Beach-nesting Birds Management Strategy

birdlife TASMANIA

Australian Government

National Landcare Program

NRM SOUTH NATURAL RESOURCE MANAGEMENT

TASSIE SHOREBIRDS RESCUE

31 March 2018.

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This project is supported by NRM South through funding from the Australian Government's National Landcare Program and the Tassie Shorebirds Rescue crowdfunding campaign (2017).

This management strategy was developed using the Open Standards for the Practice of Conservation (2013).

Photo credits
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About SERSA

SERSA (the South East Regional Shorebird Alliance) is a collaborative organisation of multiple government and not-for-profit organisations that have been working to protect beach-nesting shorebirds across Southern Tasmania. NRM South's role in this collaboration is to drive the alliance and support regional activity.

Since 2013, SERSA have been working to educate the community, locals and visitors about the crisis facing our beach nesting birds. Funded through NRM South via the Australian Government's National Landcare Programme, SERSA works with schools, community groups, visitors, locals and interest groups to promote the message that beach users stick to wet sand, keep dogs on a leash, and to keep a respectful distance from shorebirds. SERSA's aim is to ensure that beach nesting shorebirds are able to recruit and maintain populations through successful breeding.

BirdLife Tasmania are an essential contributor to this work, having conducted shorebird surveys over many years and providing specialist advice on shorebird ecology that informs and assists SERSA in targeting priority conservation and advocacy activities for beach-nesting bird populations across various Tasmanian beaches.

In 2015, SERSA won the Tasmanian Landcare Government Partnerships award in recognition of its efforts.

Vision

Healthy and viable populations of beach-nesting birds happily co-existing with people in Tasmania.

Scope

This management framework applies to the Southern Tasmania geographic region, but is for the most part designed to be transferable across the whole State. The thematic scope of project is the conservation of beach-nesting birds.

Conservation Targets

The focus of this management strategy is beach-nesting birds in South-East Tasmania. While many shorebirds and seabird species inhabit or migrate to Tasmanian beaches for at least part of the year, only a handful rely on beaches in Tasmania for breeding. They are increasingly competing for the beach environment as a resource with human activity, as tourism and population continue to grow. This is exacerbated by the breeding season overlapping with the peak beach-going season for people.

It is thought that a gradual but steady decline, for the Hooded Plover at the very least, has been occurring for over forty years mainly due to a lack of recruitment (caused by anthropogenic impacts to eggs and chicks). This trend has been difficult to track due to them being a comparatively long-lived species for their size, difficulty in detecting them, and their large dispersed breeding territories making monitoring labour-intensive.

The seven key species that use beaches for nesting in South-East Tasmania are Hooded Plover, Red-capped Plover, Australian Pied Oystercatcher, Fairy Tern, Little Tern, Little Penguin and Short-tailed Shearwater. These targets have been clustered for the management strategy into 'territorial species' (Hooded Plover, Red-capped Plover and Australian Pied Oystercatcher), 'colonial species' (Fairy Tern and Little Tern) and 'other species' (Little Penguin and Short-tailed Shearwater). The 'other species' are both burrowing nesters and have been excluded from this management strategy due to them differing substantially in their ecology and a lack of knowledge of their colony locations. The Institute of Marine and Antarctic Studies (IMAS) is currently looking at a project to address this knowledge gap. The 'other species' are still profiled below as it is likely they will benefit from successful conservation actions taken for the 'territorial species' and 'colonial species' to some degree.

Territorial species

All three territorial target species are resident in Tasmania (i.e. do not undertake annual migrations). They can however move around in larger flocks during winter. Each of these species predominantly uses distraction and camouflage as protection from predators, in contrast to the defensive techniques frequently used by species such as the Masked Lapwing (previously known as the Spur-winged Plover). A common distraction technique used when a perceived threat (e.g. a person and/or a dog) approaches a nest site is to leave the nest and lead the perceived predator elsewhere. When alerted to danger by their parents, chicks will crouch or run to hide in depressions or amongst beach components such as vegetation or seaweed. All three species can lay replacement clutches within the breeding season, following failure or success if conditions and resources allow. Both parents are involved in incubation and chick rearing. Chicks are precocious however the Australian Pied Oystercatcher also feeds it's young until fledging.

Hooded Plover, *Thinornis rubricollis*

The Hooded Plover is a medium-sized plover with a short, straight and sturdy bill. It predominantly inhabits sandy ocean beaches on Australia's southern coastline, and inland salt lakes in South West Australia. One to three (very occasionally four) eggs are laid in a shallow nest scrape in sand and/or shell grit. Breeding occurs as dispersed pairs, with territories 0.3 – 2 km in length. Egg-laying occurs over a couple of days, incubation is 26-31 days and chicks typically fledge within 33-36 days.

Red-capped Plover, *Charadrius ruficapillus*

The Red-capped Plover is a small plover with short, fine bill. It is found in a variety of habitats adjacent to aquatic environments across Australia, including coastal beaches and lagoons, and inland wetlands. One to three (very occasionally four) eggs are laid in a shallow nest scrape in sand, shell grit, mud or stone, which may be lined by other items such as grass, saltbush or twigs. Breeding may occur as dispersed pairs or in loose colonies. Incubation is 30-31 days.


Australian Pied Oystercatcher, *Haematopus longirostris*

The Australian Pied Oystercatcher is a large, robust shorebird with a long, straight, heavy bill. It occurs around the entire Australian coast except where beach environments are replaced by sheer cliffs, preferring sand, shell grit, mudflat and pebble substrates. One to three eggs are laid. Nest sites are similar to the Hooded Plover but can also include shingle, rock, mudflat and saltmarsh, and may be lined in a similar fashion to Red-capped Plover nests. Australian Pied Oystercatchers show high site fidelity. Incubation is 26-29 days, with fledging of chicks at 7-8 weeks of age.


Colonial species

Fairy Terns and Little Terns have suffered dramatic population declines in Tasmania. The two species often nest together in colonies, and only have eight known colony sites in South-East Tasmania. Both species are contrary in their colony site selection year to year and are extremely susceptible to colony abandonment if disturbed. Throughout their range they have also suffered from deliberate destruction of their nests and nest protection measures such as fencing and signage. Little is known of their movements around Australia, with some thinking that they may respond to climatic factors. Both parents are involved in incubation and chick-rearing, one to four eggs are laid and incubation is approximately 30 days for both species. Terns do not have the same tendency as territorial species to replace clutches.

Fairy Tern, Sternula nereis ssp. nereis

The Fairy Tern occurs along the Western Australian and Southern Australian coastlines and appears to be at least partly migratory. Breeding occurs between September and February. Colony sites include beaches, spits, and banks, and feed almost entirely on fish. Fish nurseries can be an important factor at colony sites.

Little Tern, *Sternula albifrons*

The Little Tern is found around the Australian coastline, except in the South-West. It is a migratory species, with 90% of the population thought to overwinter in Asia. Colony sites are similar to the Fairy Tern. Breeding occurs between September and January. The Little Tern has a more varied diet, and feeds on insects, crustaceans and other invertebrates, as well as small fish.

Other species

Other species that may benefit from management strategies designed for the target species above include burrowing colonial species such as the Little Penguin and Short-tailed Shearwater.

Little Penguin, *Eudyptula minor*

The world's smallest penguin species, the Little Penguin occurs on southern Australian coastlines. It also occurs in New Zealand. Little Penguins nest in burrows, custom-made nest boxes, and under ledges, buildings and vegetation. Colonies vary in size and burrows are also important during the annual moult. There have been incidents where entire colonies have been killed by a roaming dog in one night. Increasingly, there are reports of Little Penguins being harassed by tourists for photographs, including pulling them out from their burrows.

Short-tailed Shearwater, *Ardenna tenuirostris*

Short-tailed Shearwaters colonies are often adjacent to or overlap with Little Penguin colonies. Short-tailed Shearwaters form very large flocks and migrate annually from Tasmania to overwinter in the Arctic and North Pacific.

Table 1. Conservation status of species.

Cluster	Target	Conservation status		
		State	Federal	IUCN
Territorial	**Hooded Plover**		Vulnerable Marine	Vulnerable
	Red-capped Plover		Marine	Least Concern / Unknown
	Aust. Pied Oystercatcher			Least Concern / Unknown
Colonial	**Fairy Tern**	Vulnerable	Vulnerable Marine	Vulnerable
	Little Tern	Endangered	Marine Migratory	Least Concern / Decreasing
Other species	**Little Penguin**		Marine	Least Concern / Stable
	Short-tailed Shearwater		Marine Migratory	Least Concern / Decreasing

Key Ecological Attributes

Identifying 'key ecological attributes' is a way of defining the current health or status of our conservation targets or target clusters, and what the management strategy aims to achieve. Table 2 shows the key ecological attributes (KEA) for this management strategy. The territorial species only have KEA that relate to the Hooded Plover, as this species has the best baseline data, the most concerning conservation status and is identified as a priority in the Federal Government's *Threatened Species Strategy*. However, due to the similar nesting ecology of the three territorial species, the actions for the Hooded Plover can apply for the Red-capped Plover and Australian Pied Oystercatcher as well. The Red-capped Plover and Australian Pied Oystercatcher are likely to have disappeared from some coastal locations but there is insufficient data to demonstrate population declines.

Table 2. Key Ecological Attributes for target clusters.

Target cluster	Key Ecological Attribute	Indicator
Territorial species	Population trend of Hooded Plovers	Number of adults
	Breeding success of Hooded Plovers	Number of chicks fledged
Colonial species	Geographic distribution	Persistence of known colony sites
	Population trends	Breeding population

The KEA process involves assessing what is considered to represent a realistic poor, fair, good or very good status (Table 3).

Table 3. Current and desired status for Key Ecological Attributes.

Key Ecological Attribute	Poor	Fair	Good	Very good	Current	Desired
Population trend of Hooded Plovers	Rapidly decreasing	Decreasing	Stable	Increasing	Decreasing (FAIR)	Stable (GOOD)
Breeding success of Hooded Plovers	Decreasing	Stable	Slowly increasing	Increasing	Stable (FAIR)	Slowly increasing (GOOD)
Geographic distribution of colonial species	7	8	8	9	8 sites (FAIR)	8 sites (GOOD)
Population trends of colonial species	Rapidly decreasing	Decreasing	Stable	Increasing	Rapidly decreasing (POOR)	Stable (GOOD)

It is important to note here that loss of beach-nesting bird habitat due to global warming has not been factored into what is a realistic desired status. This would require analysis of population and sites beyond the scope of this project (preparation of this management strategy). The impacts that global warming is likely to pose are included in the threats section below. These threats are likely

to limit the success of actions to mitigate the threats relating to human activity on beaches. Further information on this can be found in DPIPWE (2016).

In future, prioritizing actions at sites that will be less affected by global warming may be prudent.

Threats

Unfortunately, the threats to beach-nesting birds in Tasmania are many (Table 4). Most, however, relate to human activity, so have the potential to be influenced. It should be noted that this table excludes threats to Fairy and Little Terns that occur outside of Tasmania.

Table 4. Threats for clustered targets, linked to Key Ecological Attributes.

Target cluster	Key Ecological Attribute	Stress	Direct threats
Territorial species	Breeding success of Hooded Plovers	Eggs and chicks fail	Human recreation Dogs Cats Horses Stock Vehicles Native predators Storms Storm tides Heat wave Seaweed collection
		Reduction in suitable nesting sites	Sea level rise Storms Coastal development Coastal engineering Seaweed collection Sea spurge
	Population trend of Hooded Plovers	Anthropogenic mortality	Dogs Cats Vehicles Microplastics Marine debris and litter
Colonial species	Population trends	Colony abandonment	Human recreation Dogs Cats Horses Vehicles
		Anthropogenic mortality	Dogs Cats Vehicles Marine debris and litter
	Geographic distribution	Reduction in suitable nesting sites	Sea level rise Storms Coastal development Coastal engineering

Human recreation

The effect of disturbance on all five target species associated with human recreation is well documented. All beaches in South-East Tasmania have some level of visitation. The pairs breeding in the remote sites do not necessarily fair dramatically better, and are more sensitive to disturbance than pairs that have habituated to some degree.

1.28 million visitors came to Tasmania between September 2016 and September 2017 (not including those arriving by cruise ship), an increase of 8% from the previous 12 months. Tasmania's population jumped 2.9% between 2011 and 2016, increasing to over 519,000.

Human recreation impacts beach-nesting birds by causing disturbance during important activities such as feeding, incubating eggs and brooding chicks. Eggs and chicks can die from being crushed, overheating or chilling. In addition, energy is expended responding to disturbance.

Dogs

Dogs are generally perceived by birds as more threatening than humans, even when small and quiet. Thus, the potential for disturbance is greater. Disturbance increases exponentially when dogs are off lead and running, often in an unpredictable fashion (birds can detect whether predators are walking towards them or past them). Similarly to human disturbance, this means that eggs and chicks are not tended, energy is expended running or flying, and feeding is interrupted.

In addition, dogs actually chase and kill birds on the beach, and find and eat or crush eggs. If nests do survive a visit from a dog, it is thought that the scent of the dog can lead other predators to the nest site long after the dog is gone.

Cats

Feral/stray cats have been caught on camera traps predating on Hooded Plover nests in Victoria. While the same work has not been done in South-East Tasmania, feral/stray cats have been seen on beaches in the vicinity of nesting Hooded Plovers. It is feasible that feral/stray cats predate on Hooded Plovers and their eggs and offspring in South-East Tasmania as well.

Horses and Vehicles

The riding and exercising of horses on beaches can directly affect the survival of adult birds, chicks and eggs by crushing them, in addition to causing disturbance. Vehicles have the same impact. Hooded Plover chicks have been known to shelter within wheel ruts, increasing the chance of being crushed.

Native predators

Gulls and ravens are generalists that benefit from human modification to the landscape. This has increased their numbers over time. The threat of predation by gulls and ravens is thought to be more of a problem on mainland Australia but can be a worsened at Tasmanian sites with high levels of disturbance. While native carnivores such as Tasmanian Devils and quolls may predate on eggs and

chicks, this is not thought to be occurring beyond the background levels that beach-nesting birds have evolved with.

Global warming

Storms and storm tides

While beach-nesting birds have evolved in the presence of storms, the severity and frequency of storms is predicted to increase with global warming. During storms, incubating birds must stay exposed to the elements, keep their eggs warm and work hard to prevent sand burying their eggs, if they are to keep them viable.

Large waves and storm tides have the potential to wash eggs and chicks away that are otherwise beyond the high tide mark. They can also modify the shape of the beach at high-energy sites, rendering the site marginal for breeding at least in the short term.

Sea level rise

Sea level rise causes erosion of habitat, potentially eliminating habitat altogether. It can also further the reach and impact of storm tides.

Heat waves

Heat waves are a dangerous time for the beach-nesting birds. Due to the tendency for beaches to be very busy in hot weather, human disturbance is increased right at the time when eggs are most vulnerable to over-heating. During times of heat wave, the parents work constantly to cool the eggs, taking turns to dip their bellies in cool water and incubate the eggs. If this behaviour is interrupted by human disturbance, the chance of the eggs not remaining viable is high.

There has also been some suggestion that there is less prey available to shorebirds when water is warmer.

Storm damage to beach

As well as the impacts listed above, storms can damage the beach by causing large-scale recession of sand that is not easily replenished. At some sites, storms have led to large volumes of kelp covering the beach.

Coastal development

The impact of coastal development is two fold. As well as degrading the habitat, coastal development (including 'eco-tourism') leads to an increase in human disturbance, vehicles and dogs on beaches. Over 80% of Australians live in areas close to the coast – with a growing population, the pressure on coastal areas increases.

Coastal engineering

Coastal engineering can dramatically change the shape and structure of the beach environment, and change the dynamics of sand and sediment movement. In some cases, the habitat is eliminated altogether. Usually, works are conducted to allow for some sort of desired use such as allowing larger vessels to enter a

river mouth, or to prevent water from ephemeral creeks sitting stagnant adjacent to areas popular for recreation.

Seaweed collection

Decomposing beach-washed seaweed is an important source of food and shelter for the arthropods that Hooded Plovers and Red-capped Plovers feed on. Items such as seaweed also form part of their nesting sites by affecting the structure of the upper beach and are used to decorate and navigate nest scrapes. As well as removing this resource, seaweed collection can also cause human disturbance (see above). Seaweed is currently a popular source of fertilizer for home gardens and the State Government regulates harvesting for private use and commercial industry.

Sea spurge

Sea spurge, *Euphorbia paralias*, is an introduced coastal weed that invades the upper beach and dune. Sea spurge reduces the suitability of beaches for nesting by forming dense infestations and changing their shape and structure.

Microplastics

It is currently unknown what the impact of micro-plastics are when ingested attached to or within prey items. At the time of this report, the threat of micro-plastics was a potential area for post-graduate study at the Institute of Marine and Antarctic Studies.

Marine debris & litter

All shorebirds and seabirds are at risk of entanglement in marine debris and beach litter. In 2018, a Hooded Plover in Victoria was rescued and a human hair removed from its leg, after the hair had started to affect the health and function of the leg. Within a month of that incident, five Australian Pied Oystercatchers were entangled in fishing line in New South Wales.

Management Actions

Each of the goals and associated actions below relate directly back to the identified threats to the key ecological attributes. Performance indicators in this section are set at a realistic level of accountability for each action, while the overall success of the management strategy is outlined in the next section.

Goal 1: To maintain optimal habitat conditions for Hooded Plover.

Action	Who	When	Performance indicator
Maintain an inventory of Hooded Plover nesting beaches	SERSA	On-going	Inventory is maintained
Consider the impact of erosion and inundation on Hooded Plover habitat and integrate it into site prioritisation processes	SERSA	On-going	Nesting beaches in the inventory are ranked according to vulnerability e.g. 'traffic light' ranking
Conduct clean up events for marine debris, beach litter and sea spurge	SERSA, community groups, aquaculture industry	Annually, winter	At least three events conducted
Treat large infestations of sea spurge	Land managers	As required	Monitored sea spurge infestations are smaller
Support research into the impact of microplastic ingestion on shorebirds	SERSA, BirdLife Tasmania, IMAS[1]	When possible	Improved knowledge of impact
Work with the State Government to ensure over-harvesting of seaweed does not occur	SERSA	During consultation and/or in response to over-harvesting	Participation in consultation relating to the commercial fishery
Advocate for the strengthening of legislation to require containment of domestic cats	SERSA, BirdLife Tasmania	On-going and during formal consultation phases	Participation in consultation relating to cat management

[1]IMAS = Institute of Marine and Antarctic Studies

Goal 2: To prevent the further loss of known nesting sites for colonial species.

Action	Who	When	Performance indicator
Assess all eight known sites for nesting suitability/condition	BirdLife Tasmania	By 2019/20	All sites assessed and information provided to SERSA
Support NRM staff at Glamorgan-Spring Bay Council to ensure the sites are understood by staff and elected members	SERSA, BirdLife Tasmania	On-going	Staff and elected members are engaged and understand values
Work with the public and private land managers to ensure the sites are understood	SERSA, BirdLife Tasmania	On-going	Land managers are engaged and understand values
Advocate for the protection of the sites in the event of plans that threaten them	SERSA, BirdLife Tasmania	As required	Submissions are made as required
Raise the profile of the status of Fairy Terns and Little Terns in Tasmania by expanding the engagement focus on them	SERSA	Each SERSA meeting	Fairy Terns and Little Terns are a standing item on the SERSA meeting agenda

The eight remaining sites in the NRM South region for nesting Fairy Terns and Little Terns are:
Glamorgan-Spring Bay Municipality

- Kelvedon
- Denison
- Lisdillon
- Prosser (nesting may not occur in future, following the coastal engineering works in 2017)
- Rheban
- Little Swanport
- Bagot Point

Sorell Municipality

- Marion Bay

Advertising the exact locations of these sites should be treated with caution to prevent deliberate destruction.

Goal 3: To support known nests and colonies remain viable until chicks have fledged.

Action	Who	When	Performance indicator
Manage a shorebird guardian program that conducts on-ground activities such as direct engagement and installation of protection measures (fencing, temporary signage and chick shelters)	SERSA	On-going	Active guardian program
Workshop ways to protect highly mobile shorebird chicks	SERSA	2018/19	Workshop conducted
Raise awareness of Hooded Plovers and other beach-nesting birds among target audiences: dog owners, school children, beachgoers, tourists	SERSA	On-going	At least four events annually specifically targeting an identified audience
Advocate for enforcement of legislation relating to dogs, horses and vehicles on beaches, and refer serious impacts under the EPBC Act	SERSA, BirdLife Tasmania, Public land managers	On-going	Submissions are made as required
Seek funding to employ dedicated authorised enforcement officer/s	SERSA	2019/20	Funding secured
Conduct targeted beach engagement and/or enforcement at peak times (e.g. hot weather, weekends/public holidays, beach events)	Public land managers	At peak times during the breeding season	Targeted engagement and/or enforcement occurs
Provide advice to public land managers during reviews of dog exercise areas	SERSA, BirdLife Tasmania	On-going	Advice is provided when reviews occur
Restrict commercial seaweed collection to the non-breeding season at Hooded Plover nesting sites	Land managers	As required	No seaweed collection at nesting sites while breeding

Monitoring Overall Success

While the complete protection and conservation of beach-nesting birds is beyond the scope of just SERSA, it is the ultimate goal. Thus, it is important to discuss the true measures of success – population trends, breeding success of Hooded Plovers and the status of Fairy Tern and Little Tern colony sites.

Monitoring the status of the target species is also important to ensure emergency intervention can be considered before extinction occurs.

Maintaining knowledge of Fairy Tern and Little Tern colonies is relatively straight forward given there are only eight sites however it is labour-intensive. Resources should be allocated to this if possible. Monitoring of breeding colonies and their size is opportunistic, as it is difficult to predict when and where Fairy Terns and Little Terns will nest.

The analysis of Hooded Plover and Pied Oystercatcher population data for trends will give more insight into population status. There are two options in terms of the approach for this: estimating the populations overall to establish or assess against a baseline, or comparing the populations over time site-by-site (at every site or a selection of sites). It is important that a clear plan for data analysis is put in place rather than just conducting monitoring.

As well as case studies of individual nests that received nest protection works, counting the relative number of juvenile birds in State-wide winter counts gives an indication of Hooded Plover breeding success.

To really understand the status of Red-capped Plovers in Tasmania, research into the movements of this species between the coast and inland habitats is required. While not a core action for this management strategy, the results of this suggested research are crucial for the next iteration of this document if Red-capped Plovers are to be properly addressed.

Actions can be assessed against their performance indicators however, it is also recommended that actions are evaluated in a meaningful way within the SERSA group. Important considerations will include value for money, resources required, success in reaching the target audience, and behaviour change outcomes in the community.

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Federal threatened species list:
http://www.environment.gov.au/cgi-bin/sprat/public/publicthreatenedlist.pl

IUCN Red List:
http://www.iucnredlist.org/technical-documents/classification-schemes

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