west	22/09/14	3				beach	tide	none
Tunkalilla west	18/11/14	3				dune	unknown	sign nest
Tunkalilla west	20/12/14	3				beach	suspect magpie	sign nest
Tunkalilla east	18/09/14	3				dune	suspect fox	sign nest
Tunkalilla east	18/11/14	3	29/11/14	3	3	dune		sign access
Tunkalilla east	8/02/15	2	25/02/15	2	1 (HT)	beach	one chick failed (suspect fox)	sign nest
Tunkalilla midway	22/09/14	2				beach	tide	sign access
Tunkalilla midway	18/11/14	3	20/12/14	1	1	unknown		sign access
Tunkalilla midway	18/01/15	3				beach	tide	sign access, sign nest

site/territory	date found	# eggs	date chick sighted	chicks obsv	# fledge	nest habitat	cause of failure	management
Waitpinga Beach (east)	11/12/14	3	3/01/15	2	1 (RR)	dune		sign access
Waitpinga Beach (west)	5/11/14	1				foredune/face	suspect crushing by person or kangaroo	sign access
Waitpinga Beach (west)	17/12/14	3				foredune/face	fishermen kept hoodies off nest, which allowed ravens to depredate eggs	sign access, sign nest, rope fence
Yankalilla river mouth	27/11/14	3				beach	suspect raven	sign access, sign nest, rope fence
Yankalilla river mouth	21/12/14	2				beach	vehicle	none
Yankalilla river mouth	19/01/15	1				beach	suspect fox	sign nest, rope fence
Yilki	19/10/14	2	3/11/14	2		foredune/face	one chick suspect dog, second chick magpie seen taking chick	sign nest, rope fence
Yilki	10/12/14	3	3/01/15	2		beach	suspect either magpie, pacific gull or fox	sign access, sign nest, rope fence
Yilki	19/01/15	2	16/02/15	2		beach	one chick unknown, second chick prolapsed cloaca	sign access, sign nest, rope fence

Pair of Hooded Plovers: one incubating while the other is vigilant. Photo: Glenn Ehmke

Threats to breeding pairs

Of the 1,157 entries on the data portal for the 2014/15, 86.8% (1,004) were using the full update form, which is nearly a 15% increase from last season. Of these entries, 885 (88.1%) had accompanying threat assessments of sites (n=40 sites), which is a 25% increase from last season.

Aldinga, Deep Creek CP blowhole beach, Morgans beach, Normanville north and south, Silver Sands, Snapper Point, Tunkalilla Tunk Head Cove and Watsons Gap were not included in any analysis or summary tables for threat data, as less than 5 threat assessments were completed throughout the season. The sites with the highest number of threat assessments received were Hindmarsh River Mouth (98 records), Bashams Beach (92 records) and Yilki (91 records). Given threats are likely to vary temporally (time of day and season), having many assessments gives us a better understanding of the average frequency and intensity of threats the birds experience.

The threat data entered into the data portal assists BirdLife Australia with targeted management for each beach. Hooded Plovers and their beach habitats have a variety of threats and by gathering sufficient information on the threats at each site, we can assess whether human-based threats are the most dominant and can even determine the main user groups and target awareness raising activities to that particular group. The data that is collected from this citizen science project has enabled us to learn about ongoing trends and adapt our management over time. Having sound data also means we can influence policy. The Hooded Plover (eastern subspecies) was listed under the EPBC Act (1999) in November 2014, and this was largely due to the body of research and monitoring that has occurred in the past decade. We need to continue collecting this data in order to make successful long-term conservation management decisions.

The most prevalent threats at sites on the Fleurieu Peninsula for the 2014/15 season were people, silver gulls, dogs and foxes (Table 10), which were also the top threats in 2013/14. From 2009, when detailed monitoring began on the Fleurieu Peninsula, the presence of people on beaches has been recorded more than any other threat type. Dogs off lead were more prevalent than dogs on lead, which has also been the case for the last six seasons. During the 2013/14 season, the disparity between dogs off leash and on leash was 10%, with more dogs being recorded off leash. This season, dogs off leash were only 3.2% more prevalent than dogs on leash, which is at least an

encouraging move in the right direction. Horses, birds of prey and vehicle sightings were the least prevalent threats, with non-permitted vehicles and horses being recorded at one site each (Tunkalilla west and Hindmarsh river mouth, respectively).

Table 10. Proportion of visits where threats were observed (this includes evidence of tracks unless specified).

Threat	**Prop. visits present (threat records =828)**
Human beach use (footprints &/or sightings)	82.1% (680)
Silver gulls	69.7% (577)
Dog use (footprints &/or sightings)	57.0% (472)
Dogs sighted	39.9% (330)
Foxes (prints)	31.2% (258)
Dogs off lead	28.6% (237)
Pacific gulls	25.4% (210)
Dogs on lead	25.6% (212)
Magpies	15.7% (130)
Ravens	14.7% (122)
Native animals (prints)	10.6% (88)
Stock (prints)	7.2% (60)
Vehicles (all types, including sightings &/or tracks)	7.2% (60)
Birds of Prey	4.8% (40)
Permitted vehicle sighted	1.1% (9)
Horses (sightings &/or prints)	0.5% (4)
Non-permitted vehicle sighted	0.2% (2)

Table 11 provides a summary of the proportion of sites where given threats were observed. Dogs were not sighted at Waitpinga (Parks site), but were present at most of the remote sites on the southern coastline of the Fleurieu Peninsula, where previously (last season) dogs were not sighted. At 13 sites foxes are deemed to be of greatest concern; at others stock are a prevalent threat (e.g. all Tunkalilla sites); while at others, dogs off and on lead dominate the threat profile (e.g. Inman river outlet and Oliver's reef).

Photo: Glenn Ehmke

Table 11. Proportion of sites where threats were observed (sites are named in abbreviated form). Tracks and prints are included as evidence of threats, unless categorised separately.

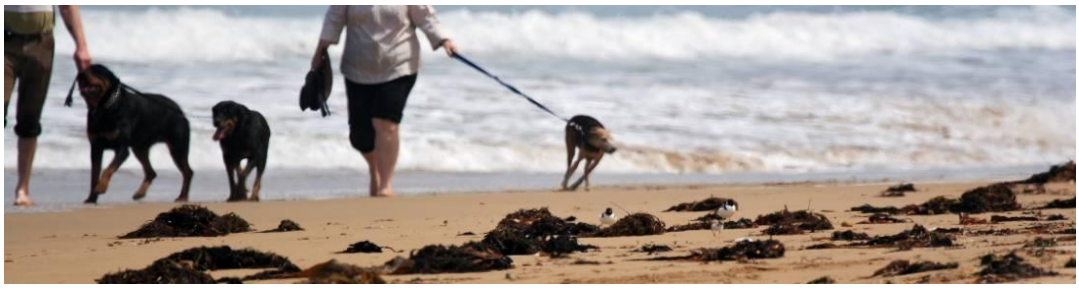
Threat	Prop sites present (31)	Detected at:	Not detected at:
Silver gulls	100% (31)	All sites	
People	100% (31)	All sites	
Pacific gulls	90.3% (28)	All sites, except for:	Ballaparudda, Carrickalinga North, Coolawang
Dog prints	83.9% (26)	All sites, except for:	Coolawang, Port Stanvac, Tunkalilla 1st alcove far east, Waitpinga – west and estuary
Foxes	71.0% (22)	All sites, except for:	Bashams, Carrickalinga south, Inman River, Maslins, Moana, Ochre cove, Port Willunga, Southport, Yilki
Magpies	71.0% (22)	All sites, except for:	Ballaparudda, Carrickalinga Estuary/Sands, Lands End, Moana, Myponga, Olivers Reef, Port Willunga, Southport, Waitpinga Estuary
Ravens	67.7% (21)	All sites, except for:	Ballaparudda, Callawonga, Maslins, Moana, Myponga, Olivers Reef, Port Stanvac, Port Willunga, Tunkalilla 1st alcove far east and midway
Dogs off lead	64.5% (20)	All sites, except for:	Ballaparudda, Callawonga, Coolawang, Parsons, Port Stanvac, Sheepies, Tunkalilla 1st alcove east and midway, Waitpinga – east, west and estuary
Dogs on lead	64.5% (20)	All sites, except for:	Ballaparudda, Callawonga, Coolawang, Lands End, Parsons, Port Stanvac, Sheepies, Tunkalilla 1st alcove far east, Tunkalilla east, Waitpinga – west and estuary
Birds of prey	64.5% (20)	All sites, except for:	Carrickalinga - Estuary/Sands, North and South, Inman River, Lands End, Moana, Olivers Reef, Port Stanvac, Tunkalilla – 1st alcove far east and midway, Yilki
Vehicles (tracks and sightings)	51.6% (16)	All sites, except for:	Ballaparudda, Bashams, Carrickalinga North and South, Lands End, Maslins, Parsons, Port Willunga, Sheepies, Tunkalilla 1st alcove far east and midway, Waitpinga - east, west and estuary, Yilki
Native mammal prints	35.5% (11)	Ballaparudda, Callawonga, Coolawang, Lands End, All Tunkalilla sites, Waitpinga – east and west, Yilki	All other sites
Stock prints	22.6% (7)	Ballaparudda, Callawonga, Sheepies, Tunkalilla – 1st alcove far east, east, west and midway	All other sites
Permitted vehicles sighted	16.1% (5)	Moana Beach, Myponga, Port Stanvac, Southport, Yankalilla	All other sites
Non-permitted vehicles sighted	3.2% (1)	Tunkalilla west	All other sites
Horses	3.2% (1)	Hindmarsh River Mouth	All other sites

The recreational activities that people were observed participating in at sites appears as a summary in Table 12. The most frequently recorded recreational activity was walking/jogging, followed by dog walking, and sitting/sunbaking. Recreational activities have shifted in relative frequency since last season, where previously surfing/swimming was the second most frequent recreational activity but has since become the fourth most frequently observed.

Table 13 provides a site by site summary of prevalence of potential threats, which allows us to identify beach user groups across sites and determine necessary management responses needed at sites (e.g. fox control). Some sites have more static recreational users, such as anglers (Waitpinga and Parsons beaches), while most other sites are dominated by mobile recreationalists (e.g. Hindmarsh and Yankalilla river mouths). Some sites have a range of user types (e.g. Shelley beach – Lady bay).

Table 12. The main activities people were observed using the beaches for. In total, there were 3,514 (81.4%) people at the water's edge, 611 (14.2%) on the beach, 2 (0.05%) observed inside signed/fenced areas and 188 (4.4%) in the dune.

Human recreational activity (of 4,315 people observed)	**% intensity**
Walking/jogging	39.9% (1,720)
Dog walking	27.5% (1,187)
Sitting/sunbaking	27.4% (404)
Surfing/swimming	10.8% (466)
Fishing	7.2% (311)
Playing games	3.3% (143)
Driving	1.9% (84)



Pair with chick run to cover as people with dogs pass closely by. Photo: Glenn Ehmke

Table 13. The prevalence of potential threats to Hooded Plover at sites monitored. Prevalence refers to the how frequently that threat was observed (# times/# visits). Threat prevalence is categorised as heavy, moderate, sparse or rare according to the percentage of time recorded. Common activity is derived from observations of the most common recreational activities at sites.

Site (number of threat assessments)	Heavy threats (>50%)	Moderate threats (20-50)	Sparse threats (<20%)	Rare threats (<6%)	Common activity
Ballaparudda (13)	Foxes, people, native mammals	Silver gulls, birds of prey, stock	Dog prints		Walking
Bashams Beach (92)	People, silver gulls	Dogs on, pacific gulls	Dogs off, magpies	Ravens, birds of prey	Dog walking, walking, fishing
Callawonga (10)	Foxes, people, native mammals	Stock, vehicles, silver gulls, dog prints	Magpies, pacific gulls, birds of prey		
Carrickalinga Estuary/Sands(16)	Dogs off, people, silver gulls	Dogs on, ravens	Foxes, pacific gulls	Vehicles	Walking, dog walkers, sunbaking/sitting
Carrickalinga North (11)	Dog prints, people, ravens, silver gulls	Dogs off, foxes	Magpies, dogs on		Sunbaking/sitting, walking, surfing/swimming
Carrickalinga Rotunda (22)	People, dogs off	Silver gulls, ravens, dogs on, magpies	Foxes, pacific gulls, vehicles	Birds of prey	Walking, sunbaking/sitting
Carrickalinga South (10)	People, dogs off, silver gulls	Ravens	Dogs on, magpies, pacific gulls		Walking, sunbaking/sitting
Coolawang (16)	People, foxes	Silver gulls, Magpies	Vehicles, ravens, birds of prey, native mammals		Walking
Hindmarsh River Mouth (98)	People, dogs on, dogs off, silver gulls		Magpies, foxes, pacific gulls, ravens	Horses, vehicles, birds of prey, stock	Walking, dog walking
Inman River Outlet (15)	Silver gulls, dogs off, people	Dogs on, pacific gulls, vehicles	Ravens, magpies		Walking, dog walking, sunbaking/sitting
Lands End (11)	Foxes, silver gulls, people	Native mammals, dog prints	Ravens, Dogs off, pacific gulls		Surfing/swimming, walking
Maslins Beach (17)	Dogs off, people	Dogs on, silver gulls	Magpies	Pacific gulls, birds of prey	Walking, dog walking
Moana Beach (11)	People, dog prints, silver gulls	Vehicles	Dogs on, pacific gulls		Surfing/swimming, driving, sunbaking/sitting
Myponga Beach (22)	People, dog prints	Dogs off, silver gulls, vehicles	Dogs on, pacific gulls	Foxes, birds of prey	Walking, dog walking, sunbaking/sitting
Ochre Cove, Maslins (54)	People, dog prints, silver gulls	Dogs off	Mapgies, dogs on, pacific gulls	Vehicles, birds of prey, ravens	Dog walking, walking, sunbaking/sitting

Site (number of threat assessments)	Heavy threats (>50%)	Moderate threats (20-50)	Sparse threats (<20%)	Rare threats (<6%)	Common activity
Olivers Reef (24)	People, dogs off, silver gulls, foxes	Dogs on		Vehicles, pacific gulls	Walking, dog walking
Parsons Beach (31)	People, silver gulls, foxes	Ravens, pacific gulls	Magpies, dog prints, birds of prey		Surfing/swimming, fishing
Port Stanvac (10)	Foxes	Pacific gulls	Vehicles*, silver gulls, magpies, people*		Industrial site with limited access
Port Willunga (10)	Dogs off, people	Silver gulls, dogs on	Pacific gulls, birds of prey		Dog walking, walking
Sheepies beach (22)		Silver gulls, magpies, people, foxes	stock	Ravens, dog prints, pacific gulls, birds of prey	Walking
Shelley Beach (lady bay) (23)	People, dog prints, silver gulls, foxes	Ravens, pacific gulls, vehicles	Dogs, off, magpies, dogs on	Birds of prey	Dog walking, fishing, people playing games, walking
Southport (10)	People, silver gulls, dogs off	Vehicles, dogs on, pacific gulls	Ravens, birds of prey		Walking, surfing/swimming
Tunkalilla 1st alcove far east (13)	Foxes, magpies, stock, native mammals	People	Silver gulls, pacific gulls		-
Tunkalilla east (34)	Foxes, people, native mammals, stock	Magpies, silver gulls, pacific gulls	Vehicles, birds of prey, people, dog prints	Dogs off, ravens	Walking
Tunkalilla west (22)	Foxes, people, pacific gulls, stock, native mammals	Silver gulls, magpies, dog prints	Vehicles, ravens, birds of prey	Dogs off, dogs on	Walking, driving, sunbaking/sitting
Tunkalilla midway (23)	Foxes, people, native mammals, stock	Silver gulls, pacific gulls	Magpies, dog prints,	Dogs off, dogs on	Surfing/swimming, sunbaking/sitting, walking
Waitpinga Beach (east) (34)	People, silver gulls, ravens, pacific gulls, foxes	Magpies, native mammals	Birds of prey	Dogs on	Fishing
Waitpinga Beach (west) (32)	People, silver gulls	Pacific gulls, ravens, foxes		Birds of prey, native mammals, magpies	Fishing, walking,
Waitpinga Estuary (12)	People, silver gulls, pacific gulls	Ravens, foxes	Birds of prey		Fishing, walking

Site (number of threat assessments)	Heavy threats (>50%)	Moderate threats (20-50)	Sparse threats (<20%)	Rare threats (<6%)	Common activity
Yankalilla river mouth (19)	People, dog prints, silver gulls, foxes, ravens, vehicles	Pacific gulls	Dogs off, magpies, birds of prey	Dogs on	Walking, dog walking
Yilki (91)	People, silver gulls, dog prints	Dogs on, dogs off, pacific gulls, magpies		Ravens, native mammals	Walking, dog walking

Table 14 provides the average number of people and dogs sighted, both off and on lead. Hindmarsh river mouth, Yilki, Moana beach and Southport had the highest number of people present on average. Oliver's reef had the highest number of dogs off lead on average, and at Maslins beach, the number of dogs off lead was almost five times greater than the number of dogs on lead.

A montage of the threats a Hooded Plover encountered in a few hours on a busy beach. Photo: Glenn Ehmke

Table 14. Mean (± standard error) number of people and dogs on and off leash observed at sites.

Site (number of assessments)	Number of people	Number dogs on lead	Number dogs off lead
Ballaparudda (13)	0.08 ± 0.08	0.00 ± 0.00	0.00 ± 0.00
Bashams Beach (92)	2.77 ± 0.37	0.51 ± 0.09	0.39 ± 0.12
Callawonga (10)	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00
Carrickalinga Estuary/Sands (16)	7.25 ± 2.14	0.50 ± 0.20	1.44 ± 0.39
Carrickalinga North (11)	13.00 ± 6.42	0.18 ± 0.18	1.27 ± 0.66
Carrickalinga Rotunda (22)	8.55 ± 2.40	0.36 ± 0.17	1.27 ± 0.27
Carrickalinga South (10)	8.00 ± 2.54	0.10 ± 0.10	1.20 ± 0.39
Coolawang (16)	0.13 ± 0.13	0.00 ± 0.00	0.00 ± 0.00
Hindmarsh River Mouth (98)	11.23 ± 0.99	2.15 ± 0.21	3.29 ± 0.32
Inman River Outlet (15)	6.20 ± 1.30	0.73 ± 0.30	1.67 ± 0.37
Lands End (11)	0.55 ± 0.37	0.00 ± 0.00	0.09 ± 0.09
Maslins Beach (17)	11.06 ± 3.06	0.65 ± 0.19	3.59 ± 0.60
Moana Beach (11)	30.27 ± 15.45	0.82 ± 0.46	2.73 ± 0.84
Myponga Beach (22)	4.95 ± 1.37	0.09 ± 0.06	1.05 ± 0.33
Ochre Cove, Maslins (54)	1.02 ± 0.22	0.26 ± 0.09	0.46 ± 0.11
Olivers Reef (24)	10.42 ± 1.93	1.29 ± 0.41	3.75 ± 0.55
Parsons Beach (31)	1.74 ± 0.65	0.00 ± 0.00	0.00 ± 0.00
Port Stanvac (10)	0.10 ± 0.10	0.00 ± 0.00	0.00 ± 0.00
Port Willunga (10)	10.10 ± 1.75	1.40 ± 0.69	3.70 ± 0.84
Sheepies beach (22)	0.09 ± 0.06	0.00 ± 0.00	0.00 ± 0.00
Shelley Beach (lady bay) (23)	0.61 ± 0.22	0.09 ± 0.06	0.22 ± 0.11
Southport (10)	22.60 ± 4.12	0.60 ± 0.22	1.30 ± 0.58
Tunkalilla 1st alcove far east (13)	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00
Tunkalilla east (34)	0.85 ± 0.66	0.00 ± 0.00	0.06 ± 0.06
Tunkalilla west (22)	0.77 ± 0.29	0.09 ± 0.09	0.18 ± 0.18
Tunkalilla midway (23)	2.04 ± 0.90	0.04 ± 0.04	0.00 ± 0.00
Waitpinga Beach (east) (34)	4.32 ± 0.80	0.03 ± 0.03	0.00 ± 0.00
Waitpinga Beach (west) (32)	3.28 ± 0.95	0.00 ± 0.00	0.00 ± 0.00
Waitpinga Estuary (12)	1.92 ± 0.61	0.00 ± 0.00	0.00 ± 0.00
Yankalilla river mouth (19)	0.74 ± 0.27	0.05 ± 0.05	0.16 ± 0.12
Yilki (91)	6.76 ± 1.29	1.33 ± 0.21	1.11 ± 0.34

Site Management and Awareness Raising activities during 2014/15

In the 2014/15 breeding season, the following activities were carried out:

Site management:

- The Hooded Plover Council Response Plans continue to guide the step by step process of management once a nest is found. These have now been adapted into the roles and responsibilities documentation which include the new Volunteer Regional Coordinators, see Appendix 1.
- New interpretive, permanent signs were developed for access points. They have been installed at South Port dunes, Maslin Beach, Port Willunga, Aldinga, and will

be installed at Myponga beach, Carrickalinga North, Carrickalinga, Normanville (including beach side caravan park and south shores), Shelly Beach, Morgans Beach, Lands End, Tunkalilla, Callawonga, Ballaparudda, Collawang beach, Sheepies, Encounter Bay (Yilki and Inman River outlet), Hindmarsh River outlet, Watsons Gap and Bashams Beach.

- Temporary fencing and signage around nests and chicks.
- Temporary signs communicating nest failure or chick hatching success.
- Schoolies signs at specific sites.
- Nest camera installation at Myponga Beach to determine nest fate.
- Thanks to the amazing efforts of Elizabeth Steele-Collins and her fundraising via her calendar 'Birds of the Fleurieu', a fox contractor was employed who made a significant dent on the local fox population. She also generously donated an additional $1000 of calendar profits to Hooded Plover conservation.
- Scientific Research Permit with NPWSA for monitoring, and BirdLife Australia have permits for capture and banding on the Fleurieu Peninsula, and for the biennial count and use of remote cameras on the Fleurieu. We are now combining to use just the one BirdLife Australia permit.

Volunteer and Community Engagement:

- There were six new volunteers who joined the monitoring program this season; three who will cover the south west coast of the Fleurieu Peninsula.
- BirdLife Australia and AMLR NRM Coast, Estuary and Marine officers held a workshop for volunteers and land managers at Yankalilla in August 2014. The workshop consisted of an update of the BirdLife Australia Program and the re-vamped online data portal, by Coast and Marine Program Manager, Dr Grainne Maguire; a Work Health and Safety session by Beach-nesting Birds Project Officer, Renee Mead; and communicating with people on the beach by Beach-nesting Bird Education Officer, Meghan Cullen. The day also consisted of a discussion around the possibility of having Volunteer Regional Coordinators, with the feedback being positive towards these new changes. Each participant was also able to attend a training workshop of their choice, from either; Shorebird ID, Engaging the public and local schools in hooded plover conservation, Hooded Plover behaviour and monitoring, nest and chick management, and dune and plant ID. This was followed by a beach visit to Carrickalinga Rotunda to observe hooded plovers. There were 32 people in attendance at this event.


Yankalilla workshop and beach walk to Carrickalinga Rotunda. Photos: Grainne Maguire

- Friends of the Hooded Plover Fleurieu Peninsula won the SA Coastcare award in 2013 and as a result were finalists in the National Landcare awards in Melbourne in 2014. Unfortunately the volunteers didn't win the big prize (handed out by Bob Hawke!) however it was a great opportunity to promote Hoodies, and volunteers Sue and Ashley Read attended and were on the Q&A panel as part of the National Landcare Conference.
- The BirdLife Australia Beach-nesting Birds team made several field visits (August and October 2014) to capture and flag Hooded Plovers as part of a broader national research project.
- In January 2015, BirdLife Australia and Deakin University ran an intensive banding field trip targeting Red-capped Plovers on the Samphire coast. The banding team consisted of Dr Mike Weston, Laura Tan, Daniel Lees and Kasun Ekanayake from Deakin University and Dr. Grainne Maguire from BirdLife Australia, and training was delivered to AMLR Natural Resources staff, Emma Stephens and Warrick Barnes, and two BirdLife Australia staff working on the Samphire Coast project, Aleisa Lamanna and Jean Turner. Over the course of a week, training included identification of shorebirds in particular red-capped plovers (males, females, juveniles), nest searching and monitoring, capture, handling and banding of red-capped plover adults and chicks, egg measurements and nest management.
- Emma Stephens delivered a Hooded Plover presentation to the NRM Coastal Ambassadors, and Corey spoke to Gleeson College students who have a camp at Normanville every year.
- Normanville Natural Resource Centre was involved with the Fleurieu Festival: street parade selling Hoodie biscuits, the Doors Project and Flashy Fleurieu Feathers events.
- Media including numerous articles in various magazines & newspapers, and radio interviews etc – promoting Hoodies, banding, Dogs Breakfast workshops etc

- Port Noarlunga Eco Beach Adventure Day – Hooded Plover stall, kids activities and giveaways. Over 200 dog leads were given away!

Volunteers Ashley Read, John and Wendy Cobb who helped out at the Port Noarlunga Eco Beach Adventure Day with a Hooded Plover stall, kids activities and giveaways. Photo: Emma Stephens.

- BirdLife Australia ran the Beach-nesting Birds National Conference at Point Nepean National Park (Victoria) in June 2015 where NRM (Emma and Corey) and BirdLife staff from Adelaide (Aleisa and Jean) attended this two-day event along with six volunteers from the Fleurieu Peninsula. Keith Jones presented at the conference on his research into oystercatcher distribution and impacts of human disturbance along the Middleton, Goolwa and Murray Mouth beaches. A more detailed report on the conference is available at: http://www.birdlife.org.au/documents/BNB-Overview-Conference-2015.pdf
- "Friends of the Hooded Plover, Fleurieu Peninsula" hats were designed and provided to all volunteers.
- An end-of-season catch up was held at Port Elliot hosted by the NRM – many volunteers and land managers had an enjoyable evening together sharing good food, and lots of Hooded Plover talk! We showcased all the Hoodie portal photos (and others) taken by volunteers on a powerpoint presentation playing throughout the night.

Activities from the Fleurieu Festival Top and left: the Doors Project. Bottom right: Hoodie biscuits. Photos: Wendy White.

Roles of each participating group in the coming breeding season:

See Appendix 1.

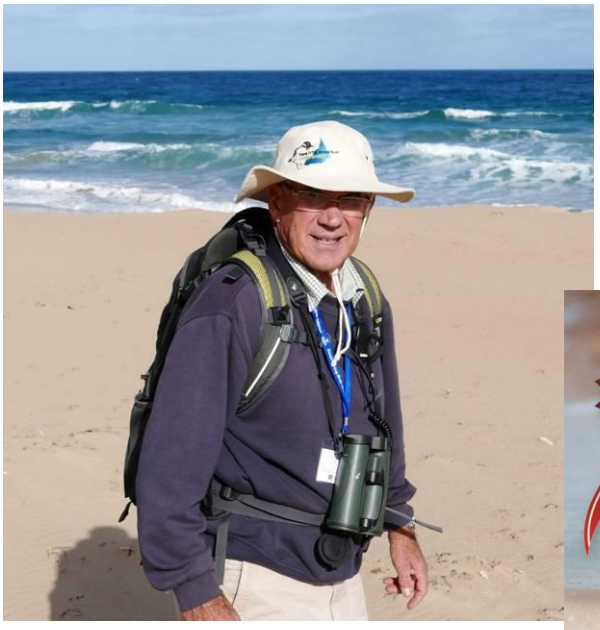
Acknowledgements

A huge thank you to all of the amazing volunteers who participate in Hooded Plover monitoring. The data collected is invaluable and helps us put into perspective how threatened each pair is and to adapt our managements to suit sites better. It also will help in future with any proposed planning or changes to regulations: statistics lend great weight to our submissions and recommendations.

Big thanks to Emma Stephens as the coordinator of Hooded Plover efforts on the Fleurieu Peninsula, to Corey Jackson and Emma for their site visits and assistance with site management, and to Tony Flaherty and the Adelaide and Mount Lofty Ranges NRM Board for their support and for recognising the importance of coastal biodiversity. Special thanks to the councils and rangers involved for protecting nesting sites and supporting the project and its volunteers: City of Onkaparinga, District Council of Yankalilla, DEWNR (Newland Head Conservation Park - National Parks and Wildlife SA), City of Victor Harbor and Alexandrina Council.

Special thanks to Terry Dennis for becoming part of BirdLife's banding program and making targeted trips to band chicks before they fledged.

A special thanks to the Normanville Natural Resource Centre Coordinator and volunteers for assisting with awareness raising events. Also to the Yankalilla Youth and Community Centre for providing a wonderful venue for our annual workshop.



Left: Volunteer David Thorn wearing his new Friends of the Hooded Plover Fleurieu Peninsula hat! Below: '*Fleurieu's father of the Year*' Certificate created by Volunteer Regional Coordinator Elizabeth Steele-Collins for DK, who managed to fledge four chicks this season. Photos: Elizabeth Steele-Collins.

Appendix 1:

Hooded Plover Program, Fleurieu Peninsula – Roles and Responsibilities

The Hooded Plover is a small beach-nesting bird endemic to the southern coasts of Australia. The eastern population, considered a separate subspecies, is entirely dependent on ocean beach habitats. This subspecies is listed as Vulnerable at both state and federal levels. On the Fleurieu Peninsula, Birdlife Australia in collaboration with the Adelaide and Mt Lofty Ranges Natural Resources Management Board and the four councils (City of Onkaparinga, District Council of Yankalilla, City of Victor Harbor and the District Council of Alexandrina) and DEWNR rangers have developed Hooded Plover Response Plans. These plans provide guidance to ensure that appropriate management takes a coordinated approach and follows best practice protocols for minimising risk to

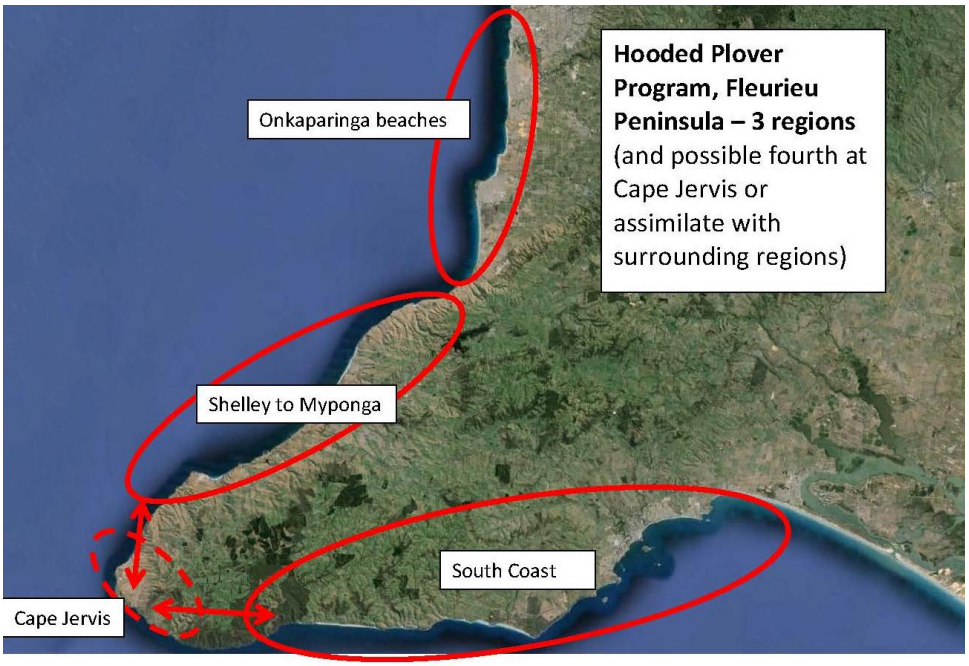
these disturbance-prone birds. This document is an updated plan which incorporates roles and responsibilities at each level of the program and also ensures a coordinated approach to appropriate management within the new framework. The program is largely a citizen science type project, where BirdLife Australia volunteers monitor and assist with on-ground conservation actions to facilitate recovery of the species.

There are 14 "Friends of the Hooded Plover" groups across Victoria and South Australia who fall within BirdLife Australia's National recovery program for the Hooded Plover (Eastern), including Friends of the Hooded Plover Fleurieu Peninsula. Each of these groups have a locally-based coordinator, and on the Fleurieu it has been an NRM-funded coordinator (since 2009) in the role of Coast Estuary and Marine Officer (Emma Stephens, and with assistance from Corey Jackson and the Coast and Marine NRM team). From 2006-2008 it was coordinated in a voluntary capacity.

On the Fleurieu Peninsula, the Friends of the Hooded Plover Fleurieu Peninsula form part of both BirdLife Australia's National Beach-nesting Birds program and the Adelaide and Mount Lofty Ranges NRM Board's Coast and Marine program. Hooded Plover recovery on the Fleurieu Peninsula is a multi-faceted approach and includes regular monitoring of breeding success, on-ground management of nest and chick sites, and education and public awareness campaigns. Recovery efforts on the Fleurieu align with national priorities. Consistency of actions, messaging and best practice protocols is maintained across the species range via coordination of regional groups by a centralised organisation, BirdLife Australia.

The initial vision for the creation of 'Friends of the Hooded Plover' regional groups across the eastern range of the Hooded Plover was to provide better support networks for volunteers by having a locally-based coordinator who lives locally within a given coastal community. And to also build a sense of belonging for volunteers to a group that they have potential to meet with. The long-term sustainability of Hooded Plover conservation depends on: 1) having a large network of volunteers who can share the load and have a range of skills and levels of commitment, 2) on building community 'ownership' of the species and associated coastal issues, and 3) providing continuity and future participation in conservation action independent of funding availability and the government prioritisations of the time.

As the Fleurieu Peninsula is geographically large, and the Friends group is growing in numbers, it is seen as beneficial to have 3 or 4 locally-based groups each with their own Volunteer Regional Coordinators who all feed into the Fleurieu Peninsula program. These areas would be the roughly "South Coast", "Cape Jervis", "Shelley to Myponga" and "Onkaparinga Beaches" (see map below). The boundaries of these 3 or 4 areas are not set in stone, and can be flexible to suit on an as-needs basis. Regional boundaries may be defined by council zones, or alternatively be based around the pool of volunteers and the distances they usually travel, or be centred around major townships where most beach users will be based, thus making these the hubs for 'community ownership' to evolve.



The Coast Estuary and Marine NRM Officer would be retained as the Program Coordinator for the Fleurieu Peninsula. BirdLife Australia would continue to maintain responsibility for volunteer safety, training and the national direction the program takes. The Program Coordinator and BirdLife Australia would communicate regularly with the Volunteer Regional Coordinators. While the Program Coordinator and BirdLife Australia would continue to be available for one-on-one contact with volunteers, this would become less frequent as the Volunteer Regional Coordinator becomes the first port of call for volunteers. This also enables the Program Coordinator and BirdLife Australia staff to tackle:

- broader strategic conservation issues,
- work with decision makers to ensure inclusion of Hooded Plovers into policy,

- planning and prioritisation schemes,
- provide training and resources for volunteers, land managers, decision makers and teachers,
- raise awareness, and
- analyse the data collected by volunteers and publish this research so that is widely available for use by managers across Australia and internationally.

The benefits of localised coordination, in the form of the Volunteer Regional Coordinator role, are more cohesive monitoring, more prompt communication compared to a single centralised coordinator across the whole project. There is also the capacity to build long-term relationships within the community and with local land managers to ensure the sustainability of Hooded Plover conservation over time. Having a local presence fosters the local community's adoption and ownership of Hooded Plovers and their conservation.

Positions:

- **National Coordinator** - BirdLife Australia (Beach-nesting Birds team: Dr. Grainne Maguire, Dr. Meg Cullen, Renee Mead)
- **Program Coordinator** – NRM Coast Estuary and Marine Officer(s) (Emma Stephens, Corey Jackson)
- **Land Managers: Councils and DEWNR National Parks** – City of Onkaparinga, District Council of Yankalilla, City of Victor Harbor, Alexandrina Council and Newland Head CP Rangers.
- **Volunteer Regional Coordinators** - (South Coast, Shelley to Myponga, Cape Jervis, Onkaparinga Beaches) – possibility of more than one coordinator for each region, taking on different aspects of the role.
- **Volunteers -** undertaking a range of activities (e.g. monitoring, biennial count, nest/chick site protection, liaising with beach users, assistance with events, school visits, mentoring)

Roles and responsibilities:

National Coordinator - BirdLife Australia:

- Develop and guide direction, consistency and coordination of the recovery of the Hooded Plover (Eastern) across the species range.
- Define and adapt population level, regional and local priority actions for species recovery. This is often independent of current recovery actions defined by Federal and State governments due to the time lag in policy updates.

- Define and uphold best practise protocols for monitoring, management and conservation messaging. Any change to current practises must be initially approved by BirdLife Australia in addition to program coordinator and land manager approvals required.
- Centralised data collection – operate citizen science program, standardised collection, training, analysis and reporting.
- Advisory role guided by research and centralised reporting of adaptive management (e.g. reports from across country come into central location that describe outcomes of different management scenarios or awareness campaigns).
- Work Health Safety (WHS), inductions and registration of volunteers. BirdLife Australia is responsible for volunteer training, conduct and welfare of all volunteers registered with BirdLife Australia. AMLR NRM Board assists with this where appropriate on the Fleurieu Peninsula under the direction and guidance of BirdLife Australia.
- BirdLife Australia, AMLR NRM Board and Regional Volunteer Coordinators (VRC) must all have initial communication with volunteers when they first register with the program.
- BirdLife Australia must provide new volunteers with the following information:
    - Steps to Becoming a Hooded Plover Volunteer,
    - Beach-Nesting Birds Risk Assessment Matrix – Fleurieu Peninsula
    - Beach-Nesting Birds Fire Management Plan
    - BirdLife Australia's Beach-Nesting Birds Volunteer Registration Form
    - Link or paper version of the online induction quiz, and
    - Hooded Plover monitoring guidelines.
- BirdLife Australia, with the assistance of program coordinators and VRCs, to ensure all volunteers have completed the Beach-nesting Birds Volunteer Registration Form and have undertaken the induction quiz (online or paper version).
- Provision of training workshops for volunteers including monitoring, management, education professional development, and wardening/public liaison training sessions.
- Expanding the national program and engaging new regions and locations in the program.
- Advocacy, submissions and policy advice, maintaining an independent voice for bird conservation.

- Banding program across Victoria and South Australia for Population Viability Analysis and other research questions. This includes permits, ethics approvals, banding, collection of morphometric data and genetic samples, as well as having responsibility for maintaining sightings database.
- Development of awareness materials, educational activities/study units (plus delivery).
- Liaise and provide support and advice to land managers, Program Coordinators, VRCs and individual volunteers.
- Advice to volunteers where needed.
- Emergency response action for bird injuries, entanglements or oil spill. Joint communication required between all levels of coordination to ensure timely response.
- Undertake actions in Service Agreement between AMLR NRM Board and BirdLife Australia.

Program coordinator(s) - Coast Estuary and Marine Team at the Adelaide and Mount Lofty Ranges Natural Resources Management Board:

- Work with BirdLife Australia on actions in Service Agreement between AMLR NRM Board and BirdLife Australia. Including annual training workshops.
- Main point of liaison with the land managers.
- Coordinate nest/chick protection with volunteers and land managers in locations where volunteer regional coordinators do not exist (following the steps listed below under VRC role).
- Assist BirdLife Australia and VRCs where required with inducting and training new volunteers.
- Liaises, jointly with BirdLife Australia, with VRCs and guides their involvement/direction.
- Act as key contact for AMLR region (Fleurieu and Metro) wide issues or those issues requiring government policy or decision making changes, e.g. predator control, identifying opportunities to consult with land managers regarding dog regulations, engaging with planners regarding new developments.
- Media and region-wide education campaigns – VRCs could also get involved with this.
- Individual volunteer correspondence where required/sought from volunteers.
- Advice to volunteers where needed.

- Monthly updates to Region-wide network (including more locally based dot points from the VRCs – only 1 or 2 points).
- Assisting BirdLife Australia (or their delegates) with banding opportunities where possible, with the aim of Emma Stephens attaining an R Class Licence and being added as a co-researcher on the BirdLife Australia banding permits.
- Liaise with local councils and rangers (Newland Head CP) regarding nest/chick management where appropriate and also liaise regarding roles of VRCs and volunteers.
- Provide training to Council compliance staff where needed.

Land Managers: Councils and National Parks (Newland Head CP)

- Provide approval for placement of temporary signage/and or fencing where relevant in relation to the step-by-step process mentioned below for nest/chick site protection. As part of this liaise with BirdLife Australia, Program Coordinators and VRCs and volunteers where relevant. Where possible/appropriate Council staff to assist volunteers with installing/removing fencing and signage.
- Assist with promoting Hooded Plovers in the wider community where appropriate.
- Assist where possible with additional dog regulation patrols where there are nests/chicks.
- Liaise with BirdLife Australia, AMLR NRM Board and DEWNR regarding any beach-management activities/events that may affect Hooded Plovers.

Volunteer Regional Coordinators (VRC):

The Volunteer Regional Coordinator leads the program on the ground and becomes the go-to person at a local scale.

- Recruiting new volunteers.
- Assist BirdLife Australia and Program Coordinators where required with inducting and training new volunteers.
- Mentoring new volunteers. Experienced volunteers can also assist with mentoring volunteers in Hooded Plover monitoring protocols and learning about the local sites and pairs.
- Where there are multiple volunteers, coordinating visitation to avoid double ups or connecting volunteers that monitor the same beaches so they can coordinate between themselves.
- Checking portal for accuracy of data throughout the season and for sites which haven't been checked.

- Nest/chick site protection, step-by-step process:
    - Volunteer finds nest/chicks
    - Volunteer contacts VRC to discuss management requirements.
    - If any variances to management protocol outlined in the Beach-nesting Birds Manual or if the birds occur at a new site that has not previously been managed, contact BirdLife Australia and Program Coordinator first. Beach-nesting Birds Manual: http://birdlife.org.au/projects/beach-nesting-birds/for-coastal-managers
    - VRC contacts council for approval of fencing/signage (Tunkalilla is the exception where the Council can be informed ASAP after management has been installed on the beach due to it being a remote beach and restricted access)
    - Volunteers/VRCs/staff assist with installing fencing/signage/chick shelters
    - VRC to email Program Coordinator and relevant council with a very short summary of management undertaken (i.e. one or two sentences).
    - VRC to ensure portal has been updated to show that protection has been put in place (required for data analysis and for updating site monitors).
- Identifying new stakeholders (using local knowledge) and discuss options of engagement of new stakeholders with Program Coordinator and/or BirdLife Australia.
- Identifying small local projects (e.g. weeds, community involvement, arts, etc) and applying for grants/delivering local project. Liaise with Program Coordinator, BirdLife Australia and land manager prior to initiating grant to ensure no overlap with current service agreements and to ensure proposal fits within the big picture of the program.
- Engaging local schools, where there is experience or interest from volunteers (note a Working with Children check will be required for any volunteers intending to work in schools)
- Community events (including schoolies) – look for opportunities to be involved and contact Program coordinator to discuss prior to organising event.
- Volunteer wardening at chick sites – liaise with Program coordinator and relevant Council prior to event. VRCs and volunteers should receive wardening training prior to being involved.
- Provide 1 or 2 dot points of interest at the end of each month to be collated by Program coordinator to send out to all volunteers and Project partners as a monthly update.

Volunteers:

- Complete Birdlife Australia WHS and induction process including volunteer registration form and induction quiz.
- Receive monitoring, management and wardening training from Program Coordinator or VRCs.
- Nest/chick protection: follow step-by-step process identified above under VRC role.
- Monitoring breeding success of Hooded Plovers, entering data onto the mybeachbird Portal, installing fencing/signage, talking with beach-goers where appropriate, assisting with community events. Where there is interest, volunteers could be involved in mentoring, grant writing, education in schools (Working with Children check required), etc.
- Opportunities to be more involved in shaping their region by working with Program coordinators and VRCs (e.g. a team visit schools, liaise with local businesses to build awareness/involvement, a hoodie sculpture, incorporate hoodies into big Fleurieu events, market stalls, group field visits to sites).

Annual debrief at end of breeding season: BirdLife Australia, Program Coordinator, Councils/Rangers, VRC and volunteers to review how things are going, and where assistance is needed etc. Perhaps face to face catch up at the end of the season with BirdLife Australia, Program Coordinator and VRC and possibly a Survey Monkey for everyone to be involved on how they think things are going, or what methods might be improved on etc.

Contact Details:

National Coordinator – BirdLife Australia
Suite 2-05, 60 Leicester Street, Carlton VIC 3053

- Dr Grainne Maguire, Coast and Marine Project Manager
  - grainne.maguire@birdlife.org.au
  - 0400 910 761
- Dr. Meghan Cullen, Conservation and Education Officer
  - Meghan.Cullen@birdlife.org.au
  - (03) 9347 0757

- Renee Mead, Project Officer
    - renee.mead@birdlife.org.au
    - (03) 9347 0757

Program Coordinator(s) – Natural Resources, Adelaide and Mount Lofty Ranges

- Emma Stephens, Coast Estuary and Marine Officer
    - estephens@holdfast.sa.gov.au
    - 0417 081 695
- Corey Jackson, Coast Estuary and Marine Officer
    - coreyjackson@yankalilla.sa.gov.au
    - 0438 846 488
- Coast and Marine Team at Natural Resources, AMLR:
    - 8273 9100

Land Managers

City of Onkaparinga:

- Nikola Manos, Nature Conservation Project Officer
    - Nikman@onkaparinga.sa.gov.au
    - 8384 0688
- Jock Conlon, Coastal Conservation Officer
    - Johcon@onkaparinga.sa.gov.au
    - 8301 7206, 0410 425 951
- Back-up / out of hours, Council's general number:
    - 8384 0666

District Council of Yankalilla:

- Corey Jackson, Coast Estuary and Marine Officer hosted at DC Yankalilla:
    - coreyjackson@yankalilla.sa.gov.au
    - 0438 846 488
- Peter Fowler, Infrastructure Planner:
    - PeterFowler@yankalilla.sa.gov.au
    - 0407 855 830
- Back-up / out of hours, Council's general number:
    - 8558 0200

City of Victor Harbor:

- Brian Doman, Manager Environment and Recreation
    - bdoman@victor.sa.gov.au
    - 8551 0525, 0414 838 591
- In Brian's absence: Andrew Comas, Group Leader Open Space
    - acomas@victor.sa.gov.au
    - 8551 0703
- For dog related matters: Stephen Bateman, Manager Health & Regulatory Services
    - sbateman@victor.sa.gov.au
    - 8551 0538
- In Stephen's absence: Trevor Button, Senior General Inspector
    - tbutton@victor.sa.gov.au
    - 8551 0546
- Council's general number and out of hours:
    - 8551 0500

Alexandrina Council:

- Lisa Kirwan, Environmental Project Officer
    - Lisa.Kirwan@alexandrina.sa.gov.au
    - 8555 7000, 0448 130 256
- In Lisa's absence: Bronson Symmonds, Coastal Maintenance Officer
    - Bronson.Symmonds@alexandrina.sa.gov.au
    - 0417 538 252
- Council's general number:
    - 8555 7000

Newland Head Conservation Park:

- Seiji Iwao, Senior Ranger Victor Harbor
    - Seiji.Iwao@sa.gov.au
    - 8552 0303, 0419 863 597
- Paul Unsworth, Ranger-in-charge, Fleurieu and Willunga Basin
    - Paul.Unsworth@sa.gov.au
    - 85520302, 0428 541 560

Volunteer Regional Coordinator contact details currently being compiled.