Conservation Advice

Thinornis rubricollis rubricollis

hooded plover (eastern)

Taxonomy

The species is generally accepted as *Thinornis rubricollis* (hooded plover) (Christian, 1992). It was previously placed under the genus *Charadrius* (Gmelin, 1789). The re-classification of the genus was not without contention, and there is some debate over which species name, *rubricollis* or the historical *cucullatus*, should be used (Christidis & Boles, 2008). While general usage follows *rubricollis,* some texts use *cucullatus* (e.g. Clements, 2000).

Two subspecies are recognised by Birdlife Australia: *Thinornis rubricollis rubricollis* (hooded plover (eastern)) (Mathews, 1912) and *Thinornis rubricollis tregallasi* (hooded plover (western)) (Mathews, 1912) (Garnett et al., 2011). The subspecies occupy separate, non-overlapping regions of Australia's southern coasts, and exhibit slight plumage and morphological differences as well as differences in ecology and habitat (Marchant & Higgins, 1993). The western form is also found inland in Western Australia, in addition to a coastal distribution.

Conservation status

Vulnerable: Criterion 2 B1,(a),(b)(ii)(iii)(v); Criterion 3 A.

Species can also be listed as threatened under state and territory legislation. For information on the listing status of this species under relevant state or territory legislation, see http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl.

Reasons for conservation assessment by the Threatened Species Scientific Committee

This advice follows assessment of information provided by a Committee nomination based on information provided in the *Action Plan for Australian Birds 2010,* as developed by Birdlife Australia (Garnett et al., 2011).

Description

The hooded plover is a stocky, medium-sized wading bird about 20 cm long and approximately 100 g in mass. Adult males and adult females look alike and exhibit no seasonal variation. They have a black 'hood', a white 'collar' across the back of the neck bordered at the base by a thin strip of black, a black stripe that extends across the base of the neck and shoulders to the sides of the breast, pale brownish-grey upperparts and white underparts. When in flight, black and white colouring can be seen on the front and rear parts of the upper wing. Adults have a black-tipped red bill, red rings around the eyes, brown irises, and dull orange-pink legs and feet. There are slight morphological differences between the subspecies; the western subspecies has a longer bill and feet, and larger areas of black on the mantle (Marchant & Higgins, 1993).

Juvenile birds differ from the adults by having mainly dull grey-brown colouring on the head as well as lacking the thin strip of black at the base of the collar, lacking the blackish stripe that extends across the base of the neck and shoulders to the sides of the breast (Marchant & Higgins, 1993). They have dark brown edging on the feathers of the upperparts, a mostly black bill with a small area of fleshy-pink colouring at the base, and pale orange rings around the eyes (Marchant & Higgins, 1993).

Distribution

The hooded plover (eastern) is widely dispersed on or near sandy beaches in south-eastern Australia. Its range extends from Jervis Bay in New South Wales to Fowlers Bay in South Australia, and includes Tasmania and various offshore islands such as Kangaroo Island, King Island and Flinders Island (Marchant & Higgins, 1993; Garnett et al., 2011). Historical records from around Sydney (Hindwood & Hoskin, 1954) indicate that the eastern subspecies' range was previously more extensive than at present and contracted southward during the first half of the 20th century.

It is widely distributed around Tasmania's coasts and offshore islands, which have an estimated minimum breeding population of 600 breeding pairs, or 1200 mature individuals (Woehler, pers. comm., 2014). There are around 620 individuals in South Australia, two-thirds of which are concentrated on Kangaroo Island and Yorke Peninsula. It occurs in low densities in Victoria, which has about 570 individuals. It is very rare in New South Wales (NSW) in terms of both abundance and distribution, with a population of about 60 individuals (Mead et al., 2012).

Relevant Biology/Ecology

Hooded plovers may be observed singly, in pairs, family groups or flocks. The hooded plover (eastern) inhabits ocean beaches, particularly wide beaches backed by dunes with large amounts of seaweed, creek mouths and inlet entrances. It may also occur on near-coastal saline and freshwater lakes and lagoons, tidal bays and estuaries, on rock platforms, or on rocky or sandy reefs close to shore (Marchant & Higgins, 1993; Garnett et al., 2011).

It is largely sedentary with 95% moving over distances of less than 20 km, however is able to travel up to 330 km, based on mainland banding studies. Movement rates vary seasonally and geographically, being higher during the non-breeding season. Juveniles disperse across greater distances than adults. The extent of coastline used by an individual varies widely, but averages around 50 km in Victoria; fragmentation of the breeding population may therefore occur where habitat becomes unsuitable for more than ~50 km (Weston et al., 2009). There are no data on the dispersion of juveniles or adults in Tasmania.

The hooded plover (eastern) maintains relatively constant territories from year to year, and relies on a mix of breeding and non-breeding sites (Weston et al., 2009). On the mainland they have relatively large breeding territories of around 37 ha, to which they exhibit high fidelity. Nests are dispersed and often many kilometres apart (Marchant & Higgins, 1993; Garnett et al., 2011; Weston et al., 2009). In Tasmania nests are less dispersed with territories spaced about 1.3 km apart; territory size is dependent upon beach width and length .

It may form non-breeding flocks, usually up to 30-40 birds (Marchant & Higgins, 1993). Flocks appear to be concentrated at particular locations along the coast, and average 36 km apart (Weston et al., 2009). There are areas of coastline that are unoccupied during the non-breeding season but occupied during the breeding season, suggesting that there may be unique habitat features of flocking sites that support non-breeding flocks.

The eastern subspecies breeds on or near beaches, with nests located on flat beaches above the high tide mark, on stony terraces adjacent to beaches, or on the sides of sparsely vegetated dunes (Baird & Dann, 2003; Marchant & Higgins, 1993). Solitary nests are generally built in a depression in sand, which may be unlined or lined with beach materials. About 2-3 eggs per clutch are laid (Marchant & Higgins, 1993). Nests are known to move downhill up to about four metres, so that fore-dune nests may end up on the beach making them vulnerable to being crushed (Weston, 2003).

Adults are monogamous, with many pairs lasting for more than one breeding season. The eastern subspecies breeds from August to March, with some geographical variation evident (Marchant & Higgins, 1993; Garnett et al., 2011). Age at first breeding is estimated at 1.7 years, and generation time at 12.9 years (Baird & Dann, 2003).

Chicks are precocial, leaving the nest shortly after they hatch and able to start feeding almost immediately. Both adults brood the young from shortly after they hatch, and guide the chicks in hiding and anti-predator behaviour. Broods are mobile and move up to 2 km in a day (Weston, 2003). After fledging, juveniles often leave their natal territory and may travel hundreds of kilometres along the coast. Most begin breeding in the second breeding season after hatching, and may breed nearby or at considerable distances from their natal territory (Weston, 2003).

The diet of hooded plovers consists of polychaetes, molluscs, crustaceans, insects, turions and seeds. Foraging occurs during day and night at all levels of the beach, from the water's edge to the base of the fore-dune, and on lagoons and saltpans (Marchant & Higgins, 1993; Weston, 2003). Beach-washed seaweed may be an important component of their habitat, by providing food for invertebrates which plovers then prey upon (Weston, 2003). However, a recent study found no correlation between the abundance of seaweed and invertebrates, but that a larger sand grain size influences invertebrate abundances and this may be a factor in breeding habitat selection (Cuttriss, 2014). New-born chicks mainly feed on insects (Marchant & Higgins, 1993).

Threats

The hooded plover faces a number of threats, including:

- crushing or disturbance of eggs, chicks and nesting birds by human activities, particularly off-leash domestic dogs which also predate on flightless chicks
- predation by invasive species such as foxes (*Vulpes vulpes*)
- predation by native scavengers such as ravens and magpies *(Corvus spp.)*, currawongs *(Strepera spp)*, and silver gulls (*Chroicocephalus novaehollandiae*) which are attracted to areas of human activity due to the availability of food and rubbish
- indirect impacts of vehicles on prey availability
- beach wrack harvesting
- oil spills
- entanglements and ingestion of marine debris
- invasive weeds such as sea spurge (*Euphorbia paralias*), Marram grass (*Ammophila* spp.), sea wheatgrass (*Thinopyrum junceiforme*), pyp grass (*Ehrharta villosa*) and beach daisy (*Arctotheca populifolia*)
- inappropriate coastal erosion control measures such as brush matting
- impacts of seawalls and measures to protect infrastructure against rising sea levels
- limits to dune retreat due to residential and other buildings in the foredune, primary and secondary dunes
- increasing frequency and severity of extreme weather events such as storms and storm surges, which flood nests and erode suitable habitat
- future threats from sea level rise, resulting in further narrowing of the coastal zone.

These threats can significantly reduce breeding success, result in the loss of territories and fragmentation of habitat, and ultimately lead to local extinctions. Hooded plovers may remain at some sites and breed unsuccessfully year after year, or abandon sites after breeding failures (Government of South Australia, 2014).

The main periods of mortality are at the egg and chick stages. The adult survival rate is relatively high, at around 90% (Weston, 2003). Hatching success for the hooded plover (eastern) varies from about 17% to 31%, with mortalities mainly caused by human disturbance, predation and inundation by high tides (Marchant & Higgins, 1993; Baird &

Dann, 2003; Garnett et al., 2011). Of the eggs that hatch about 20% to 40% make it to the fledging stage, with the greatest loss of chicks occurring in the first few weeks after hatching (Baird & Dann, 2003). Causes of chick mortality include predation, crushing by vehicles and people, and dehydration/heat stress (Baird & Dann, 2003).

Egg predation is a major cause of breeding failure in many plover species (Baird & Dann, 2003). The hooded plover's habit of leaving the nest and not returning until the source of disturbance has disappeared renders, the eggs and chicks vulnerable to predators and to high and low temperatures (Baker-Gabb & Weston, 2006). The species' long incubation period in relation to egg size, of about 26 to 28 days, also exposes the eggs to a high risk of failure (Weston, 2003). The species' low breeding productivity makes it vulnerable to ongoing decrease (Baird & Dann, 2003).

Wandering livestock and beach erosion management reduce the availability of nest sites (Weston, 2003). Plovers may abandon a grazed and trampled site for several weeks regardless of their breeding status (Baird & Dann, 2003). Erosion control, which involves revegetating or covering exposed dunes with branches, has removed some hooded plover breeding habitat because steep, heavily vegetated dunes are unsuitable for nesting (Baker-Gabb & Weston, 2006). Invasive weeds also reduce the availability of nesting, roosting and foraging habitat by covering large areas of the beach and altering dune morphology.

The population of the hooded plover (eastern) is likely to continue to decline as threats facing it intensify with a growing human population, expansion of coastal development, and climate change. Recreational pressure on beaches has increased in the over recent years and is likely to increase in the future. Compliance with dog regulations on coasts is poor, with 82% of dogs on Victorian beaches off leash despite being in breach of the regulations (Williams et al., 2009). Vehicle access to beaches in South Australia and Tasmania is broadly unrestricted. There are increases in coastal access arising from coastal strip development and new roads, and the number of beach sites with no or limited access is rapidly declining. National Parks or Protected Areas do not confer a higher level of protection to the subspecies, as these parks often have equivalent or higher recreational pressure than non-protected areas.

Threats facing the subspecies are common across its range, but vary in intensity at each nesting site. Within a given park or coastal area there can be major variation in the threats experienced by each breeding pair (Maguire et al., 2014). Threats impacting different populations are related to access, distance to population centres, proximity of residential areas, and current coastal policies and planning. Intensive management actions are required to maintain some populations, for instance in NSW and areas of Victoria.

How judged by the Committee in relation to the EPBC Act Criteria and Regulations

Criterion 1: Reduction in numbers (based on any of A1 – A4)

A1. An observed, estimated, inferred or suspected population very severe ≥90%, severe ≥70% or substantial ≥50% size reduction over the last 10 years or three generations, whichever is the longer, where the causes of the reduction are clearly reversible AND understood AND ceased, based on (and specifying) any of the following:
   (a) direct observation
   (b) an index of abundance appropriate to the taxon
   (c) a decline in area of occupancy, extent of occurrence and/or quality of habitat
   (d) actual or potential levels of exploitation
   (e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites.

A2. An observed, estimated, inferred or suspected population very severe ≥80%, severe ≥50% or substantial ≥30% size reduction over the last 10 years or three generations,

whichever is the longer**,** where the reduction or its causes may not have ceased OR may not be understood OR may not be reversible**,** based on (and specifying) any of (a) to (e) under A1.

A3. A population size reduction very severe ≥80%, severe ≥50% or substantial ≥30%, projected or suspected to be met within the next 10 years or three generations (up to a maximum of 100 years), whichever is the longer, based on (and specifying) any of (b) to (e) under A1.

A4. An observed, estimated, inferred, projected or suspected population size reduction very severe ≥80%, severe ≥50% or substantial ≥30% over any 10 year or three generation period (up to a maximum of 100 years into the future), whichever is longer, where the time period must include both the past and the future, and where the reduction or its causes may not have ceased OR may not be understood OR may not be reversible, based on (and specifying) any of (a) to (e) under A1.

Evidence
Not applicable: past, current or future population declines are thought unlikely to exceed 30% in any three generation period. Ongoing declines in population size have been recorded for numerous subpopulations across the subspecies' range, with recorded declines ranging from 12-58% over a variety of time spans (Baird & Dann, 2003; Birds Australia, 2008). Birdlife Australia had previously recorded an average decline in the order of 30% in three generations, which initiated a recovery response in 2006. However, recent ongoing conservation efforts have reduced the rates of decline. The Action Plan for Australian Birds 2010 estimated the total decline in population size of the subspecies to be 10-20% in three generations (39 years), an estimate considered to be of high reliability (Garnett et al., 2011).

Criterion 2: Geographic distribution (based on either of B1 or B2)

B1. Extent of occurrence estimated to be very restricted <100 km^2, restricted <5000 km^2 or limited <20 000 km^2

B2. Area of occupancy estimated to be very restricted <10 km^2, restricted <500 km^2 or limited <2000 km^2

AND

Geographic distribution is precarious for the survival of the species,
(based on at least two of a–c)

a. Severely fragmented or known to exist at a limited location.
b. Continuing decline, observed, inferred or projected, in any of the following:
    (i) extent of occurrence
    (ii) area of occupancy
    (iii) area, extent and/or quality of habitat
    (iv) number of locations or subpopulations
    (v) number of mature individuals.
c. Extreme fluctuations in any of the following:
    (i) extent of occurrence
    (ii) area of occupancy
    (iii) number of locations or subpopulations
    (iv) number of mature individuals.\

Evidence
Eligible for listing as Vulnerable: the subspecies has a limited extent of occurrence; its geographic distribution is severely fragmented; there has been an observed continuing decline in the area of occupancy, extent and quality of habitat, and number of mature individuals. The 2010 Bird Action Plan estimated the extent of occurrence at 7900 km^2 (limited) and the area of occupancy at 3600 km^2 (Garnett et al., 2011). However, the hooded plover's habitat along beaches is very narrow and the area of occupancy is likely to be overestimated. Survey data since 1980 show large sections of sandy ocean shores not occupied by the subspecies. Its geographic distribution is severely fragmented, with major distributional gaps caused by unsuitability of habitat. Monitoring indicates that the extent of occurrence is stable, but the area of occupancy is decreasing (Garnett et al., 2011). Extensive areas of coastal habitat in Tasmania are no longer available to the subspecies for nesting, roosting or feeding due to degradation caused by recreational activities or invasive weeds. The gap between the northern and southern populations in NSW is widening, with approximately 120 km of coastline from Dawsons Beach to Wallaga Lake where the subspecies no longer occurs. Breeding pairs have disappeared from some sites on the Fleurieu Peninsula, South Australia, since 2006. The area of occupancy is expected to further decline as habitat degradation continues, population numbers decline, and the range of the species becomes further fragmented.

Criterion 3: The estimated total number of mature individuals is very low <250, low <2500 or limited <10 000; **and** either of (A) or (B) is true

(A) evidence suggests that the number will continue to decline at a very high (25% in 3 years or 1 generation (up to 100 years), whichever is longer), high (20% in 5 years or 2 generations (up to 100 years), whichever is longer) or substantial (10% in 10 years or 3 generations (up to 100), whichever is longer) rate; or

(B) the number is likely to continue to decline and its geographic distribution is precarious for its survival (based on at least two of a – c):
   a. Severely fragmented or known to exist at a limited location.
   b. Continuing decline, observed, inferred or projected, in any of the following:
      (i) extent of occurrence
      (ii) area of occupancy
      (iii) area, extent and/or quality of habitat
      (iv) number of locations or subpopulations
      (v) number of mature individuals.
   c. Extreme fluctuations in any of the following:
      (i) extent of occurrence
      (ii) area of occupancy
      (iii) number of locations or subpopulations
      (iv) number of mature individuals.

Evidence
Eligible for listing as vulnerable: the estimated number of mature individuals is limited and there have been observed substantial population declines. In 2010 the population was estimated at 3000 mature individuals; this figure is based on survey counts and considered to be of medium reliability (Garnett et al., 2011). Surveys suggest that the population is continuing to decline at the substantial rate of 10-20% in three generations, a trend that is considered to be of high reliability (Garnett et al., 2011). Very high population declines have been recorded in some areas, including: 33% across Victoria

from 1980 to 2008 (Birds Australia, 2008), 58% on Phillip Island from 1981 to 1997 (Baird & Dann, 2003), 20-30% across Tasmania from 1982 to 2014 (Woehler, pers. comm., 2014), 25% on Kangaroo Island from 1985 to 2004 (Dennis & Masters, 2006), and 55% across New South Wales from 1988 to 2008 (Birds Australia, 2008; NSW Scientific Committee, 2008).

Criterion 4: Estimated total number of mature individuals:

(a) Extremely low <50
(b) Very low <250
(c) Low <1000

Evidence
Not applicable: The total number of mature individuals is currently estimated to be approximately 3000, which is not considered extremely low, very low or low.

Criterion 5: Probability of extinction in the wild based on quantitative analysis is at least:

(a) 50% in the immediate future, 10 years or three generations (whichever is longer); or
(b) 20% in the near future, 20 years or five generations (whichever is longer); or
(c) 10% in the medium-term future, within 100 years.

Evidence
Note applicable: Population viability analysis has not been undertaken.

Public Consultation

Notice of the proposed amendment was made available for public comment for 30 business days between 14 May 2014 and 30 June 2014. Any comments received that are relevant to the survival of the species have been considered by the Committee.

Recovery Plan

There should not be a recovery plan for the subspecies, as significant research and management actions are being undertaken at national, state and local levels. Conservation advice provides sufficient direction to implement priority actions and mitigate against key threats.

Birdlife Australia, in partnership with land managers, government departments, volunteers and research institutes, has been coordinating a national conservation effort for the hooded plover (eastern). Recovery actions have been implemented at sites along the South Australian and Victoria coasts, and training has been carried out in NSW and Tasmania to ensure that recovery actions are consistent and underlined by best practice. Management is undertaken at the individual site level, as threats can vary between breeding pairs.

Regular surveys and detailed studies are being undertaken on the hooded plover's breeding biology (Birdlife International, 2011). Since 1980 the Australasian Wader Studies Group, a special interest group of Birdlife Australia, has coordinated a volunteer-based national hooded plover survey every two years during the breeding season on the mainland (Baker-Gabb & Weston, 2006). All suitable habitat along the eastern mainland from near Ceduna (SA) to Jervis Bay (NSW) are surveyed. Birdlife Australia also coordinates the monitoring of breeding success and site-based threats at over 220 beach sites across Victoria and South Australia. Birdlife Tasmania has run a Tasmanian monitoring program since 1982, with data collected from more than 260 beaches over a range of time frames.

An Action Statement has been prepared for hooded plover conservation in Victoria, and a draft Recovery Plan prepared for South Australia. The NSW government runs a Threatened Shorebird Recovery Program, which works with local groups to monitor populations and implement recovery actions. Thirteen Friends of the Hooded Plover groups operate across Victoria and South Australia, coordinated by Birdlife Australia. There is currently no Action Plan/Statement or Recovery Plan for the hooded plover in Tasmania, however various community groups collaborate with the Parks and Wildlife Service to fence small breeding pairs. There is considerable investment in public education by Birdlife Australia, the NSW National Parks and Wildlife Service, and the Adelaide and Mount Lofty Ranges.

Recovery and Impact avoidance guidance

Primary Conservation Objectives

1. Achieve stable numbers of adults in the population, and maintain a stable number of occupied and active breeding territories.
2. Improve breeding success, namely increase fledgling rates (which is a combination of improving egg and chick survival rates), via:
    a. reducing the destruction of nests and chicks, and the disturbance of breeding pairs, by human and human-related activities.
    b. reducing predation by feral animals and overabundant native predators.
3. Maintain, enhance and restore habitat, and integrate the subspecies' needs into coastal planning.

Important populations

All breeding territories and non-breeding flocking sites are of high conservation significance. Based on the density of birds and density of breeding sites, important stretches of coast include:

- in Victoria – Warrnambool to Portland (4.3%), Mornington Peninsula (2.3%), Bass Coast (San Remo to Inverloch) (1.6%)
- in South Australia – Kangaroo Island (5.8%), Yorke Peninsula (7.1%)
- in Tasmania – the NRM North region (17.3%), Flinders Island (6.7%), and King Island (4%).

The numbers in brackets are the approximate proportion of the total hooded plover population.

Important habitat for the survival of the subspecies

Habitat of primary importance includes open ocean beaches; sand dunes adjacent to beaches; tidal bays and estuaries; near-coastal saline and freshwater lakes and lagoons; rock platforms; and rocky or sandy reefs close to shore (Marchant & Higgins, 1993; Weston, 2003). Most of the habitat is on public land (Baker-Gabb & Weston, 2006).

Information required and research priorities

1. Determine demographic trends including population size, breeding success, and status and trends in breeding populations.
2. Determine levels of nest predation and breeding success, in areas with and without predator and stock control programs.
3. Identify the causes of chick mortality, and factors which may mediate chick survival rates.

4. Identify habitat availability and risk of habitat loss due to weed invasion, rising sea levels and dune morphology changes, via:
    a) incorporating coastal weed mapping data into a single data set
    b) utilising SmartLine for all population assessments; this maps coastal geomorphology and can indicate areas of coasts which are vulnerable to erosion and other weather/climate impacts
    c) integrating coastal weed, geomorphology and hooded plover (eastern) nesting territory data, in order to provide an assessment of threats from invasive weeds and erosion.
5. For each breeding site/beach, assess the relative impacts of different threats and the likelihood of threat management measures being successful, so that beaches can be prioritised for management.
6. Monitor the breeding and abundance of hooded plovers on an ongoing basis, ensuring that survey methods and data reporting are standardised as much as possible.
7. Undertake a population viability analysis to set breeding success targets for recovery programs.

Management actions required

Available information suggests that management actions should focus on improving reproductive success, specifically: survival of eggs, survival of chicks, and breeding habitat. Nests are relatively easy to manage in comparison with broods because they are spatially localised (Weston, 2003).

Suitable management options vary from one site to the next, due to variation in the occurrence and impact of threats between sites (Weston, 2003). In an evaluation of management options in Victoria, Weston (2003) found predator and visitor management to be the most broadly applicable options. The management of humans, dogs and introduced predators were expected to confer the greatest benefit, with management options for habitat and native predators not found to be highly effective.

Hooded plovers are adapted to high rates of reproductive failure. Therefore threats only need to be reduced, not eliminated, before a population will recover (Weston, 2003). Changes in hooded plover populations tend to occur slowly, presumably because adults are long-lived (Weston, 2003). Management measures should be implemented in a manner so as to not cause disruption to breeding birds (Weston, 2003).

1. Manage the use of (and access to) key beaches for recreation when plovers are breeding – e.g. discourage or prohibit vehicle access, horse riding and dogs from beaches; implement temporary beach closures; erect fencing to prevent people entering.
2. Adequately police beaches to ensure compliance with regulations, especially those relating to dog walking, and undertake a review of existing regulations to assess whether there is room for improvement.
3. Educate the public in research, monitoring, management and advocacy efforts.
4. Incorporate requirements for the hooded plover into coastal planning and management, and erosion control activities, including:
    a) limiting levels of urban development within the coastal zone
    b) adopting evidence-based best practice
    c) consulting with relevant state and local government departments, research organisations, and community organisations.
5. Construct fencing to prevent livestock entering beaches.

6. Implement predator control programs for invasive species where necessary.
7. Evaluate the efficacy of management techniques such as the use of chick shelters, predator controls, mechanisms to alter human behaviour on beaches, habitat restoration and maintenance, and identify areas for improvement.
8. Further develop methods for reducing or controlling rates of colonisation by invasive plants and rehabilitating dunes colonised by invasive plants, and establish trials to recover habitat degraded by marram grass (*Ammophila arenaria*).
9. Prepare oil spill response plans to ensure effective rehabilitation of oiled birds.
10. Reduce in-shore marine debris, including educating fishers and the public to properly dispose of fishing lines.
11. As a last resort, investigate control options for native predators such as ravens, magpies, currawongs and silver gulls, if their impacts are threatening a population and human activities cannot be sufficiently reduced to mitigate their impacts.

Recommendations

(i) The Committee recommends that the list referred to in section 178 of the EPBC Act be amended by **including** in the list in the vulnerable category:

Thinornis rubricollis rubricollis

(ii) The Committee recommends that there should not be a recovery plan for this subspecies.

Threatened Species Scientific Committee

03/09/2014

References cited in the advice

Baird B and Dann P (2003). The breeding biology of Hooded Plovers, *Thinornis rubricollis*, on Phillip Island, Victoria. *Emu* 103, 323-328.

Baker-Gabb D and Weston A (2006). *Draft South Australian recovery plan for the hooded plover Thinornis rubricollis*. Available on the internet at: http://www.amlrnrm.sa.gov.au/Portals/2/Part_D_Southern_Fleurieu_Action_Plan_lr.pdf.

Birdlife International (2011*). Species fact sheet: Hooded plover Thinornis rubricollis*. Available on the internet at: http://www.birdlife.org/datazone/speciesfactsheet.php?id=3144.

Birds Australia (2008). November 2008 biennial Hooded Plover count. Unpublished report. Birds Australia, Melbourne. Available on the internet at: http://www.birdsaustralia.com.au/images/stories/current-projects/bnb/Biennial_Report2008.pdf

Christidis L and Boles WE (2008). *Systematics and Taxonomy of Australian Birds*. CSIRO Publishing, Collingwood.

Clements JF (2000). *Birds of the World: A Checklist*, 5th edn. Ibis Publishing Company, California.

Cuttriss, A (2014). Breeding territory selection in an obligate beach bird; a test of the food resource hypothesis. Honours Thesis, Deakin University, Melbourne, Australia.

Dennis TE and Masters P (2006). Long-term trends in the Hooded Plover *Thinornis rubricollis* population on Kangaroo Island, South Australia. *South Australian Ornithologist* 34, 258–266.

Garnett ST, Szabo JK and Dutson G (2011). *The Action Plan for Australian Birds 2010*. Birds Australia, CSIRO Publishing, Melbourne.

Government of South Australia (2014). Submission in response to public consultation on the listing of *Thinorsis rubricollis* (hooded plover (eastern)). Adelaide and Mount Lofty Ranges, Natural Resources Management Board, Government of South Australia.

Hindwood KA and Hoskin ES (1954). The waders of Sydney (County of Cumberland), New South Wales. *Emu* 54, 217-255.

Maguire GS, Cullen M and Mead R (2014). Managing the hooded plover in Victoria: A site by site assessment of threats and prioritisation of management investment on Parks Victoria managed land. Birdlife Australia.

Marchant S and Higgins PJ (eds) (1993). *Handbook of Australian, New Zealand and Antarctic Birds. Volume 2 - Raptors to Lapwings*. Oxford University Press, Melbourne.

Mead R, Yarwood M, Cullen M and Maguire GS (2012). Report on the 2012 biennial hooded plover count. Birdlife Australia.

New South Wales Scientific Committee (2008). Hooded Plover *Thinornis rubricollis.* Review of current information in NSW. Unpublished report arising from the Review of the Schedules of the Threatened Species Conservation Act 1995. NSW Scientific Committee, Hurstville. Available on the internet at: http://www.environment.nsw.gov.au/resources/nature/schedules/HoodedPlover.pdf

Weston MA (2003). Managing the Hooded Plover in Victoria: a Review of Existing Information. Parks Victoria Technical Series 4, Melbourne.

Weston MA, Ehmke, GC and Maguire GS (2009). Manage one beach or two? Movements and space-use of the threatened hooded plover (*Thinornis rubricollis*) in south-eastern Australia. *Wildlife Research* 36, 289-298.

Williams KJH, Weston MA, Henry S and Maguire GS (2009). Birds and beaches, dogs and leashes: dog owners' sense of obligation to leash dogs on beaches in Victoria, Australia. *Human Dimensions of Wildlife* 14(2), 89-101.

Woehler EJ (2014). Personal communication by email, 30 June 2014. Chair, Birdlife Tasmania.